

STA314 HW2

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```
library(tidyverse)

## -- Attaching packages ----- tidyverse 1.3.1 --

## v ggplot2 3.3.5      v purrr  0.3.4
## v tibble  3.1.6      v dplyr  1.0.8
## v tidyr   1.2.0      v stringr 1.4.0
## v readr   2.1.2      v forcats 0.5.1

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

library(leaps)
library(glmnet)

## Loading required package: Matrix

##
## Attaching package: 'Matrix'

## The following objects are masked from 'package:tidyr':
##
##     expand, pack, unpack

## Loaded glmnet 4.1-4
```

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Question 2.1

```
set.seed(0)
n <- 1000
p <- 20
Model <- matrix(rnorm(n * p), nrow <- n, ncol <- p)
beta <- c(2,2,2,0.5,0.5,rep(0,15))
y <- Model %*% beta + rnorm(n)
data <- as.data.frame(Model)
data$y <- y
data
```

##	V1	V2	V3	V4	V5
## 1	1.262954285	-0.286851565	0.444345820	-0.538063805	0.7928027440
## 2	-0.326233361	1.841106893	0.011929380	0.496594634	-1.1373714047
## 3	1.329799263	-0.156764310	-0.009280045	-1.441966131	-0.2015088186
## 4	1.272429321	-1.389802635	-0.302377554	-1.112602325	-1.0223649221
## 5	0.414641434	-1.473103989	0.492355022	-1.014549137	-0.8237988442
## 6	-1.539950042	-0.069518934	-0.602719618	0.567363685	0.2414620672
## 7	-0.928567035	0.239241430	-0.682276520	-0.214051152	0.0976711728
## 8	-0.294720447	0.250419911	0.286737237	-0.458806910	-1.3039471371
## 9	-0.005767173	-0.264423950	0.165586356	1.928155201	-0.2892095401
## 10	2.404653389	-1.975399955	-0.842053935	1.359060602	0.5908818996
## 11	0.763593461	-0.449876006	-0.822113719	0.443659255	0.9456619401
## 12	-0.799009249	0.926465655	-1.429350824	-1.255290712	-1.2771020097
## 13	-1.147657009	-2.319971111	0.134741719	0.017669177	-0.1954256411
## 14	-0.289461574	0.613933550	0.629984088	-2.398631095	0.2021385696
## 15	-0.299215118	-1.473140132	1.120535377	-0.054226966	0.3435925589
## 16	-0.411510833	-0.219049185	0.922258127	1.363423779	1.1925815947
## 17	0.252223448	-1.403416293	2.108528331	-0.312195443	-1.6407906935
## 18	-0.891921127	0.820628408	0.796393670	-0.460385699	1.1586923023
## 19	0.435683299	-0.592726276	-2.673867900	0.392489598	-1.2911739337
## 20	-1.237538422	0.421968793	-0.228189977	1.757628013	2.0911425627
## 21	-0.224267885	-0.800152109	0.052822862	-0.681475565	-1.7538563329
## 22	0.377395646	-1.183201144	0.165821406	-0.205188933	0.0288283378
## 23	0.133336361	-1.509557290	-0.164382974	0.166402618	-0.3216924022
## 24	0.804189510	-1.155943109	2.222058088	0.554975667	1.2019153083
## 25	-0.057106774	-0.354855101	0.780272529	0.396505367	-0.2884328610
## 26	0.503607972	1.385451186	0.904523886	-0.388207265	-0.6691001931
## 27	1.085769362	0.569659859	-1.292999663	-0.113990026	0.3769593177
## 28	-0.690953840	-0.638495083	-2.078029480	0.153653721	1.1862554804
## 29	-1.284599354	0.239804446	0.762792048	1.361905119	-0.3809434127
## 30	0.046726172	-1.000774423	-1.768662113	1.030473548	-0.9729594744
## 31	-0.235706556	-0.615286634	-2.092527871	-0.816037386	-0.5827456018
## 32	-0.542888255	0.157730187	1.040937039	-0.105141980	0.3955331978
## 33	-0.433310317	2.684060804	0.725874333	-1.757454244	0.3979971537
## 34	-0.649471647	0.229467460	-0.873292285	0.202551854	-0.4178547781
## 35	0.726750747	0.100254667	-0.681909592	0.707471686	0.1482111776
## 36	1.151911754	-2.302512517	-0.816400702	0.451493408	0.0152662568
## 37	0.992160365	1.175894863	1.753333647	0.470213405	1.3348288060
## 38	-0.429513109	1.248369640	-1.492548200	0.521264731	1.7290198815
## 39	1.238304101	-1.623245918	-0.138713241	0.984016387	-0.1689863333
## 40	-0.279346282	-0.002656146	0.592539751	0.592798966	0.1134710894
## 41	1.757903090	-0.837264285	-0.033561260	-1.364731935	0.0896600801
## 42	0.560746091	0.118853245	-0.207406680	-0.639726414	-0.5932383420
## 43	-0.452783973	-0.501007298	-0.190824364	-0.059150127	-0.6432922843
## 44	-0.832043296	1.025344726	2.056954701	1.130710238	-0.8097819495
## 45	-1.166570547	0.217808213	-0.651173381	-0.302173898	0.4626888652
## 46	-1.065590580	0.085578656	-0.697760493	0.071589304	-2.3349126619
## 47	-1.563782051	0.387769029	1.046057726	0.161566497	1.0156492137
## 48	1.156536997	-1.817656629	-0.049920675	-0.706454336	-0.0252057603
## 49	0.832047129	-1.174550153	1.746908774	0.834410911	0.5045527477
## 50	-0.227328691	1.366606514	0.400194688	0.543839944	-0.1724265183
## 51	0.266137362	0.190588625	0.555978476	0.436414250	0.2001766718
## 52	-0.376702719	0.407143173	2.078951319	0.299386600	-2.1150441179
## 53	2.441364629	-1.405579071	-0.689031864	-1.352228435	0.7776393310

## 54	-0.795339117	2.172244168	1.335536264	-1.457500495	-0.5703110110
## 55	-0.054877474	-0.539542776	-0.597594163	-0.042985452	-1.0297305403
## 56	0.250141323	0.486887772	-0.067447107	0.575764703	0.0473982828
## 57	0.618243294	-0.261532000	-1.118574941	0.860610209	1.1404734196
## 58	-0.172623503	0.923313589	0.310520634	-0.363857360	-2.9014631242
## 59	-2.223900274	-0.910911965	0.412346115	0.483677713	0.0197277274
## 60	-1.263614385	0.983827544	-1.470685823	-0.718543230	0.3738169231
## 61	0.358728896	1.003069942	-1.335857619	0.097168047	1.7188022153
## 62	-0.011045478	-0.790760348	0.649779329	-1.683768266	-1.2066895864
## 63	-0.940649163	-1.658033573	-0.174650536	2.698926317	-1.6361088555
## 64	-0.115825322	0.400994752	-1.993010999	-0.119766588	0.2301781443
## 65	-0.814968709	-2.348004883	-0.330462315	1.533055214	0.5103299567
## 66	0.242263481	0.730477590	0.413252463	0.268424080	0.4404696382
## 67	-1.425098395	0.755255204	-1.087184334	-1.325459614	-2.0828854831
## 68	0.365941123	0.788566380	0.048162709	0.330330840	0.3211829966
## 69	0.248412649	-0.342063446	-0.643207659	0.778081103	-2.2961888636
## 70	0.065288182	1.823848892	1.397682518	0.642580751	-0.7922762641
## 71	0.019156392	-0.148140480	0.208124680	1.586255373	-0.2369260023
## 72	0.257338377	-0.971565897	0.583953051	0.666421509	1.0766295285
## 73	-0.649010078	-0.389138968	3.023596733	0.726884245	-2.5230875155
## 74	-0.119168762	-1.263656166	1.091335996	-0.055070003	0.1225415370
## 75	0.664135700	-1.278265506	-0.228666563	-1.459518395	-1.3394401894
## 76	1.100969102	0.204386956	-0.466368650	-0.946955743	0.0024326165
## 77	0.143771481	0.046567748	0.419783753	-0.466394563	0.9738979703
## 78	-0.117753598	-0.538768588	-0.415107559	0.168295347	1.0725411928
## 79	-0.912068367	-0.218683231	1.168557071	0.646868002	0.3117167217
## 80	-1.437586241	-0.155295420	0.793371128	0.753476320	1.9033758191
## 81	-0.797089525	-0.306256372	0.380697217	-0.910801446	0.9711326157
## 82	1.254083106	1.769289381	0.335054157	-1.116612535	0.9488565574
## 83	0.772142186	-0.593041995	0.460524337	-0.151147561	0.0685584438
## 84	-0.219515627	0.689431248	-0.053733233	-0.129410879	1.6931716174
## 85	-0.424810283	-0.340080187	0.346259672	0.857275302	-0.5062198752
## 86	-0.418980099	-1.061509942	0.222955610	-0.632693519	-1.2171551765
## 87	0.996986861	-0.939173204	-1.729891695	-1.306651474	0.5887495690
## 88	-0.275778029	0.156912588	-0.961006709	-1.118198638	1.4764814823
## 89	1.256018817	-0.571797205	-0.429170990	0.667215853	-0.5079808010
## 90	0.646674390	0.158199488	0.221645844	-0.139995247	0.1195185667
## 91	1.299312303	0.340690847	0.682797741	-0.614448600	-1.2319681935
## 92	-0.873262112	0.735364418	0.342167835	0.457700931	1.0456995833
## 93	0.008370960	-1.024828130	1.007165200	0.200416153	-1.1441793069
## 94	-0.880871723	1.363362141	-0.948486398	-0.379173927	1.0672518712
## 95	0.596259017	-1.915180723	-0.224625504	1.215483050	-0.4540531344
## 96	0.119717641	-1.923833752	-2.182837134	1.050731035	-0.9297220454
## 97	-0.282173877	1.135716960	1.063201110	-0.520237945	0.4071869824
## 98	1.455988401	1.241223614	-0.683058302	-0.275929440	-0.6033951780
## 99	0.229019591	-1.157504888	-0.642961431	-0.821561934	-0.3522313734
## 100	0.996543929	0.496621993	1.837217262	-1.155812250	-1.6659112036
## 101	0.781859185	-1.331908129	0.694811220	0.114872102	-0.4067143826
## 102	-0.776776622	1.592628620	-1.076390625	-0.237890383	-1.7318578677
## 103	-0.615989908	0.061958081	0.459203691	-1.022040171	1.5488055426
## 104	0.046580303	-0.145945861	-1.139876822	-0.806535736	1.1918414880
## 105	-1.130385778	-0.343735779	0.138643886	0.664886015	0.1905857353
## 106	0.576718782	-1.247170993	1.232261753	-0.401799313	0.2261731532
## 107	-1.280749432	0.843333960	1.830509655	2.637940327	0.7667423295

## 108	1.625447303	-0.002131136	0.318410673	0.375563782	1.6340116284
## 109	-0.500696596	0.491880850	0.773853808	-1.610045116	1.2452330176
## 110	1.678297208	-0.814033523	-0.629624566	-0.259696298	-2.0789254246
## 111	-0.412519887	-0.430486011	-0.768106402	-1.433880725	-1.1587191570
## 112	-0.972286836	0.236554399	-0.813066513	-0.882948672	-0.0061062195
## 113	0.025382868	-1.754225843	1.263764834	0.366174108	-1.2771027294
## 114	0.027475337	-0.952783830	-1.315654343	1.131245023	1.4206191212
## 115	-1.680182722	-0.628854148	-0.813798025	-1.173341654	0.9150329584
## 116	1.053750863	0.562778893	1.459961145	-0.211904864	-0.3766603250
## 117	-1.119599105	-0.953274417	0.480003125	-1.987438506	0.0327656315
## 118	0.335617210	-1.094557409	-1.587135837	0.732090530	0.8833144711
## 119	0.494795767	0.411517133	0.238737649	2.018562814	1.1422036694
## 120	0.138052709	-0.766182568	-0.406353055	0.815303627	0.0001060102
## 121	-0.118792026	1.006729041	0.825264955	1.477937043	-0.0089233148
## 122	0.197684262	-1.698899460	-1.164937017	-0.771232695	-0.3142691879
## 123	-1.068692711	-0.384019443	1.438925479	-2.220905312	-1.1217309465
## 124	-0.803213217	-0.808773130	0.224060911	-1.330255260	-0.1353182410
## 125	-1.113765136	-0.524889374	1.828273861	0.438160705	-0.6278115378
## 126	1.580091684	0.714887190	-0.372392142	-0.652542015	0.4629845640
## 127	1.497818761	0.702029289	0.079365064	1.109721242	0.2607220981
## 128	0.262645459	-0.768700129	-0.601685616	-0.059649540	-1.0350472997
## 129	-1.232901200	-1.877124097	0.163743770	0.834046226	0.2431082938
## 130	-0.003723534	-0.770522589	-0.194328978	0.152397217	0.2382650805
## 131	1.511672283	1.333966526	-0.292452802	0.156342857	-0.3968055455
## 132	-0.475698284	-0.020293545	0.616207347	1.062980475	-0.1561083837
## 133	0.797916438	-0.881977272	0.561015584	-0.574785276	0.5686310734
## 134	-0.974002561	0.008728021	-2.172103982	0.264003196	1.0679353556
## 135	0.689372698	0.822826091	-1.794765139	0.128222436	-0.4265124141
## 136	-0.955839103	1.847848780	0.588233838	0.234292761	1.4952005599
## 137	-1.231707058	0.541310354	-1.572572151	-1.289677959	-0.6740712677
## 138	-0.956891881	-0.990387611	1.023097892	-0.550564590	-1.6803389156
## 139	-0.869782874	2.277077020	0.075923839	-0.431656721	-0.9922090057
## 140	-0.910680682	0.088089367	-0.111459239	-0.622322573	-1.4924203541
## 141	0.741276305	1.421035780	-1.661785215	-0.455936485	1.4828376959
## 142	0.068511533	1.301798210	-0.670606877	0.991701202	1.2627622361
## 143	-0.323750755	-2.037916075	0.800619551	0.724313789	1.4739432337
## 144	-1.086503047	1.640861968	1.101119311	0.045588581	-0.4393238450
## 145	-1.015928947	-0.109926100	-1.248779945	0.039913065	-0.8334701261
## 146	-0.767790185	-0.837959393	0.883923403	-0.022381409	-0.6463068396
## 147	-1.119720061	0.074671122	1.091677453	0.497732293	1.2196103886
## 148	-0.448174237	0.081318426	-1.681956660	-0.698425017	0.6113671591
## 149	0.471736374	0.025691173	-0.384344340	0.405461942	-1.3555571905
## 150	-1.180490683	-0.147900751	0.115617078	0.059633654	0.0485278324
## 151	1.470256997	1.502843673	-0.307148834	0.711189433	-1.4605426691
## 152	-1.311420592	1.032092476	-0.682252163	1.360473171	0.5391692672
## 153	-0.096524923	0.337354695	0.435417274	0.977365555	-0.3233241131
## 154	2.369719908	-0.581434246	0.250775217	1.186837595	0.5844776948
## 155	0.890626476	1.244994894	2.255961745	0.794040960	0.2332686687
## 156	-0.252183161	0.690653149	-0.633142144	0.068739923	-0.2009466777
## 157	-0.865763755	-0.417081729	0.121634123	-1.863192655	-0.4958001731
## 158	0.582586000	-0.489816014	-0.927705602	2.363542161	-0.1526804427
## 159	-0.012529347	-0.242281385	-0.875632663	0.135451785	-1.6340347593
## 160	-0.374854762	-0.153078892	-0.269017211	-0.030727533	2.2493510950
## 161	0.317885735	0.390395215	0.682869143	-1.257672718	1.2692782895

## 162	-0.488805635	0.890180929	1.430435164	0.263328669	-1.2848335311
## 163	2.658658027	0.225088397	-0.377348936	-0.401630128	0.4976799148
## 164	1.680278205	-1.679291640	-0.794411941	-0.622775445	0.0158675685
## 165	0.779584009	0.360169527	0.260396142	-0.509062989	-1.5824932125
## 166	0.713240520	1.109479734	1.248038471	0.172282675	-0.3303941914
## 167	-0.542881937	-1.306214904	0.778845911	-0.630528636	-0.6761444709
## 168	0.885778374	-1.888023325	-0.030964452	0.779340815	0.6846153991
## 169	-0.348594685	0.793703174	-1.607829278	-0.056875552	-1.5135702341
## 170	-1.008054578	-0.384638164	-0.660208660	-0.703456313	0.7111677425
## 171	1.883182542	0.514865992	0.927057562	1.187478847	0.2263885980
## 172	-0.928971079	-0.237384993	1.023586754	0.348509904	-0.3976488241
## 173	-0.294196454	1.741510530	-1.217079611	2.295581060	-0.0390911588
## 174	-0.614950271	1.204177513	0.174986327	1.581678887	-2.1702773937
## 175	-0.947075792	0.655975020	-0.653398932	-0.568360324	-1.7177530841
## 176	0.598975150	0.839325950	2.015133813	0.523736397	-0.3947095128
## 177	-1.523614882	0.958668065	0.223503712	1.686378364	-0.8524537951
## 178	-0.206189002	1.135799570	-1.285040275	-1.425827527	-0.5664001377
## 179	-0.574295414	-0.925763153	0.483457992	0.089707629	-0.1962813681
## 180	-1.390166037	1.593617220	-0.479856056	0.191538235	-0.1633644442
## 181	-0.070417383	-1.415966920	-0.362424041	-1.371627196	0.6180663171
## 182	-0.430879530	-2.148470041	0.307533683	-1.351272289	0.0220887420
## 183	-0.592225373	-0.184970096	1.149452826	-0.264121642	0.6081567149
## 184	0.981116160	0.633953390	-0.962784803	0.755891709	0.5896193994
## 185	0.532409357	0.402342137	2.516074140	0.177636910	0.7601784723
## 186	-0.090456124	0.588949745	0.922189547	-0.078177728	1.2165510475
## 187	0.156490492	0.108808268	-1.793203100	0.506322424	-1.7575109652
## 188	-0.737311691	-0.597642161	-1.587110423	-1.847700201	0.2098414890
## 189	-0.201341206	0.148902158	-0.042850470	0.358560951	0.2684971712
## 190	1.102176595	1.811480863	-0.259892567	-0.550442856	-2.1016748383
## 191	-0.016748256	-0.271064093	0.387522763	-0.884564742	-0.9337889843
## 192	0.161788634	0.500359049	0.643742835	-0.434590644	-0.6684121993
## 193	2.024761390	0.497216117	-1.703471735	-1.546022169	0.0121256695
## 194	-0.703694254	1.228651798	1.145213060	0.141848162	-0.3232742897
## 195	0.960792384	-1.089333865	-0.388666069	-0.329839559	1.8103487931
## 196	1.790485054	-0.371810022	-0.197546348	-0.570175762	-0.6359461440
## 197	-1.064165163	0.291790766	2.592252087	0.199937920	-1.7389968859
## 198	0.017636546	-0.418050399	1.287147093	1.620637079	-0.0785176557
## 199	-0.389908629	0.184774465	-0.243945489	1.917581484	0.4097144565
## 200	-0.490832752	-0.250855312	0.006219053	0.783899016	-0.6588497940
## 201	-1.045717652	-0.959316423	-0.661850150	1.533280844	0.9121477074
## 202	-0.896211264	-1.620316650	-0.346816077	1.095803998	-0.2072450551
## 203	1.269387164	0.822513291	1.339732449	-0.696055412	1.1549458817
## 204	0.593840949	0.108712670	0.592419266	1.375186468	1.2779353609
## 205	0.775634319	0.760994764	0.718904016	-2.371809824	0.9265149450
## 206	1.557370376	-2.306256552	-0.411419278	-0.225759718	-0.0606564630
## 207	-0.365401797	1.064045133	1.162972940	0.144163170	-2.0133946658
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## 210	-0.501378318	0.537837906	-0.263459569	-0.523312669	0.2045882353
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## 217	-1.457707210	0.456530316	0.703279493	0.037303097	1.0430381695
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## 220	-1.624364530	0.106862379	0.099389564	0.648420738	0.4057058993
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## 595	0.287667139	0.224424832	1.063516808	1.751766841	2.6683983869
## 596	-1.505401124	-1.123831574	-0.326253323	-0.561473878	-0.5733021708
## 597	1.519297013	1.081743320	1.776473726	-0.630924134	1.2781672019
## 598	0.367409356	1.261542624	-1.643429013	-1.298699224	0.7697463552
## 599	1.699862409	0.818226074	-0.782347338	-0.031587831	0.3387310918
## 600	0.644196977	0.519058165	0.015476041	-0.563860202	0.9668411964
## 601	-1.687801029	-0.614495099	0.095308684	-0.269537143	-0.4433698645
## 602	0.647645994	2.827807696	0.991170347	-0.824461908	0.1184594752
## 603	0.448794227	1.500310421	0.428252039	1.040882518	-1.1099704624
## 604	1.026302158	-0.038203923	1.118213517	1.912058305	1.8490011217
## 605	1.074978223	-0.833422908	-0.739658147	1.925349154	-0.4265716954
## 606	0.458309613	0.441814995	-2.063933394	0.762465499	-0.1464006041
## 607	0.631586758	-0.361959366	0.389762625	-0.873223960	0.1343462600
## 608	-0.580466398	-0.393244089	-0.485376016	-0.029072782	1.1928594860
## 609	1.584192142	0.164743104	-2.224558324	-0.546880323	-1.5053103414
## 610	-1.763992940	-0.273551756	-1.186432400	-0.676927971	0.1279484655
## 611	-1.880621970	0.476402714	0.610182371	-0.375136240	-1.0580646774
## 612	-1.291719044	0.731150603	1.514145293	1.757770373	0.5457499931
## 613	0.909670446	-0.736171088	0.362078720	0.202131615	0.9422197129
## 614	-1.107755682	1.304384754	1.648398984	1.881376901	-0.4588511172
## 615	-0.384123875	0.419843803	0.089483884	0.100025774	-1.5853170670
## 616	0.082734834	1.505363585	0.728601985	-0.103704546	1.3070672223
## 617	-0.483882474	-1.907004959	0.554856588	-1.895913085	0.9765642937
## 618	-2.084741125	1.109305848	0.846200169	0.152491759	0.1989718462
## 619	1.167586964	-0.025426744	-0.310977943	-0.151863539	-0.5728314026
## 620	-0.076825771	0.080458145	0.851076071	-1.075306408	-0.9851562083
## 621	0.530421395	0.091011715	1.025925413	0.520711765	0.9206872305
## 622	0.004908796	0.355300704	0.316262389	2.563753988	-0.9175219330
## 623	-0.530231430	-1.545373709	-0.727586672	-1.351678740	-0.4027238016
## 624	0.102202410	-0.041057970	-0.552908490	-0.411773107	1.6070173632
## 625	0.815459636	0.084713385	-0.363337399	-0.687101907	0.0320427752
## 626	-1.506521863	0.815728506	-0.800390486	-0.363052589	-0.3587656089
## 627	-1.157180172	-0.345048343	-0.160847547	-0.563317412	-1.0183470806
## 628	1.301554937	0.048246132	1.786050683	-1.096272692	-1.3742605657
## 629	-0.905640775	-0.208132678	-1.946049821	0.658652501	2.0670871433
## 630	0.015563481	0.228801904	-1.337314054	-0.535056363	-1.5073974047
## 631	-1.428005197	-1.265159329	0.627200307	0.557510698	-1.5947886664
## 632	0.687979702	-1.621373600	-1.219597574	-0.060138356	-0.9665223079
## 633	0.594196501	-0.735241717	-0.677860949	-0.881709512	0.6546704133
## 634	-0.270315244	-1.681901459	0.314722125	0.092479732	-0.1688063465
## 635	1.554076076	1.464273955	0.869550666	1.044012894	1.0411559223
## 636	-0.510742458	1.576854885	0.889574059	-1.645993666	1.4457336014
## 637	-0.291842736	-2.666810612	-0.196429933	2.034232853	0.2598363394
## 638	1.101438165	0.039090399	-0.601043331	-1.727491799	0.3442078320
## 639	0.458665215	1.078576657	-0.173708938	-0.417032025	1.9205090128
## 640	0.851908039	-1.523092055	-0.890033827	0.128039351	0.6899699505
## 641	1.466199919	-0.224678300	0.251358259	0.019813955	-0.5639395414
## 642	0.243863295	-0.286800078	-0.132242204	-1.723745675	0.1529620392
## 643	0.649421934	0.267018252	0.196227576	-1.266198757	0.5581242675
## 644	-0.641118156	0.213084554	0.373121006	-0.273771472	-0.3380694889
## 645	0.464459771	0.519286617	-0.438822522	0.388474862	-0.1706405358
## 646	-0.309200447	2.004881988	-1.146581017	-0.459594966	-1.4495633322
## 647	1.276020709	1.068294112	0.092773571	1.116986413	0.5430653731

## 648	-0.047611220	-0.523849838	0.661013499	0.721380839	-1.1775914778
## 649	0.030101166	0.729769247	0.840569943	-1.630389450	-1.7557528379
## 650	-0.003580270	1.071810543	1.106005382	-0.883293215	2.6095408745
## 651	-2.034572643	0.884232239	0.592145423	0.554387193	0.6295182021
## 652	-0.992819963	-0.098990571	0.038351628	0.183853920	-0.3035496923
## 653	1.963858056	-2.041881656	0.143989982	0.184607996	0.2002394382
## 654	0.706528773	2.053746402	-0.105164837	-0.102004395	-1.0465262626
## 655	0.039674980	0.614858577	-1.044785156	1.458781292	-0.4100889736
## 656	-0.158518590	1.769555784	-1.484270704	-0.470404203	-1.2394763930
## 657	-0.162257551	1.344560429	0.165409460	1.820972343	-0.9219637586
## 658	0.438821912	0.328327464	-1.038068549	0.446364526	0.0074779785
## 659	0.780699292	1.038574647	0.454609335	0.287738614	1.5430321823
## 660	-0.981205622	0.716879995	0.640797584	-1.126559909	0.1733780917
## 661	-0.141585732	0.731480672	2.178518119	-0.341753867	0.2222745226
## 662	-1.256248953	0.902195698	0.691624541	2.491757649	-0.0336341383
## 663	-0.429033676	1.535925123	0.122333748	-0.479503919	-1.5786582703
## 664	0.508776266	-1.205443078	-0.141270383	-0.206898176	-0.0454771686
## 665	-1.446889743	-1.953715192	-0.777518724	-1.438790484	-0.5867333581
## 666	1.019512829	-0.429964735	-0.018539943	-0.606976403	1.3537659395
## 667	1.178546976	0.539067461	-0.112835622	-1.351139585	-2.1051903554
## 668	-0.010258765	-0.453723899	-0.317434648	1.044492794	-1.6499216448
## 669	0.268624871	-0.283667456	-0.151580071	1.280109388	2.0806401035
## 670	1.342028872	0.264618303	0.472664867	0.272972492	0.6051522223
## 671	-0.583606443	-0.719681891	0.296508769	0.039501488	-0.4726321823
## 672	-0.937000891	-0.474542158	0.384192726	-1.255477206	1.0574373213
## 673	-1.152157056	-0.124557807	-1.335915901	1.815334667	-0.5964655935
## 674	-0.975183431	-1.062580614	0.455115848	-0.172070354	0.7270644159
## 675	-0.711413598	1.964931586	-0.455627544	-0.707895609	0.3643515572
## 676	0.371912476	-1.771933072	-0.586935410	0.550601494	-0.9858359099
## 677	-0.943514417	0.909523056	-0.530433194	1.832042163	0.7141417500
## 678	-0.274367308	-1.879042521	0.814032595	0.247502713	-0.7820080136
## 679	0.154468494	-1.303376792	-0.469126531	-0.975096105	-0.5443986052
## 680	-1.288653202	1.174782608	-0.729109163	-0.269605267	1.2997933838
## 681	1.419102319	0.143984716	-0.300886287	1.974303662	-0.1180870530
## 682	1.307827762	0.719598783	1.603361064	-1.871629222	-0.2564654372
## 683	-1.804975774	0.530024225	0.091677531	0.221925467	-0.8098472375
## 684	-0.484069527	0.350105945	0.931194944	0.633188780	-0.3930545756
## 685	-0.373211780	-0.344855375	0.342681888	0.484906791	-0.1195914298
## 686	0.169085902	0.332256598	-0.233920744	-1.231201729	1.2597149198
## 687	-1.172983603	-1.788856476	0.672937781	0.523010118	0.5567909651
## 688	-0.376196737	-1.490763037	1.038904921	1.076920534	1.2625208818
## 689	0.783127640	-1.142110511	1.324465010	-0.120871592	-0.0800044195
## 690	0.991171304	0.209299120	0.392541300	0.133370845	-0.4084658280
## 691	0.229284475	0.162159503	0.025384921	2.301399622	-0.6409314900
## 692	0.336850949	0.008184724	-0.184260324	1.715914167	-0.1550737316
## 693	-0.647231999	-0.438708405	0.208957729	-0.259042578	0.4701393690
## 694	-0.443206682	1.135235729	0.820346143	1.066587969	0.7090934863
## 695	1.161751761	-0.126318575	1.323819978	-0.924824284	-0.6598134942
## 696	0.065051010	-0.528109312	0.989649026	0.196143514	0.7889473724
## 697	-0.682467580	0.818102205	-0.059079553	0.341212776	2.2585321039
## 698	1.634341658	-1.817400491	-0.044568763	1.142337549	1.2032629015
## 699	-0.584849244	0.172365800	0.672025677	1.402594032	1.4043674023
## 700	1.129936001	0.137942217	-0.783946769	0.374958531	-0.6550077554
## 701	0.581201043	0.814883723	-0.937405937	1.810310767	-0.9830610042

## 702	0.379293067	-1.466616391	0.436959284	0.359694442	2.0608436897
## 703	-0.310740876	0.439264692	0.361247320	0.802807855	0.2616594668
## 704	0.886390001	0.674155870	0.770435809	0.390510523	-1.7214737691
## 705	-1.641864750	-0.601031053	-0.098183676	1.198215304	0.7279974970
## 706	-0.988563742	1.984577381	1.288708793	2.782861281	1.2679717606
## 707	-0.244003429	0.174908188	0.433584943	0.984268996	0.7295603447
## 708	0.156056926	1.767877111	-0.894253961	-0.642657211	1.6334596118
## 709	0.102051958	-0.308973149	-0.666239268	-1.027637933	1.4278911222
## 710	-0.287458172	0.442747119	0.414639248	0.454174399	0.1652154469
## 711	-0.293194886	-0.834609138	0.463536424	-0.380960861	-0.6358968766
## 712	0.469477058	1.715631879	-0.282650750	-1.517565999	1.2967583426
## 713	-0.662588512	-0.235425279	0.460244053	-0.365104247	-0.7914898393
## 714	-2.190372666	1.178134979	-0.586643397	0.752566196	1.5231891578
## 715	0.003854672	0.324431255	2.395234315	0.092046355	0.2869606007
## 716	0.862942829	0.064208198	-0.241247653	0.847509967	-0.6136626283
## 717	0.980223359	1.560251817	-0.859584738	0.136969867	1.3881683843
## 718	-0.291724771	0.344360304	0.500416086	-0.516796491	0.3137017361
## 719	-0.061013476	-1.240882740	0.138557478	1.134804864	2.7328793066
## 720	1.511868401	-1.052772032	-0.443739703	-1.873067201	0.3984724497
## 721	-0.643609065	-0.430430782	-0.600657749	2.106230687	0.9174630586
## 722	-0.130950479	1.897956032	0.705694864	-0.699839663	-1.3888491721
## 723	0.485211453	-1.879180594	-1.349783905	-0.301763328	-0.2095291029
## 724	-0.645182435	-0.071640922	-1.157650828	0.591665022	-1.2572237137
## 725	-0.463956220	2.232839589	1.701450862	-3.115390885	0.2380142454
## 726	0.567249697	0.417585210	0.207304453	-0.666946683	-1.6595212589
## 727	-0.723407834	1.179985538	1.267715193	-0.313190393	0.6398075045
## 728	0.455884554	1.694488458	-1.950697017	-2.096389524	-0.3408678876
## 729	-1.197934626	0.948469498	0.283509931	0.334212256	-0.5327088546
## 730	-2.018180550	0.599024922	-0.625847773	-0.804293592	-1.2111510420
## 731	0.619723405	-1.534688691	0.590831457	0.191914185	-2.3831264114
## 732	-0.132857466	-1.907126951	1.495720115	-0.662729844	0.8674808015
## 733	-0.434960740	-1.135182758	-0.015103668	0.901175817	-0.0541090653
## 734	-0.521754179	0.033450286	1.275923026	0.298251975	0.1096405264
## 735	0.992288426	-0.136510238	-0.386446715	0.283150828	-0.9388834304
## 736	-1.085422408	1.280011887	1.513543568	-0.855772388	0.0488661455
## 737	0.959832414	0.142997759	1.295041953	0.538055211	0.8613754518
## 738	-1.039010541	-0.834164160	0.165478475	-0.899697142	-0.5669990082
## 739	-0.137841967	-0.512683474	0.688814992	-0.592563972	0.8244621482
## 740	-0.214708418	-1.905198033	0.344313503	-0.779962403	0.0668587115
## 741	0.573718585	1.506874988	0.340159595	-0.389182327	0.8420371388
## 742	-1.776449315	-1.679485022	0.162454503	0.351353555	2.6195134283
## 743	-0.256392295	0.977703631	0.786759423	-0.581078279	1.1744402370
## 744	-0.138550636	1.180757780	-0.110633581	0.987537090	-1.3111852584
## 745	0.557684974	1.307071194	-0.405204687	-1.397434874	-2.3479032243
## 746	1.122346289	0.190404684	0.495112465	-0.772648317	-1.7164440403
## 747	-0.982147207	-0.826422917	-0.417505825	0.296041221	-1.3293932547
## 748	0.326905556	0.987840519	-2.468550923	0.266865415	-2.0015230386
## 749	0.447826608	0.170720586	0.840822078	0.533186428	1.6365834157
## 750	1.183724120	-0.735182927	1.351836250	-0.054983762	0.3233087282
## 751	-0.088616917	0.182589646	1.222699765	-0.491752440	0.2527599246
## 752	1.146997880	0.821975601	1.519841615	0.442980539	2.5243751368
## 753	0.086812573	0.100816546	0.282758442	-0.339417153	-0.5616757872
## 754	-0.295005034	0.762868775	-1.551473233	0.671725161	-0.8551113753
## 755	0.512332939	-0.079096091	-0.471298200	-2.415724257	1.6990682906

## 756	0.283313635	0.657962825	0.584866968	-0.521772771	-0.7178294136
## 757	0.384543716	-0.522582629	-1.019230639	-2.003226960	0.1962241774
## 758	1.004804339	-0.875358162	-0.068561665	-0.669787318	-0.7635885927
## 759	-0.285965791	-0.604894535	-0.642465325	-0.103252370	-0.3498082214
## 760	-0.237339891	1.391125793	0.775554207	-0.304503468	-0.4650091701
## 761	-0.203674367	-0.313213222	0.050964990	-0.296318250	-0.8046896817
## 762	1.072472006	-0.433932651	-0.079491172	-0.498569778	-0.2447460565
## 763	1.950277786	0.777692822	1.717859293	-0.478061459	-1.5785977619
## 764	0.964454067	-0.285538467	0.489829332	0.711071907	-0.9303383299
## 765	1.038404588	2.521079402	-0.461808359	0.603869647	-0.2644347630
## 766	1.768873604	0.603329790	0.159953041	-0.727164542	1.2730840144
## 767	-0.571650147	1.733835432	1.030633053	1.504217337	-2.0384120356
## 768	-1.470282890	0.538407002	1.130032727	0.959733234	-0.4956885180
## 769	-1.110366445	-1.737361637	0.446139843	1.683096434	-1.2024138899
## 770	0.254403389	1.263473190	0.123550542	0.498468223	-0.8398401551
## 771	0.023344681	0.569851847	1.017838939	0.605896404	-0.2756606634
## 772	-2.715925295	-1.032964008	0.039870927	-0.344961529	-2.7422212689
## 773	1.185289251	0.565584525	0.858307701	0.160981257	0.0783220971
## 774	-0.219755198	0.983549854	0.806473398	1.441428263	-0.6457871964
## 775	-0.056672761	-0.908270382	-0.676963620	0.467430934	-1.3793748446
## 776	0.406564509	-1.292037549	-1.372732673	0.330655909	-1.3623735904
## 777	-1.309429950	0.772685635	0.673659048	0.457845714	-0.8915960887
## 778	-0.706691287	-0.765549224	0.556100894	-0.333740483	-0.4162236235
## 779	1.033891670	0.773837632	-0.393123793	-1.141140864	0.7774133114
## 780	1.972760967	1.024200734	-0.199665321	-0.119856737	0.5922588284
## 781	0.687525073	0.849142794	0.446776747	-0.766294426	-1.0096365674
## 782	0.738242550	0.199449127	0.685100824	-0.689574529	-0.9991873742
## 783	-1.708270232	-1.336344882	0.900553648	-2.112369038	-0.5535619055
## 784	1.052619791	0.360678647	0.472261039	1.722474967	-1.6485461935
## 785	1.123239109	0.139099351	0.332653999	1.510163892	-0.7019544115
## 786	-0.354592006	-0.833698289	0.953546268	-0.409599755	0.8221127271
## 787	0.188238853	-0.165219145	0.749919177	-1.307002463	0.2258613408
## 788	0.923800027	-1.051875795	0.303354714	1.213195523	0.3251912431
## 789	2.152700843	0.201068278	0.221734993	-0.164021933	0.2473776859
## 790	-1.109739343	-1.971229024	1.395814063	-0.215587911	2.0980642141
## 791	1.029508222	-0.311029855	2.919638288	0.624602127	-0.9102851519
## 792	1.377154750	0.457731534	0.107093138	1.428221346	-0.7187778569
## 793	0.914811052	-1.713996145	-0.066677885	-0.888393176	-0.2033638449
## 794	0.293623431	-0.817641995	-1.143123679	0.005450920	0.2011250264
## 795	-0.151738625	-0.409473254	-0.589357051	-0.127395315	-0.1729757899
## 796	0.164891440	1.108882624	0.478526485	-1.925649322	0.0576161765
## 797	0.868577431	2.059115051	-0.540043275	-0.308414243	-0.9048392327
## 798	-1.078034493	-0.096136937	2.498485859	-1.277613373	1.8098995921
## 799	-1.222331968	-1.125490655	-0.496727092	0.385594367	0.6702886337
## 800	-0.711444696	0.050200606	-0.432610498	-0.284447398	0.4693609037
## 801	-1.424031666	-0.183679589	-0.276507790	-0.100543033	-0.5696293861
## 802	-1.669344412	0.237403992	-0.854417512	0.309331635	0.5067391254
## 803	1.379236132	-0.570730016	1.484950307	0.116304676	1.8634691914
## 804	-0.919674583	0.678865182	-1.597298664	-0.570199143	-1.6912137901
## 805	-0.504490044	-1.465345487	0.374998873	0.046725565	-0.2528074485
## 806	-1.134731813	-1.137687797	1.327244247	-0.367902259	-0.4561139392
## 807	0.512773055	-0.989656081	-1.450355256	0.843280322	-1.3327053286
## 808	0.527988783	0.792858052	1.112487045	-0.064936458	-0.2196766047
## 809	1.188247324	0.253010895	-0.677697483	0.115118840	-0.3426438588

## 810	-0.462036358	-0.751931498	-0.615243132	0.368886405	-0.6891783691
## 811	1.241069288	-0.585740794	-0.239364532	1.352923252	-0.3427661004
## 812	0.137021552	1.424406714	-1.284009898	-0.134855731	-2.2786166566
## 813	-1.299645239	-0.930227320	-0.266959315	1.001609150	1.1240898653
## 814	1.151408943	1.112958043	-0.513585009	-0.702674722	-0.5385781290
## 815	1.513447478	1.606579421	-0.488050317	1.337808866	0.4208375861
## 816	0.802137876	-1.252321592	0.025105487	-0.742852066	0.1540355213
## 817	-0.430536942	1.634552926	1.421088751	-0.923340214	0.0524654095
## 818	-1.344700940	-0.221808313	0.524853063	1.715607480	1.4458667036
## 819	0.037442070	1.515525903	1.992208991	1.085870025	-0.7169894267
## 820	-1.345721789	-0.138913875	-0.131188113	-0.975797256	-0.4336699471
## 821	-1.814004316	-1.538445410	-0.214149274	0.302984634	1.5529463074
## 822	0.704033532	-0.944662552	0.539771925	-0.446574680	0.5419050420
## 823	-0.299019664	-0.578915410	-0.191752981	-0.764128535	-0.2436380694
## 824	-0.398891296	0.610141120	-1.659683075	1.254012119	-0.6029031080
## 825	-0.643317330	-0.013014755	-1.220441365	0.405643193	1.3432755656
## 826	1.315605055	-1.426712140	1.636737476	0.736396979	0.2545701775
## 827	-1.584967881	1.026577912	1.393979638	-0.866008634	1.9303110762
## 828	-0.444496425	0.211805291	0.760435106	1.270653711	0.6782052311
## 829	0.566183078	-0.511779931	0.706908169	1.191920065	0.3994093775
## 830	0.290325674	0.952021776	-0.926139821	1.158293594	-0.6270579284
## 831	-0.615544332	1.489575542	1.285462467	-1.341189824	-0.0028400396
## 832	-0.062007819	-0.545155024	0.408887010	-0.530028848	0.8436968630
## 833	-0.192610255	-1.223668061	-1.112552085	0.118286352	0.4241890896
## 834	1.683153949	-1.768047848	0.856126641	-0.916481045	-0.5641620796
## 835	0.102573846	0.626209804	-0.905515928	-0.049723785	1.6408023857
## 836	-0.654835313	-0.381192215	-1.021142255	1.406526520	0.3000449490
## 837	1.186575200	0.740656955	-1.033532048	-0.426791559	-0.0141010888
## 838	-1.272369672	2.008043884	-0.296471001	-1.073761079	-2.1996170507
## 839	0.538064580	1.244266444	-1.756161570	0.359664981	-0.9500392183
## 840	1.230850392	-0.541570095	0.645153456	-0.182161726	-0.1094923872
## 841	-1.165706963	-1.596860459	0.488781696	-0.003862373	1.6807151099
## 842	0.324209448	1.757805791	-1.047243587	1.156362546	-0.6828321006
## 843	0.950867375	1.712550096	1.274550667	0.109706339	-1.1321428552
## 844	1.117433602	-0.730080323	0.129844744	0.091478806	0.1695586186
## 845	1.523969047	1.456038508	0.220901861	0.392003603	0.6768651687
## 846	1.918048410	1.048505778	0.579971986	-1.046275583	-1.1469705851
## 847	0.200177306	0.799473745	0.315860238	0.389987235	-1.4789265451
## 848	-0.847190495	-0.562733110	0.275391997	0.397280607	-0.9235387235
## 849	-0.756867540	0.118180814	-0.286516639	0.805412557	-0.5997726997
## 850	0.695104616	-0.376893544	0.206340853	-1.394233298	1.3618300855
## 851	-1.572917874	0.918030855	0.699569174	1.938480639	-0.4494985396
## 852	0.500233800	-0.214307990	0.467293167	-1.711812933	0.1995561599
## 853	-1.154918660	1.118540685	-0.866444816	-0.106651024	1.7588874960
## 854	-0.925201228	0.016378092	0.885050093	-0.816715066	-2.8691697745
## 855	0.341904559	-1.143232575	-0.155787959	0.320196768	-0.7097857292
## 856	-0.589627963	1.070187312	-0.945728233	1.010704752	-0.1627732310
## 857	-0.828438381	0.324475959	-0.263509827	-2.163102295	0.7130129312
## 858	-0.663730210	-0.654797051	-1.814050206	-0.650299047	-0.0731486961
## 859	1.416440853	-0.779382765	0.459004956	-2.137865989	0.3741928352
## 860	-1.371502343	-0.953852766	1.830865599	0.410566008	-0.6115499183
## 861	0.108860723	-0.024810099	0.181934800	0.420829888	0.3535590445
## 862	-0.466822252	1.201157495	0.608301920	0.927276134	0.8666757220
## 863	2.961743363	0.714924585	-0.492323579	-0.399278288	-0.0071088830

## 864	-0.157827180	-0.435841923	-0.958561580	1.838559792	0.1190376156
## 865	1.819425273	0.775660848	-0.647676128	1.230852448	1.0253970422
## 866	0.863742551	-1.641619042	-0.312371525	0.359638619	0.5179494611
## 867	-1.566443220	0.674118526	0.479079202	0.063721901	-0.2864755577
## 868	0.515455969	1.377422807	0.681028281	-0.137383939	0.8380580762
## 869	0.696219512	1.028368421	0.085685410	-0.285950097	1.2186421575
## 870	0.025421101	-0.605855832	-0.030059269	1.252716724	-0.4080981978
## 871	-1.951783301	-0.554080359	0.517526368	0.670205200	-0.9403141821
## 872	2.245358736	-0.281289604	-0.296773342	-0.774227236	-0.3951938480
## 873	-0.187737175	-1.231708346	0.133820815	-1.143105244	-0.8297471901
## 874	-1.401251190	1.307542417	0.867395760	-1.141285960	0.2295637401
## 875	1.248358506	-1.867774031	-0.228651199	-1.286697742	-0.4135840991
## 876	-0.247078230	-0.150015818	-0.283615131	-3.703235843	-0.6961212266
## 877	0.245559516	-0.183419301	-0.017988070	-0.233992493	0.5427230803
## 878	-0.778723557	-0.078063283	-0.050704283	-0.677515601	-1.7029941664
## 879	-1.790886181	-0.041283840	-0.150947486	-0.512255020	0.9917880073
## 880	-0.167523856	1.164769081	0.229958494	1.474753637	0.5862069061
## 881	0.750979937	-0.447220157	1.317730242	1.264321875	0.6020959668
## 882	-0.017023403	1.952915696	-1.779920287	-1.136256752	-0.3259402337
## 883	0.027578974	0.864579088	-0.126081956	-0.524260716	-1.1688518853
## 884	0.222146147	1.071924895	1.147290334	-0.556511121	-0.1906866283
## 885	0.398631825	-1.763175475	0.477093974	-1.988000166	0.9543930504
## 886	-0.261518413	-0.773341087	-0.255590213	-0.121438870	-0.5426091511
## 887	-0.303177624	0.121751128	0.092618164	-0.085120782	0.5815016371
## 888	-0.733571785	-0.848101064	2.509934256	-0.052108329	0.5007187162
## 889	-1.381854714	-0.988867953	0.406955665	-0.146991748	0.7713247916
## 890	-1.441687373	1.416998013	0.143169742	-0.233459667	0.5439516179
## 891	-0.786310164	-2.046280668	0.414008965	0.329851707	0.1119366487
## 892	-0.742482240	-0.771162084	1.950132785	0.781430057	0.0783931600
## 893	-0.390980247	0.572485404	-0.099797771	2.268211620	1.3154098129
## 894	-1.215755063	-0.176371962	0.458880597	1.330797444	0.7693248346
## 895	-0.890405591	-0.951477642	-0.524247598	-0.699094669	-0.5035094832
## 896	1.498272631	1.664619860	0.106244758	0.702178411	-0.9270773193
## 897	0.371839111	0.282131289	-2.155071914	-0.827534757	0.3098227043
## 898	0.261106083	-1.943938462	1.090091744	0.785833159	1.1258823954
## 899	-0.024543857	-0.441199940	0.730503453	-1.082770169	0.0174327012
## 900	-0.917689244	1.579159618	0.857474697	-1.759819335	0.8865156484
## 901	-0.591884218	1.980198247	1.262276623	-0.169481426	0.8208784237
## 902	-0.370993056	0.669008484	0.306785426	-0.199000732	0.1225781721
## 903	0.087924257	0.032093936	0.191827061	-1.185159811	-0.6640816882
## 904	-0.034726345	-2.217868254	0.519870029	0.333628820	-1.3361790986
## 905	1.806374269	1.433178479	-0.964235773	0.719492590	1.3621347382
## 906	-0.340236065	-0.745948559	-1.855133530	-0.339476283	0.6566542928
## 907	-0.748963256	0.453045488	-0.861322663	0.213853388	0.4606467416
## 908	-1.639136839	-1.201462766	-0.842981421	-0.656104565	-1.4341901823
## 909	-1.001187676	0.600672571	0.395285540	1.698405756	-1.1127875442
## 910	2.595771838	-2.568398152	-1.404818039	-1.454854786	-1.2930280341
## 911	0.303198815	2.291253944	-1.350853341	-0.257615918	0.1230857625
## 912	0.908747388	-0.714778769	-0.582332092	-0.958130076	0.5355749364
## 913	0.207849948	0.651451051	0.796542132	-0.248840439	-0.6638598724
## 914	0.178014002	-1.939598895	-0.063441179	-0.750093175	-2.7589612896
## 915	-0.165764998	0.206583906	-0.258465846	0.507883873	2.4268708825
## 916	0.557103620	2.110791901	0.463479195	-0.766215224	-1.5031046250
## 917	1.444334403	1.089979063	0.420127076	-0.783517598	0.9525532030

## 918	0.901357061	0.411433757	1.236314435	-1.453072880	-0.0689387581
## 919	-0.222035044	-0.479493513	-0.816119664	0.515847323	-0.4220477576
## 920	0.106191316	-0.176673755	0.774324735	-1.503735335	-0.8230313983
## 921	-1.449220833	3.039033406	-1.005851210	1.881155401	1.5591029357
## 922	1.138551724	-0.420907349	-0.763882509	0.226666867	-1.1574576422
## 923	1.813824711	-0.551954990	-0.568438832	0.220782859	0.1645905388
## 924	-1.511038733	-0.625227248	1.109217575	-0.293012669	0.2510964277
## 925	-0.018086859	-1.141814175	-0.669352041	2.601297537	-1.0262754681
## 926	-0.880188098	0.396962728	-0.788429964	0.325596379	0.2979573321
## 927	-1.197477099	0.173686970	-0.281926112	0.317302673	1.7223705860
## 928	1.068758958	1.192089338	-0.001916860	-2.058151019	1.6538325918
## 929	1.166736858	0.441929819	0.300163466	-1.499707314	0.1455643190
## 930	2.029958496	-1.266151574	-0.030648219	-0.620949903	-0.4061792370
## 931	0.500172741	-0.316275825	-0.342077979	0.154835841	0.4166172215
## 932	-1.822749779	0.096958487	0.932520104	-0.972971623	0.3474544088
## 933	0.489161061	2.251761876	-2.252575978	-0.801943189	-0.7972771164
## 934	-0.693889397	-1.050817700	-0.574037114	-1.567084741	-0.1115567920
## 935	-0.199064512	-0.234638410	0.603756377	0.343420990	-1.9259305523
## 936	0.241954076	0.793640773	-1.419254226	-0.445344971	0.0403518575
## 937	0.070352503	-0.627199868	0.008025292	-1.425450486	0.7147588421
## 938	0.794146066	-0.454552625	0.609591650	-0.534904988	-0.9597426744
## 939	-0.655378696	-0.707923609	0.009016888	-0.151797023	-1.5519994660
## 940	-0.677465097	-1.791337818	-2.128354670	-0.950690599	0.9224913921
## 941	0.183818514	-3.045363930	0.272121075	-1.641549219	1.7388599426
## 942	0.877708267	-0.097388392	-0.192968046	1.391524231	-0.6697598808
## 943	-0.392230913	-1.296783557	-0.890871461	-0.062116163	1.9660393982
## 944	-0.668948305	0.191180067	0.579083890	-0.221537799	0.3752596354
## 945	-1.010133243	0.811118929	0.150359557	-0.162232022	-1.2995669460
## 946	-0.750830596	-0.735002273	-0.325962548	0.336845319	1.7977016157
## 947	-0.283552997	-0.104626876	-0.064914359	1.081677258	-0.8384305465
## 948	-1.165802981	-0.695506182	-2.223381467	1.030193179	-1.3534987351
## 949	0.691224986	0.003144412	0.039597163	-0.353429144	-0.2790331383
## 950	-2.056537631	-0.843264997	-0.884058603	1.075381694	-0.7514203971
## 951	-0.154174503	-0.684028340	0.974096878	-0.215322481	-1.1436720924
## 952	-1.444894311	0.845993521	-0.446652685	0.183558932	-0.5904748265
## 953	1.216150864	-0.624043001	-0.796320143	0.950567819	-0.6033303203
## 954	-0.511171137	0.884743296	-0.862691905	1.083550966	0.8390395768
## 955	1.128538757	0.226134143	-0.714395666	-1.494929519	-0.2721046530
## 956	-0.419643268	-0.561093103	0.975371647	-0.643932780	-0.1086171313
## 957	-0.212739735	-0.548088166	-0.079010701	1.428797517	-1.0675493295
## 958	-1.020660780	0.330497185	-0.619558263	-0.387409750	-0.8343142766
## 959	-3.082363618	-0.753474307	1.312069838	-0.070827020	0.6580832157
## 960	1.646143363	1.165137960	0.076592616	-0.069164236	1.1610718195
## 961	-1.411214006	-0.278377708	0.239757999	-0.100096227	0.1774162708
## 962	2.565137631	-0.546895962	0.997734549	0.334357323	-0.7532953213
## 963	0.325593714	-0.279326004	-1.138102596	-1.324677034	-0.2567745733
## 964	-0.565537819	0.212086403	0.384707215	0.780023472	1.3222914405
## 965	0.698898676	0.182184147	0.497359889	-0.787096968	-0.3268475062
## 966	0.880715097	-1.207440093	0.495026960	0.730663697	-0.9071908167
## 967	-0.227754971	1.554547077	1.225440377	-0.545465873	-0.6396418319
## 968	0.136300749	-1.737773272	-1.987110473	0.762478803	-0.9209897249
## 969	1.843408233	-0.379333079	0.796968796	0.064033156	-0.3290480936
## 970	-1.405391718	1.131995752	-0.343921685	0.128191438	1.4333135083
## 971	-0.049083070	-0.024435010	-0.899700540	0.493245453	-0.7083940668

## 972	0.794154507	-0.896385344	-0.066624358	0.394929841	0.5215598867
## 973	-1.414023515	-0.390056923	-0.297209518	-0.536216057	-0.8090510229
## 974	-1.789927363	-1.078648124	0.043654937	0.282666215	-0.7452188456
## 975	1.354397332	0.964569706	0.257324539	-0.002843621	-1.2698901355
## 976	-0.747766705	0.756197921	0.905876449	0.206188106	-1.1915955778
## 977	-1.037452478	-0.278710423	-0.119588424	-1.381615740	0.0392353646
## 978	-0.036172136	-1.050274676	-0.229456936	0.016430970	1.0863201443
## 979	-0.554350606	-1.113884938	-2.108012727	0.106516920	0.1763907990
## 980	-0.558866752	1.352246427	1.170833186	0.223640073	-0.5977127156
## 981	-1.419873383	0.788628699	-0.734386453	-0.299022123	1.6148333729
## 982	-0.907959854	-2.247880159	-0.267543412	0.848135072	-0.9380057954
## 983	0.847633095	0.047877345	-0.738629165	1.493522750	0.0192873616
## 984	0.499463100	2.525078381	-0.685817664	-0.653172225	0.1561347984
## 985	-0.637825518	-1.016402099	0.906097949	-1.336884205	0.8999195295
## 986	2.415505148	-1.720653337	2.260953260	0.821080908	0.1538901969
## 987	1.480908125	-2.251953936	1.234677337	-0.488546139	-1.2497733900
## 988	-0.738981759	-0.223295382	1.354349400	0.257226798	-0.9615853926
## 989	-0.097765133	-0.767450613	0.083696265	0.116589221	-0.9627566037
## 990	-3.236385732	0.929763401	0.163520789	-0.119499029	-1.2155352157
## 991	0.957063658	-1.290008417	0.351157727	0.467926609	0.5065535533
## 992	0.559334175	-0.570331658	0.744798974	-1.436887671	1.7303240731
## 993	-0.497700713	0.961281650	-0.471346192	0.531012217	0.1913333391
## 994	-0.193980310	-0.212036108	-0.172452017	-0.862713937	-2.3410207851
## 995	0.086334935	-0.533410636	-0.144921522	-1.245194396	-0.5964080249
## 996	1.017507538	0.002205478	-1.590491059	0.645730822	1.8633669322
## 997	-0.969918023	-0.346823573	0.734869562	-0.339437807	2.1623631722
## 998	1.066352402	-0.485861799	1.150781131	0.557309074	1.1759563795
## 999	0.755509155	0.216737308	-0.842044974	0.129725284	0.6190770786
## 1000	-0.703252294	-1.148486416	-0.861278455	1.555653387	0.0084632161
##	V6	V7	V8	V9	V10
## 1	0.392558054	-0.421037893	0.5923332424	0.227794779	-1.255295211
## 2	0.458246731	-1.271475132	-0.1338917977	1.944527907	-1.428121895
## 3	-1.219645399	0.839310920	0.8866783720	-2.041491230	1.002948460
## 4	-1.122098345	0.540012921	-0.2899478399	0.174774181	0.027545854
## 5	0.993330306	1.867938727	0.5669431463	0.149012519	-0.665548940
## 6	-1.833247005	0.444518040	-0.7238217733	1.572551668	-0.975996887
## 7	0.123885130	0.331652365	1.8366522397	-0.431390566	-0.259860022
## 8	0.590554495	-1.912499905	0.7276728278	-1.008078694	-0.295302419
## 9	0.804763316	1.359993522	0.5131877966	-0.051737531	1.227283338
## 10	0.007538413	0.732699212	0.2652663721	-0.740103110	-0.624456303
## 11	-1.816252785	1.381034467	-0.6009247272	-0.894786671	-0.593536961
## 12	-0.404867982	0.141175886	-0.4294472967	0.549395051	0.440624476
## 13	0.737149956	1.225023000	-0.0738554766	-0.166025772	0.373720299
## 14	0.485845569	1.443554407	0.3616183808	0.679629434	0.380365628
## 15	0.829313101	1.258132505	0.6107274692	0.093028314	0.323813968
## 16	-0.170121821	0.917080521	-1.0167523187	-1.081432528	-0.681292559
## 17	1.385921466	1.193278160	-1.8260583214	0.358373973	2.096354035
## 18	0.888019022	-0.469677581	0.7848742468	-0.159803297	-1.633474334
## 19	0.181933281	-0.806104159	1.6105507820	0.109789833	-0.976139345
## 20	-0.584381980	-0.941438914	1.4422655532	0.815762530	0.946671401
## 21	1.743577521	0.143248866	1.1404227403	-0.033383720	0.060355451
## 22	-1.392554594	-1.431739668	1.2575104368	-0.223712468	0.251838311
## 23	1.231556152	-0.813822836	-0.2167065266	0.135360198	-0.108781528
## 24	0.578386992	-0.100086182	-0.1918153587	-1.176706719	-0.288233462

## 25	0.138776103	0.080752691	-1.7773865774	0.301748942	-0.829156258
## 26	1.097725373	-0.079281162	1.4239714659	-0.007322660	0.539974764
## 27	-0.573111837	-0.689576773	-0.4410962355	1.377605164	-0.045236229
## 28	0.718893033	-1.094315376	-0.2263817749	-0.858577224	0.592729025
## 29	-0.964204030	1.104593663	0.1762870437	-0.867562339	-1.312781539
## 30	-2.524785564	-1.167417799	1.5104527119	-0.802037739	-0.844273005
## 31	-1.204761190	0.454162269	-1.4054021052	-0.150177531	-0.367267364
## 32	-0.459550532	0.471517710	0.0090264318	-0.941392820	1.251246404
## 33	2.190954881	-0.092757373	-0.5496988003	0.228694911	-0.262702766
## 34	-0.700582159	-0.468451792	-0.6531460274	0.698556047	-0.094556481
## 35	-1.022635626	0.555775471	-1.6568585680	0.433807181	1.242439035
## 36	-0.653639189	0.045767367	0.2872303680	1.701232337	1.347674275
## 37	-1.884160314	-0.610206978	0.1515963508	-1.266932658	0.208593356
## 38	0.199777797	-0.072942274	0.2282769467	1.127724273	-0.309017014
## 39	0.528681702	-0.618602650	0.5997112622	0.246378929	-0.606421785
## 40	0.006223751	-0.313493295	0.2338044826	-1.372004495	-2.729887672
## 41	-0.185505333	1.178361179	1.8969329336	-0.673070044	0.305815637
## 42	0.368200703	-0.149590051	-0.7520030559	1.020321156	0.791920039
## 43	1.023030938	-0.889439485	-0.2427842238	-0.860068099	-0.947954680
## 44	1.080816596	0.318011799	-0.8296237165	1.052214990	1.615956389
## 45	1.449630152	0.711923435	-0.6159411178	0.851440955	-0.259861958
## 46	-0.305957774	0.435315545	0.8271965273	-0.350562570	-0.026393703
## 47	-1.281190520	-0.461459437	-0.6195312830	-0.704509596	0.454754745
## 48	-0.794089997	-0.434105891	0.1206443199	0.518878749	0.644339106
## 49	-1.899164512	-0.403806648	-0.0775404726	-0.293865411	-1.372447435
## 50	-1.241637244	-0.075975268	-0.5345284449	0.108481471	-0.865956498
## 51	0.512993178	-0.452328976	-0.0386119859	-2.333854835	0.326956446
## 52	0.413764787	-0.577220100	-0.7089447257	0.320572424	1.459084327
## 53	-2.557848326	1.265264783	-0.1663924732	-0.263396658	-0.309747835
## 54	-0.560996378	1.318289145	-0.6877822235	0.430577627	-0.736604533
## 55	0.504351425	0.606133556	-0.9843524742	0.148874774	0.115243502
## 56	1.703382826	-0.362116247	-0.2762067436	-0.437266381	-0.743568739
## 57	1.351547160	1.943001136	0.6833287305	0.848771774	-0.908706100
## 58	-0.456743047	1.622884510	-0.3598176985	-1.947307480	-0.590442627
## 59	1.723053952	0.631800381	0.8701120213	-1.175702801	-0.840182917
## 60	-1.982441795	0.975600583	1.2853726605	0.006717233	-1.113291518
## 61	1.496357418	0.824468644	-1.2741238925	-0.610960399	-1.005242091
## 62	0.867309113	0.304628696	-0.0996233050	0.053653027	-1.517880100
## 63	-0.284402993	-2.082821465	-0.0073773098	-1.081376166	1.584793824
## 64	2.104499858	-0.416717721	-0.9459130734	0.260894698	0.298681674
## 65	0.168638912	-1.319407161	0.1498441619	0.173675236	1.770037372
## 66	0.187991429	-0.150057617	1.2308769657	-0.287523582	-1.121448737
## 67	0.782341066	0.242651889	-1.2643772554	-0.852068681	-0.982390039
## 68	-1.732491839	1.284975716	-1.4022194773	0.485618509	-0.335116258
## 69	-0.883375979	2.351634465	0.1465587300	-0.436400253	-2.490658421
## 70	-0.013781814	0.679495733	-0.8100695516	-0.517889335	-0.510337276
## 71	0.506152227	-0.575220585	-0.0976524057	-0.891728781	-0.690168720
## 72	-0.499965346	0.719325135	0.9824585205	-1.151748603	-1.471623749
## 73	-0.695617045	1.859196458	0.2525215804	-0.427812774	-0.113608231
## 74	-0.277818367	-1.530670039	0.4879622107	0.215806842	1.104146460
## 75	0.084847889	-0.311391538	1.1390296405	1.338859147	-0.380560999
## 76	1.249873660	-0.288244933	-0.1397460674	-1.152694762	-1.468598519
## 77	0.457519639	-0.816272080	0.8529011634	1.608281486	-0.528497380
## 78	0.765285762	1.242994935	0.5216962528	-0.756150596	0.754010336

## 79	0.391727357	0.324675647	0.8201131164	-0.054844881	0.299981221
## 80	-0.547200685	-0.666031586	0.3199952624	-0.338876614	0.428477968
## 81	-0.467794482	-1.173324619	0.6213936360	-0.346589024	1.463255866
## 82	-1.107023371	0.322401004	1.2426751077	-0.703585022	2.670199555
## 83	0.785514903	-1.993547983	0.1662099818	0.229851073	0.127629092
## 84	-0.648088753	-1.268438109	-1.7665348955	-0.557740192	1.004108098
## 85	1.073976163	1.044367897	1.9013238754	0.571767370	0.116514587
## 86	0.362385510	-0.380481074	-0.1517532972	0.557010625	-1.003149879
## 87	1.915651937	1.062729797	-0.0025194001	-0.717128994	-0.120528694
## 88	0.553448609	-0.781841354	-1.4651274374	-0.995491910	0.703400421
## 89	-0.210139876	0.214708742	0.3706581313	-1.243609205	1.995194580
## 90	-0.409313391	-0.669056921	-0.6011442264	0.068234993	1.268501694
## 91	0.118329982	-0.822140379	2.7748885384	0.063719733	0.576615108
## 92	1.074187839	1.089244658	-0.7950871578	1.212509897	1.970759464
## 93	0.039428168	-0.715936080	-0.3473496341	1.201871715	-1.372845225
## 94	-0.159337857	-0.113715582	0.2098110095	0.014930515	-1.106369616
## 95	-2.286883966	-0.380165131	1.0412953489	-0.015711460	-1.074220278
## 96	-0.327042542	0.158449960	2.0445258322	-1.340767530	0.282788218
## 97	0.074390475	1.092956925	-0.1245769531	-0.067216713	0.798953915
## 98	0.792440992	-0.561320486	0.7596564697	-3.433479815	1.775408904
## 99	-1.643355076	0.478707357	1.9685052115	-1.157176275	-0.085948367
## 100	1.233160267	-0.942945387	0.2986377417	1.662884740	0.095803133
## 101	1.031171941	-1.077362635	0.4075460748	-0.026357283	0.745451197
## 102	0.933384043	0.058600588	-0.7176617123	-0.742689781	1.294617105
## 103	0.593017108	0.271361470	1.2207115568	1.648892712	-0.356989806
## 104	-0.306838757	1.631226726	0.0785871851	1.680113559	0.436053122
## 105	-1.951380315	0.121693726	1.2882339128	-0.722652357	-0.811627491
## 106	1.183393506	-1.328758384	0.2232149519	0.917714955	0.493440047
## 107	1.172095916	-1.024411824	1.4237701659	0.206009739	2.104591207
## 108	1.599134094	-0.541436913	-0.3673917818	0.806145401	0.266308949
## 109	-0.061781281	-1.044091424	2.0672007215	0.004426217	-0.824130724
## 110	0.713751148	-1.052527864	0.3092475582	1.040027714	1.680528626
## 111	-2.199265911	-0.340726985	-0.4316101257	-0.647720872	-0.226156782
## 112	0.020574834	-2.077064331	-0.2049232529	-0.157361836	-1.205763886
## 113	-1.520474124	1.608824229	1.5176676838	-1.682553768	-0.091782173
## 114	1.347988820	-1.447420217	0.5039889058	1.060763343	0.877372426
## 115	1.057395882	0.262319802	-0.9233099122	-0.850058547	-1.238018028
## 116	-0.319838822	-0.973920658	-0.0533553175	-2.458359084	0.885818796
## 117	0.816086465	0.299178865	-0.1582824014	-0.401622149	-1.200604459
## 118	-1.154473930	-0.419198100	-0.3430025827	-0.177903264	1.534081929
## 119	0.053351208	-0.177579173	0.4985380174	1.312320803	-0.272960673
## 120	1.208345055	-0.666044934	-0.0001468662	0.632942100	0.794525311
## 121	-0.242296048	-0.333190243	-0.8677670170	1.186847107	-1.777674410
## 122	-0.048818134	-0.635842656	-0.4036621203	-0.701137557	0.511580073
## 123	-0.141725650	-0.101681298	-0.0045373798	1.140907368	0.317881167
## 124	0.617031864	-1.481600067	-1.0825806369	0.383610174	0.550301001
## 125	-0.979846428	-0.606151094	0.3901484554	-3.333882097	0.121753124
## 126	-0.869942311	-0.995991364	0.4869408442	0.677910610	1.165454755
## 127	-1.884733195	0.971753084	-0.3844244843	1.378640763	-1.000994237
## 128	0.377683031	1.125772801	0.8236608779	-1.251236670	-1.223000902
## 129	-0.543240212	0.161640510	-2.2099551071	-0.982346783	-0.879791234
## 130	-0.233514403	-0.190022324	-0.0235506492	0.733460990	1.292111643
## 131	-1.647978463	-0.027474434	0.9191797556	-1.469430679	-0.471074853
## 132	0.789613131	0.748450058	-1.4579688072	0.449998010	-0.078331448

## 133	-2.033583956	0.534804196	-1.0816528967	0.351747053	-0.623858253
## 134	0.398603012	-1.474818057	1.1357991015	-1.400443979	-0.573036660
## 135	1.442598307	-0.399251684	-0.1803518391	0.658162929	1.496518153
## 136	-1.752983819	-0.294697470	1.0509460584	0.329994689	-2.350843487
## 137	-0.938311134	-0.153447558	0.4398236627	-0.336125796	0.471754234
## 138	0.322845125	0.388084568	1.9008812268	-0.885772754	0.049428363
## 139	-1.201337007	2.935695441	-0.1257248350	0.194207662	-0.364500855
## 140	1.699900727	-0.768828346	-0.0470482291	-2.235696567	1.204043627
## 141	-1.255213352	-2.506271659	-1.8597907309	2.223012090	0.584415581
## 142	1.235550058	0.253159678	2.5574029668	0.849728783	0.886687368
## 143	-0.435478441	-0.726676163	-0.4532570247	-1.213160677	-0.184828502
## 144	0.723629144	-0.155311170	-0.1963466931	-0.057843430	-0.746692852
## 145	0.387126845	-0.258115517	0.4523592354	1.121013142	-1.493076676
## 146	0.775999894	1.009750435	-1.0022225219	-1.172136692	0.235380983
## 147	-2.162354707	0.111442779	-0.0300560250	-0.062661077	1.201587907
## 148	-1.110634987	-0.026593884	-1.0807112531	0.818985334	-0.874272665
## 149	-0.773287639	-0.184723139	0.2176495285	0.172466557	0.459627513
## 150	0.921654867	-1.053384590	1.2800543014	0.246362580	0.545048129
## 151	-0.487449422	0.579560370	0.6741343580	-0.023567292	-0.020870229
## 152	1.922250672	0.558080430	-0.5386100848	-0.694596791	-0.534805028
## 153	-0.002523439	-1.932731924	0.7351145315	1.041466054	1.679926821
## 154	-0.548384667	-0.710039691	0.9032238248	0.901362957	-1.848347046
## 155	1.887521604	-1.550155580	0.2164202331	0.350436930	-0.374828347
## 156	-0.004746543	0.629274819	-0.8603160382	0.780744021	0.682822048
## 157	0.124471223	0.633920146	-0.3856798149	-2.382517416	0.956037678
## 158	0.195513937	0.886255912	-1.2976946087	-1.284531536	1.442452844
## 159	-1.587542959	-1.208991843	0.0515200094	0.404344503	1.389479240
## 160	-0.385409367	0.219065302	0.0195382189	0.504395008	-1.399421018
## 161	-0.086832994	0.948179956	0.3973456516	-0.225686728	0.840406114
## 162	-0.706165254	-0.183772611	0.2736221757	1.425284305	0.484162103
## 163	0.514977249	-0.637680623	-0.7809959000	-0.109551815	1.351093452
## 164	-1.348035860	0.975719865	-0.3925844267	-0.399037714	1.059377662
## 165	-0.852387479	0.122993868	0.1911858068	1.210231991	1.031452824
## 166	0.558950764	0.813152781	-0.7544363704	0.361095322	-1.717275540
## 167	-1.372970183	-0.432204047	-1.2858229537	-1.324028139	0.349961763
## 168	-0.890827899	-2.008304901	0.1803864092	0.143883949	-1.429632559
## 169	-0.319488728	0.401204653	-1.3496286512	-0.259820125	0.978473235
## 170	0.075319373	-1.577248912	0.6378499357	1.438585476	-0.130196926
## 171	-0.564186396	-1.584398334	-0.9230752471	-0.525384563	1.031873471
## 172	-1.761295622	-1.433583224	0.8549529110	0.888330840	2.385904382
## 173	-0.116509270	0.466875291	-1.4668293824	1.243150421	0.797576934
## 174	1.209688244	-0.030588515	-1.0424191567	1.937154695	-0.899548228
## 175	-3.188399482	0.418275437	-0.4352765797	-0.657190423	0.989577141
## 176	0.671635567	-0.630991109	0.8995665853	-1.913345114	1.270400810
## 177	1.055717317	1.191637760	1.0976430511	-0.609408246	0.840951101
## 178	0.209872530	-0.156639105	-1.3156264934	-0.208015078	1.899167569
## 179	-0.019052602	0.384165348	-1.9139800741	1.016777983	-1.667261498
## 180	1.403527646	1.082058902	0.6043815163	1.059035527	-0.382364773
## 181	0.048306336	-0.313431225	-0.8208388751	0.261526262	-2.096993806
## 182	-2.811454468	0.332733264	-0.1852399232	-1.803344525	-0.370080443
## 183	0.740275554	-0.811813020	1.2871365300	-0.071973676	-0.184907319
## 184	1.249926777	0.655484949	-0.0749794038	-0.786545472	0.862245339
## 185	0.851252502	0.720378662	-1.2881172482	-1.228043129	0.009369412
## 186	0.502004868	0.762415603	-0.1094334370	-0.351902116	1.511346171

## 187	0.462814915	0.057468609	0.8325275610	-1.308936041	-1.263836235
## 188	0.374278392	-0.132919422	0.1020777632	-1.552340563	1.582966325
## 189	0.554904362	-0.940569124	-0.4108576812	-0.186040342	0.106162947
## 190	1.336120998	-0.675004458	-1.4169475180	0.954847410	0.131719808
## 191	-0.057506102	-1.218625431	-0.3856564168	0.284070967	-0.586776145
## 192	-0.005494698	2.270141762	-0.4346791336	-0.178286951	-0.048981095
## 193	0.446647652	-0.760961335	-1.1602061481	0.918709988	0.155082281
## 194	0.856330811	0.411453250	0.4404724740	0.313936801	-1.028647366
## 195	-1.325852442	-0.079634710	-0.2609614033	1.135042727	1.227255343
## 196	-0.642461498	1.011316920	0.6652437014	0.148405679	-0.406210156
## 197	-2.655929616	0.746996684	0.5146882876	0.900220666	1.719947899
## 198	0.255900133	-0.098701392	1.3274461562	-0.700279522	0.809260354
## 199	-0.314253761	0.071052193	0.1646102769	0.761960604	0.173542616
## 200	-0.678510112	-0.806340916	-0.3572539963	1.998970743	-2.263908194
## 201	-0.141579279	0.041542693	0.3682751456	0.252866163	-0.450480118
## 202	1.219636441	0.140309420	0.9196561525	-0.034131241	-0.806825494
## 203	1.385153151	1.245789338	0.5833670824	-0.529506275	-1.501390104
## 204	-0.368547430	-0.757556059	0.9820284979	-1.051219291	2.320615126
## 205	-1.197018002	1.831618000	0.4753295515	1.537113787	0.241942120
## 206	-1.066134746	0.816045156	-0.3665078537	-0.644821091	0.108349627
## 207	0.873338327	0.149706374	-0.7790879561	-0.330953011	0.255946824
## 208	-1.071563851	0.860102329	-0.4228656880	-0.651936760	-1.320768859
## 209	0.335789725	-1.173292868	2.3170691015	-0.326249715	0.031642253
## 210	1.100838211	-0.298257171	0.4876665785	-1.759050758	-0.176645646
## 211	0.608302471	0.067361918	0.3484632522	0.589210283	0.798572875
## 212	-0.214193815	-0.178496770	0.8680721488	-0.610002079	-0.092651574
## 213	0.047473189	-1.397854700	0.6518810324	-1.081254342	0.634456701
## 214	1.370272096	-0.293442915	0.7539934862	0.504479161	-1.658680304
## 215	0.290039472	-0.068588004	0.3003384436	1.452119844	-1.209396996
## 216	-1.506816034	-1.809658827	-0.5082388041	-0.608623549	-0.930335806
## 217	2.010828517	-0.087045100	-0.0787824988	-0.327012896	1.392991757
## 218	-0.339501587	0.231293806	0.7048978281	-0.243080564	-0.524377992
## 219	-0.839068956	1.278869418	0.0177870836	0.350437909	-0.942972135
## 220	-0.979861738	-1.400046971	-2.1933554059	-0.383189760	1.603891128
## 221	0.575640869	-1.153910024	0.4038497095	0.515606562	-0.364265857
## 222	1.963531520	0.785576005	0.9123099752	-0.955310004	1.521058269
## 223	0.350792130	-1.517274636	-1.7052626734	0.757859711	0.203455187
## 224	0.677636502	-0.012740175	-0.0018533806	-0.913472537	1.347632002
## 225	-1.956686181	0.935350937	2.0222175937	0.962872519	-0.870858955
## 226	-0.194763867	-1.226600969	-1.1194117824	-1.630318841	0.023943032
## 227	0.238331537	-1.337376429	-1.0944869748	-0.830853978	-1.465197661
## 228	1.813758715	0.645662230	-0.8161647634	0.434314025	0.668295552
## 229	-0.405404116	-0.658492591	-1.5470768104	-2.129659679	-1.576858019
## 230	0.022489810	1.510009839	1.8465757142	0.372465433	-0.330792778
## 231	0.735691108	-0.831817679	0.0956409869	0.943366204	0.481443369
## 232	0.097149639	0.913315009	1.6152748551	-0.426516755	-0.883477045
## 233	1.176801213	0.280882980	-0.2105572136	0.358516360	0.360992198
## 234	0.345317696	0.962157056	-0.6382783024	-0.267145871	0.288076929
## 235	1.082009262	0.722445783	0.6255400381	1.746876403	-2.136528839
## 236	-1.066591552	-1.274346709	0.9857234021	-2.191060777	0.901202427
## 237	0.512395996	0.869832955	-0.2520186158	0.925668502	0.860499297
## 238	1.103835849	0.868258138	-0.0610971031	-1.273772290	-0.684163570
## 239	0.848277047	0.825948276	-0.9467214792	-2.496976222	0.852524094
## 240	0.064536491	-1.831619736	0.5830305397	0.330062032	-0.118394693

## 241	0.998522135	0.630194882	-0.0678092793	-0.913466049	0.744209721
## 242	1.064583339	-1.064415576	-1.1525551845	-1.054808046	-0.540290325
## 243	0.009593645	0.570591789	1.1270474550	0.495058501	0.046436282
## 244	-0.228378060	1.364167885	0.0866723748	-0.790185797	-1.097385150
## 245	2.321848116	0.143363088	-0.8919536342	-1.212264261	-0.717547643
## 246	0.927053655	1.596889494	-0.9658515807	0.528892399	1.040061832
## 247	0.229478762	0.508521890	0.7195040713	-1.099562528	1.065921489
## 248	0.301005290	0.627636716	-1.8210044604	0.103517899	-0.667108154
## 249	-0.857247416	-1.086526884	0.6511280616	1.779683421	-0.627596053
## 250	0.118649565	0.652047400	0.4546721294	-0.171710366	0.033707457
## 251	-0.123931799	1.416787138	0.4562626729	-1.349155815	-0.122621755
## 252	0.449945915	0.106682050	-0.1258552611	-1.803047108	0.658101299
## 253	1.394777491	-0.488882274	0.2182703660	-1.037830213	-0.102035525
## 254	0.533085289	0.233023212	-0.7244718029	-1.939748413	0.437911600
## 255	-1.392090254	-0.308505568	0.5060704949	0.188239841	1.139900774
## 256	0.796728080	-1.989827316	0.0143001153	-1.436748028	0.771800283
## 257	1.917521511	0.097999127	-0.8378768875	-1.631880884	-0.906714927
## 258	0.363318999	1.422183827	0.2596862703	-0.332550394	-3.241544421
## 259	1.569727393	0.763511551	0.5048484613	-0.137029947	-0.089072207
## 260	-0.744183601	1.145972804	0.2269799132	0.383728205	0.654216129
## 261	-0.340698643	-0.303465141	-0.6676080615	0.790786462	1.941026420
## 262	0.148125162	0.187129238	-0.7989550218	-1.103132912	1.136600391
## 263	1.048216488	0.141373778	-2.3966774317	-0.924810368	-0.030673242
## 264	0.159756307	-0.695152770	-0.2024611611	-0.113496344	-0.331766765
## 265	-0.915393600	-0.041825425	0.1088970589	-0.658420182	-1.355164508
## 266	-1.629885244	1.371001272	-0.7524039599	0.779251472	0.630622555
## 267	0.024825655	0.226526311	0.5735071680	-0.217696667	-0.366097124
## 268	1.383989307	-0.550777446	1.1430003827	0.910290480	0.430285766
## 269	1.304399197	-1.039948415	1.0070655464	0.032158594	-0.552441031
## 270	1.030157999	0.731880410	-0.8303121184	1.845610354	-0.528742977
## 271	0.980845352	1.062889306	2.1782886403	1.727675695	-0.231314792
## 272	0.503872136	-0.546838845	0.7358579071	-0.671023221	1.094125625
## 273	-0.443338128	0.064522766	-0.3613169381	-0.109833521	0.071902366
## 274	0.087571326	1.068420989	-0.1186446136	0.328720433	-0.923245951
## 275	-0.414881181	0.201119396	0.9302644116	-1.527279433	-0.169613238
## 276	0.996929720	-1.567177706	0.1806970810	0.739157349	-1.632257944
## 277	-0.094773123	-0.833413105	-0.2905591310	0.057959654	1.011443644
## 278	0.066529831	1.894747452	-0.3604721607	-0.100192485	0.692497435
## 279	0.191155227	-0.386814770	0.3779132010	1.020337903	0.763207932
## 280	0.655878476	-0.053634784	0.9833335738	-1.303457090	-1.931432749
## 281	-0.129969333	1.143841738	-1.0684855762	0.095620533	-0.343298241
## 282	-2.043651893	0.638649291	0.1064102863	-0.576411034	-0.107520567
## 283	-0.069060069	2.580469651	0.4618853091	0.561941334	-1.299170062
## 284	0.359523851	-0.563776505	-1.6764064202	-0.666664235	-1.184880419
## 285	0.677357216	-0.883557096	0.5578812789	1.254093333	0.718463274
## 286	-2.101283766	0.343330575	-0.3909310925	-0.919424635	1.103997484
## 287	0.704487147	-0.111327779	-0.4666007328	2.649411099	0.756163383
## 288	1.478487039	2.257816536	-0.2270660976	-1.187341254	0.523739170
## 289	0.346524042	-0.814850931	-0.6915360307	1.420644255	-0.523401720
## 290	0.954101719	-1.479551053	-0.3562306847	0.848852738	-0.385951665
## 291	0.207389257	0.613164682	-0.1966033714	0.686758871	1.084539996
## 292	0.100562311	-0.926235518	1.1244046351	-1.567325439	1.066931796
## 293	-0.737712677	1.118772445	0.9884300479	-1.090880986	0.018857645
## 294	-0.785782846	0.274583735	-0.1832599407	-0.948290234	0.750393710

## 295	-1.367685276	-0.134951151	0.5862481069	0.556114586	-0.395631164
## 296	1.034275637	-0.766140845	-0.8646099792	-0.015381692	-0.326172932
## 297	-0.734437742	0.604180076	0.2275733212	0.171354918	0.411324644
## 298	-0.238212024	1.802747769	0.2378942386	0.831123939	-0.420562624
## 299	0.471033652	0.604651910	0.6904462802	0.132448067	0.683147572
## 300	0.729266681	-1.448553326	-0.2738700809	0.939126145	-1.207087707
## 301	-1.187124096	1.345494590	-0.5774486678	0.480191224	-1.107589152
## 302	1.715396095	-0.109458323	-0.6486427745	0.580407770	-0.378388611
## 303	-1.098718054	0.344798557	0.3350631123	1.493313877	1.310674045
## 304	-0.964226978	-0.508735128	0.7997380432	-0.580115650	-1.217619801
## 305	-2.676163037	2.189269497	1.6239254071	-0.762705443	-1.568308197
## 306	0.578759652	1.074405861	-0.5671121622	0.683145547	-1.054908239
## 307	-0.742939259	-0.825170584	-0.4096701391	-1.103912497	0.081269515
## 308	-0.235915570	0.714725927	0.9026009709	0.424446591	0.516626378
## 309	-0.784583725	0.812834011	0.4838217089	-0.203097514	-0.015705652
## 310	0.268546973	0.272578214	-0.5952298674	-0.765882397	-0.882569631
## 311	1.319463078	-0.648120076	-0.0702626837	-0.157465989	0.400018917
## 312	-0.406003674	2.226522700	-1.1680430241	-0.984054952	0.011747439
## 313	0.339005407	-1.739534382	-2.2134919703	0.389543077	0.599088039
## 314	-0.727222907	1.470318028	-0.9695486327	0.282907836	1.210298039
## 315	-0.780556450	0.268084365	-1.0614952700	0.019825937	-1.130697702
## 316	0.826066838	0.591869931	1.6937586505	0.471055308	1.673072414
## 317	1.622326862	-1.259489234	-0.1357207179	-0.143297292	-0.579326911
## 318	-0.083516780	-0.804360596	1.1430051994	-1.236030816	0.753800121
## 319	0.338891799	0.537970488	-0.6432195457	-1.156318576	0.423986875
## 320	0.058294547	-0.169073783	-1.5499071007	0.052537548	-0.094443930
## 321	2.001573170	-0.378430738	0.7028779081	-0.019976544	0.681662383
## 322	-0.282589958	0.281733389	-0.5089680298	1.805744527	0.831716122
## 323	0.517519137	1.898728170	-1.3418282026	-0.456195187	0.873083807
## 324	1.081679422	-0.965565632	-1.0169602525	-0.958736065	-1.009218446
## 325	-0.308788238	0.316714180	-0.3751581106	-1.131447795	0.794137031
## 326	0.080828742	-0.425134066	-2.9077845724	-0.660948183	-1.772281189
## 327	0.203365430	0.192666680	0.1263169084	0.383052866	1.810133940
## 328	0.408160266	-0.613647494	-0.4128763684	2.900169766	0.307707528
## 329	0.112341063	1.717154095	-1.0121105371	2.381682959	0.660770702
## 330	-0.604922279	0.399421148	0.6329117491	-0.232096799	-0.044867219
## 331	0.402445627	-0.006004373	-0.7545966120	-0.455568220	0.627786030
## 332	0.819039018	0.970432132	1.3489448450	-0.707080148	-0.790589164
## 333	0.240017751	0.013422412	-1.0670812139	0.281358114	-0.753089086
## 334	0.672592082	0.153348196	0.9468141660	-1.995689108	0.974263248
## 335	-0.014024781	0.370200259	0.5421260599	-0.194149266	0.215464281
## 336	-1.366322537	0.796137492	-0.2987184110	0.240569663	0.766284962
## 337	1.132300179	-0.422094048	1.6407103627	-0.382334903	1.384942727
## 338	0.070721950	0.606710052	-2.0255787106	-1.840594658	1.652044251
## 339	0.037938745	-0.622514252	-0.6768891378	0.060043697	0.144223392
## 340	-2.289316905	-0.477077716	-0.0956587132	-0.419537192	-0.790215007
## 341	-0.991396888	-0.720544311	2.1960709280	-0.587512791	0.517082892
## 342	0.249946367	0.315481886	-0.4974757321	0.567396457	1.863886017
## 343	-1.065841876	0.696314238	-0.7609629692	0.929933862	0.128411263
## 344	-0.718714942	1.662069481	0.1183509741	1.925636671	1.300787577
## 345	-0.723917047	-0.592185398	-0.5645228423	1.893666374	-2.344236641
## 346	-1.462514175	-0.681950799	-0.9700119193	0.321025766	-2.156088411
## 347	0.359613170	0.140813516	1.5362880260	1.270696291	0.284387320
## 348	0.838125954	0.011626349	1.3441193735	-0.487864028	-2.452094849

## 349	0.557374435	0.083256924	-0.5059868160	-1.218419882	0.107132465
## 350	-0.060498515	0.309298560	-0.5595896150	2.193027370	0.134023881
## 351	-1.064196353	0.077333978	0.9951036798	-1.456637827	0.451678341
## 352	-0.392663103	0.083375983	-0.7986816005	-0.701906079	-0.131490333
## 353	-1.236748218	-1.081663507	0.8580013006	-0.283602564	0.284874587
## 354	0.195523861	-1.508424918	-0.6583810961	0.644250801	0.178303800
## 355	-0.106683307	0.124733260	-2.1431524521	-0.549346194	-1.160272480
## 356	0.349929686	1.030639569	-0.3128274140	-1.034530960	-1.429598932
## 357	-0.138482904	0.230752946	0.1562194515	-0.240739682	1.430139273
## 358	0.150270478	-0.096573390	1.7530522786	-0.055322094	1.606209979
## 359	-0.603301397	0.517934609	-0.6011761163	-1.368186469	-1.232428170
## 360	-2.613318739	-0.033231247	-0.6901146798	0.235942701	-0.014414710
## 361	-0.274716029	-0.158611459	-0.4370637417	1.018225312	0.430008564
## 362	0.453348926	-0.511161078	0.8404171029	-1.297049522	-1.410016275
## 363	-0.365593142	-0.990180920	0.5791652582	0.757622171	-0.033970966
## 364	0.196880448	-1.079092485	-0.0741524241	0.656272791	0.878459145
## 365	0.684820133	-0.538363967	0.1009340934	-1.126434568	0.160876861
## 366	0.800887215	0.668842103	1.9238128500	0.196871740	1.403554540
## 367	-1.688759927	0.801670295	-0.1421168430	0.375406692	-0.160508090
## 368	0.481965307	1.400612191	-0.0489195752	1.334231288	-0.327377755
## 369	0.366837855	-0.435796367	1.0141562604	-0.865431035	-1.077483087
## 370	-0.763822477	-0.348075864	-0.1382179557	-0.447295957	0.269265470
## 371	-0.731059487	0.358176119	1.2886297708	-0.381839585	0.947793506
## 372	-0.405746958	-0.638991841	-0.1610383614	0.981404513	-0.290982584
## 373	0.849340990	0.590372538	0.5996514292	-0.678348975	-1.122608079
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## 377	0.550891658	1.171930580	0.6237737954	-0.556805139	2.684320773
## 378	-0.335819866	-1.704986109	-0.1236085305	-0.140472593	-0.646101558
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## 380	0.300124979	-0.424649377	0.7741086693	-0.938080566	-0.723151729
## 381	2.260645919	-1.292643786	-0.3737556999	0.584248357	0.251057926
## 382	-0.342744886	1.641948646	-0.8472557673	-1.064454053	-0.081919281
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## 384	0.820132165	0.203190617	-0.5080685681	0.820948219	-0.430074781
## 385	-0.011593152	-2.702369095	-1.4154241918	0.888882708	1.502306201
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## 387	1.846797628	-0.229270725	0.3782977428	-0.423397984	0.285132074
## 388	-0.386226037	0.738534427	-2.6785044218	0.982088989	-1.879758455
## 389	-0.456573361	0.146353880	0.0060641537	-0.117678466	-0.458065453
## 390	-0.326352410	1.020344002	0.4481431066	-1.898256814	0.789741433
## 391	0.442792694	-0.904860649	-0.5435929320	0.453475347	0.932474026
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## 393	2.280306720	-1.081375240	-0.3204383487	0.523790407	0.491066498
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## 397	-1.959437855	0.240701916	0.7471153734	-0.005130957	1.573623342
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## 399	-1.318870528	0.711386360	-1.2170046211	0.743085182	0.057067772
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## 405 -0.358814033 0.530042223 0.4748549470 0.860728430 0.742822653
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## 407 -1.452057390 -1.059563118 -1.7361827372 -1.007736320 -1.847143311
## 408 0.971911057 0.974650093 1.5488365775 0.098132835 1.651258408
## 409 -1.838466025 0.167859582 2.1775525536 -1.565372585 0.104790284
## 410 0.806860671 0.162543007 0.6405688179 -1.334738445 0.995283380
## 411 0.924765085 1.330073116 -1.8601762389 -0.263669778 -0.933434085
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## 414 1.347430852 -0.212831253 0.0645018385 0.294285597 1.153674681
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## 548	-0.346471215	-0.501091551	0.7110597972	0.826404223	-1.508702095
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## 573	0.648904641	1.413901855	0.2416322459	2.187303580	-0.518808284
## 574	-1.895669705	-1.004762792	0.7601790440	-1.444665973	0.332996539
## 575	-1.449303874	-0.467458431	-1.0950492247	0.127942084	-0.793729955
## 576	1.078324633	-1.163692080	-1.5676239069	-0.883780142	0.268235110
## 577	-1.368109824	0.009121047	-1.1742930180	-0.227626713	-0.371880201
## 578	-0.844804000	1.651388069	-0.5523697298	-0.253195077	0.600219952
## 579	-0.523658552	0.248851555	-0.8488480033	1.265697214	0.475876422
## 580	-1.369010523	0.493996993	0.5435787782	0.738293118	0.410618148
## 581	-0.300248900	0.882837951	-0.7127029560	-1.669729780	-1.655317456
## 582	-1.348591659	-0.509648044	1.6101424928	0.934523900	0.707374695
## 583	0.553012358	0.529199137	0.4492373436	0.290313211	1.539508889
## 584	1.184281394	2.132301053	0.4134773812	0.193624542	0.816661810
## 585	-0.018638315	-0.234939796	-1.3157065556	1.073515686	-0.729970947
## 586	-1.495735863	-0.334930860	-1.3592776441	-0.356563349	-0.084904380
## 587	-0.215631291	-2.145251553	0.6113939840	0.395316394	0.602133728
## 588	-1.506896575	-0.011722700	0.0923997363	-1.957297432	1.369388200
## 589	0.209855898	1.408354661	-0.5275273569	-0.239075948	-0.038274422
## 590	-0.481770117	-1.328172653	-0.7330959251	0.214586729	0.601132083
## 591	0.424294139	0.272878728	-0.6226942204	1.217628699	-0.200978301
## 592	2.765627940	-0.017458158	1.5668370866	1.507638090	1.646666890
## 593	-1.041207411	0.462495407	-0.1798233410	-0.661228787	0.415388174
## 594	-1.472266685	1.106562399	0.1752969728	-0.015800517	-1.588290433
## 595	-1.081826889	0.714290279	0.3057764168	-1.475175261	0.239675753
## 596	-0.534403834	0.304617188	3.1644014019	-1.507162920	-1.157628132
## 597	-0.148794987	-0.595896013	0.5164262223	0.583869593	-0.816915972
## 598	-1.167957101	-0.601546123	1.4309154066	-1.894485255	0.331863869
## 599	1.734679619	1.396637068	1.5364146856	1.112806806	-0.223315511
## 600	0.570935317	-0.388181418	0.9663462259	-0.463142712	0.295019249
## 601	-0.447141779	-0.157363602	-0.2598247329	-0.817210299	-0.833157509
## 602	1.223375314	0.430500319	0.8168127198	1.147406925	0.686678516
## 603	0.389246565	0.287452218	1.1462160407	0.521692850	-0.818637023
## 604	-0.650522400	-0.777296482	-0.3403884611	-0.347270736	0.213407720
## 605	-0.625157692	1.190800388	-0.6270284360	1.640188420	1.849054050
## 606	1.528811950	-0.777753942	-0.9992557473	1.163138072	0.668626496
## 607	-0.863451657	1.793413783	0.2157956318	0.385132834	0.250655454
## 608	-0.146088742	-0.227226095	0.1014955967	0.515869762	-0.660668883
## 609	-1.244626932	0.512143201	0.1098353389	-0.065132006	0.840728952
## 610	-1.726415592	0.028264442	1.6586576988	-0.736540968	-0.205893834
## 611	-0.815092363	0.497286464	0.1522766019	0.480123245	-0.917354939
## 612	-0.124013416	2.150885984	-0.6669069353	-0.356793712	1.674007172
## 613	0.564072446	0.792118101	0.2577646327	0.429597575	-0.701769935
## 614	-0.931787625	1.377608550	0.7000604896	0.500467784	1.820516273
## 615	-0.603709149	3.568100791	-0.5234707646	-1.259347176	0.250436621
## 616	-0.832557816	0.831400019	1.1533188338	0.765520871	0.211691872
## 617	-2.324544575	-2.995159199	-0.0003493307	1.065106978	0.672593846
## 618	0.866338040	-1.538011723	0.7785492904	0.839340502	1.467100111

## 619	-0.714895311	-0.723930400	0.4318767522	1.311825009	1.502089652
## 620	-0.417501930	-0.559035261	1.7221867597	1.820531894	-0.979444391
## 621	-2.324994863	2.635210483	0.9198206816	0.363705048	-0.425856111
## 622	1.892719771	-1.399748087	0.0788992130	0.440006523	-1.263712577
## 623	0.139170454	0.355558358	-0.2647484652	-0.485958398	-1.234359170
## 624	0.280541363	0.926325318	-0.3024994560	0.581479967	0.919757226
## 625	0.375950326	-0.066387947	1.3056548465	0.398873906	-0.813563895
## 626	-0.349666235	-1.288982512	0.2301103884	0.375197607	-0.655332030
## 627	-1.273126287	0.091095477	0.9435667628	-0.308225639	0.750740098
## 628	-1.672999037	-0.506071682	-1.3022077798	-0.857223056	0.743574730
## 629	-1.316178536	-0.697655553	2.8467049380	-1.553434168	0.279786194
## 630	0.233592902	-0.177761993	-2.3565086125	-0.409126695	-0.939270957
## 631	0.686037156	0.728658796	1.3821589591	-0.056866407	0.486400559
## 632	0.527736591	0.136979348	0.1046564760	2.165868849	-1.596474646
## 633	-0.371315509	-1.059276018	1.3189133805	0.178813814	-0.586813073
## 634	-0.585877320	1.258615973	0.9230093571	0.605085847	-0.159283013
## 635	-0.892552028	1.207010435	0.9814446161	0.943058467	1.730149902
## 636	-0.291238424	-0.042886371	0.3033015326	-1.394608165	0.663269874
## 637	-1.034582933	-0.806640987	-0.9291030055	0.669807607	-0.133455557
## 638	0.217538126	1.374364686	1.3499619531	-1.406435882	-1.019218930
## 639	2.705830141	0.476600373	0.9761605186	-1.751134919	1.343958382
## 640	-0.169114162	-2.375133407	-0.7467664466	0.794246143	0.035087966
## 641	0.585941573	-0.130301250	1.3962362518	0.194900919	-0.578084295
## 642	-0.900520632	-0.206981185	-0.5617092835	-0.720693164	-0.547223408
## 643	-1.178786755	-0.316694551	0.3521258316	-0.312488492	0.143931345
## 644	-0.373327063	0.987230202	0.7074979993	-1.114634514	-0.983475185
## 645	2.682360489	0.021298983	0.2031681511	0.881780179	0.423698355
## 646	0.543032215	0.390725217	2.0374294155	1.932629958	0.961722589
## 647	1.312139813	0.626753241	1.1157189353	-2.637843322	-0.738879711
## 648	0.489590482	1.827196140	-1.2715378361	-1.328436381	1.788142315
## 649	0.059906463	-0.715532612	-0.2308599943	-1.596676164	-0.337164666
## 650	-0.099890138	0.054492976	1.9973984410	-0.346343675	1.517619065
## 651	-0.951433510	0.876962537	-0.8518992466	-0.437052412	0.557949908
## 652	0.263539518	-0.182186346	-1.9482353715	-0.505761983	2.132302397
## 653	1.364524724	-0.236481952	-0.5244202558	-0.235298865	-0.998124580
## 654	0.064500289	0.097913638	-1.1294226766	-0.913555817	-0.825094607
## 655	0.264752126	-0.994030891	-1.6885266469	0.607186388	-0.722869081
## 656	-0.250395084	0.347859761	-0.5956693996	1.530850619	-0.200366288
## 657	-0.025011769	-0.934670326	-1.0471969893	-1.514175320	0.660296352
## 658	0.844223960	1.593042806	-0.3495805512	1.422539366	-1.830444983
## 659	0.591988004	0.785713320	0.3293631631	0.233442965	-0.233825129
## 660	1.183136129	-0.736903199	-0.3008492942	0.568762966	0.801479462
## 661	1.035699309	-0.074130148	1.5688406000	-0.701860753	0.638572660
## 662	0.875773869	0.523208336	0.3235635832	-0.368030943	-1.258543598
## 663	0.691763562	0.871436787	-0.3439070913	1.140780171	0.355445291
## 664	0.486470644	0.326617454	0.2051090848	-0.534271468	-0.353860915
## 665	1.119370992	-0.435639370	-0.5655831423	-0.287608238	0.796066680
## 666	-1.091044805	0.367921531	2.0165320469	0.569394581	-1.292347419
## 667	-0.441063550	0.839841105	0.8556731242	-0.902974712	0.806741017
## 668	-0.025667853	-1.286431436	0.4733847542	0.243040491	2.528909181
## 669	2.048682501	0.298339867	0.2295662013	-0.160209035	0.320816297
## 670	-0.643572428	1.144048361	-0.1164671206	0.931682255	-0.814706995
## 671	0.467677257	-2.536225780	0.1764104790	-1.429539516	0.963943725
## 672	0.012864297	0.575552359	-0.7979764263	-0.951843585	0.250655980

## 673	-0.217049618	0.245255296	1.5388615769	1.157218763	1.550629148
## 674	1.315149763	1.342767444	1.6029766708	-0.910016388	0.886090212
## 675	-0.080017563	1.040420918	0.2700181197	-1.360422610	0.456325693
## 676	-2.675566816	0.296383489	-0.0711197736	-0.619611303	-0.906320535
## 677	-0.424692604	0.443023984	-0.6168961381	-1.245835076	3.376813285
## 678	-1.656259982	1.079396454	-0.1904759296	0.360365653	0.579168989
## 679	0.089565178	-0.627950006	1.3121811940	0.233879503	-0.497573582
## 680	-0.762675918	-0.222546394	-1.4881756295	-0.350110037	0.482057898
## 681	-0.336182617	-0.328506406	0.4886935526	1.502444341	0.171011107
## 682	1.934563180	-0.815425841	0.8609304205	-0.657796020	-0.006762805
## 683	-0.048225880	0.371059871	0.7897895477	1.651422361	1.046350947
## 684	2.107106740	0.063652895	-0.0104143391	-1.136900162	1.555911337
## 685	0.035564693	1.116050642	-0.2359867466	-1.112813415	0.577525910
## 686	0.564821987	-1.734061532	-0.6100310823	-1.719323570	-0.440600115
## 687	-0.608881604	-0.745407136	0.3358249232	1.287386672	-0.143271722
## 688	-0.668659069	0.428603566	-1.3716796878	-1.341126778	-0.600088308
## 689	1.559122181	2.007833790	0.4519671332	0.618780050	0.481409803
## 690	1.288474109	0.436976211	-0.8275842590	1.472352901	-0.573778965
## 691	-1.342895758	-0.281400126	0.4828731174	-1.029718831	-2.419587119
## 692	-1.220036986	-1.280998471	2.0311751275	-0.993805390	-2.050546547
## 693	0.705252061	-0.184510517	-0.7359401304	0.076404006	-0.698312388
## 694	-1.057591313	1.368085428	-0.8308296770	-0.899905337	1.967063166
## 695	1.355526996	-0.881147002	-1.4575137972	-0.641062080	-0.031663975
## 696	0.422336715	-0.442672742	-0.9026548316	0.316115193	2.319781539
## 697	1.472115971	1.978785165	1.3683968045	0.194329568	1.492371533
## 698	3.031490006	0.858659373	-1.4429905497	1.804220250	0.627931925
## 699	1.162840709	0.011669734	0.6635523693	1.299626073	-0.355469822
## 700	-0.509280322	0.702432457	0.5967434611	-1.744212198	1.207431802
## 701	-0.595741118	1.702361294	1.7615465095	1.091042399	-0.003128137
## 702	-0.699373233	-0.244828597	1.8003552297	-0.324009870	1.833687990
## 703	1.326229586	0.481699743	-1.5242211545	-1.193213572	-0.840528300
## 704	-0.316786370	0.452141492	0.7206449896	0.440634577	0.896168186
## 705	1.145348684	0.894292168	-0.5627435131	-0.162095164	-0.840575956
## 706	0.803955472	-1.325511810	2.0179632506	-1.568887168	0.666445143
## 707	1.093952313	-0.604905123	-0.9125911867	0.239324906	1.116862726
## 708	-1.259585946	0.033907020	1.3133275386	0.802920175	-1.321012936
## 709	1.626756453	0.845787452	-1.3567503950	-0.511516053	0.523197945
## 710	-0.176476004	-1.322992288	1.2174433641	2.176828018	1.635016955
## 711	-0.706049741	1.085928051	1.0577426043	-1.970053865	0.650801194
## 712	-0.625133147	-0.905084543	1.2711988623	0.974314236	0.126371701
## 713	1.315304767	1.105414771	1.3871073162	-1.714908790	0.590495630
## 714	-0.806370340	-0.689965104	0.3328069445	1.623166300	-0.167227372
## 715	-0.458369978	-0.753518357	0.0027971407	0.078847624	0.849938391
## 716	0.392736050	0.468927478	0.8621190886	-0.369151900	-0.121243719
## 717	0.871615061	-0.949053818	0.0259145316	-0.845167268	0.566295407
## 718	-0.140404093	0.057298611	-1.0130059952	-1.336656420	0.498638756
## 719	-1.917315609	-0.062061376	0.3036876306	1.811240917	-0.644279923
## 720	1.482849194	-1.828359339	-1.3449850888	0.637181537	1.763745929
## 721	-0.341810845	-1.245965571	2.0069008275	-0.206229500	-1.337264869
## 722	-1.356841555	0.234281451	0.7825470720	1.841294515	-0.124472198
## 723	-0.781046993	-0.971474847	-0.7423157235	0.983108856	-2.385055242
## 724	-0.852568860	-0.737818668	1.1230245206	2.192351838	0.796791632
## 725	-1.393687265	-0.055587218	2.3136021976	0.870299765	0.715509360
## 726	-1.247835960	-0.868353754	-1.0595378251	0.648621137	-0.159523112

## 727	-1.856552904	1.259286101	2.5354773198	-0.518048202	-0.822567015
## 728	-0.178006726	-2.078035917	0.2205346736	-0.921686830	2.391108180
## 729	-0.236266950	1.062710473	-0.5075108837	0.745229064	-0.381253319
## 730	0.029058417	1.049550630	-1.4336707642	0.992405003	-0.478331414
## 731	0.202736866	-1.215721936	-1.0799376759	-0.503296487	0.638090604
## 732	0.629425373	1.142926012	0.9198549415	0.114789961	0.298918991
## 733	-0.171404321	-2.029625133	1.0766846320	-0.812988860	0.999487212
## 734	-0.041393713	-1.136627917	-0.2648074124	0.494012980	1.508328930
## 735	1.121987326	-0.421165762	1.1268041097	-0.087266093	1.507009089
## 736	-0.621968149	1.205924214	0.0144029969	-0.510962962	0.207643150
## 737	1.506857631	-0.667863520	0.0868839436	0.240127335	-0.647995964
## 738	-0.048142757	-1.109872235	1.9009908704	-0.700874998	-0.986777218
## 739	-0.113022100	-0.766319777	-1.2979524977	0.568383080	0.560837249
## 740	0.568654402	1.351097509	-1.8041292105	0.330965681	0.213953801
## 741	0.994620560	0.984974173	0.0971141069	-0.167720226	1.370469037
## 742	1.324922549	-1.378180523	1.2943854845	-0.848932893	-1.778969667
## 743	1.321323571	-1.254985161	-0.5835313356	0.158713279	1.314024720
## 744	-0.934367416	-0.411669287	-2.0095805399	0.283733059	0.547027794
## 745	0.818623424	-0.331218093	1.7229046285	0.475452063	1.164445808
## 746	1.907593641	0.093262020	-0.2018179140	-0.433770994	-1.549243844
## 747	-0.827202499	-0.722410829	-0.9621231082	1.460631228	-0.355219668
## 748	0.098356124	-0.033952999	1.6091883864	-1.495874547	-0.571221415
## 749	0.244522825	-0.185049957	-1.8340458680	0.289663306	-0.067760919
## 750	0.658456394	-0.146919140	-0.8818862030	0.887935387	-0.143150539
## 751	0.616383277	0.186886258	-0.0651775129	0.017227381	-1.069300311
## 752	0.424534294	-0.258041038	0.9370331935	-0.993826996	0.187847194
## 753	-1.427823673	-0.298349351	-0.4540909016	1.342623878	0.431620291
## 754	0.363560210	-2.344492204	2.2446496278	0.793463228	-0.530272079
## 755	-1.164689489	-1.480627529	0.5446641459	2.107886757	0.915050098
## 756	-0.376176518	-0.188475215	-1.6805174674	-0.123897022	0.456683723
## 757	-0.691872935	-1.323609485	0.3243707269	-0.766208418	0.853849176
## 758	-0.706938859	-1.023767306	-0.2728373032	0.348091637	1.561870555
## 759	-0.585945450	0.187369237	-0.0115066217	-0.465416208	-0.394397732
## 760	1.361856520	-1.632001199	1.1590828024	-2.813060402	-1.350235334
## 761	-0.366973675	-0.126956208	-0.5380128342	1.352867896	0.391797751
## 762	-0.398659576	-1.437659134	1.4087997773	-1.034343168	-0.732416199
## 763	0.946478339	-1.754687600	-0.0786828073	-2.135476651	-0.259792859
## 764	-0.546842808	0.314373636	0.0995424398	0.557615834	-1.253006217
## 765	-0.598647403	0.534373991	1.2591928690	0.526274165	-0.505339239
## 766	-1.063995787	0.606034483	-0.1970711214	-0.406943802	0.219432484
## 767	0.387235832	-0.159040249	0.6499639740	0.877332701	0.012750930
## 768	0.258892518	-0.826272881	1.0721939983	-0.492104576	-0.134375070
## 769	-0.186863632	-0.698344842	2.2310011990	-0.059857966	-1.216069271
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## 772	1.106371369	1.073221035	-0.5172522516	-1.260438507	-1.503258029
## 773	-1.317724357	0.794182885	-0.9243638555	0.466379138	0.185428390
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## 776	-0.199006992	1.657830184	-0.3694369054	-1.025910760	-2.055343758
## 777	2.366963319	0.887526688	0.0089952565	-1.486847961	1.590370027
## 778	0.036868587	1.021844799	0.0110962221	-0.575516675	-0.913347973
## 779	-0.763354483	-1.441737422	0.2255766875	0.317373550	-0.531628483
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## 781	1.138883384	-1.280172151	0.3736331178	-0.701181019	-2.010137770
## 782	0.005384626	-0.431805402	-1.5614735209	-0.310440772	0.840587580
## 783	-1.537448130	0.023679347	0.9958710636	1.584178634	0.746274952
## 784	-0.930354823	0.632021193	0.0529431203	0.171005811	-1.215717926
## 785	0.121031565	-0.446589510	0.8631715638	0.051290859	-1.676582069
## 786	0.937666470	1.094438107	0.2997280049	-1.529871679	0.697992110
## 787	1.308167407	0.168465262	-0.1545512361	-0.201482989	0.512301165
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## 789	0.565604410	-0.408561070	1.8495530654	-0.385750231	-1.589512539
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## 943 -0.273942080 1.237155436 -0.7560776278 -1.438343311 -0.615924870
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## 999	-1.078988810	0.872542832	-1.3233690873	0.461156243	0.798627026
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## 3	-0.4960425489	-0.121018977	-0.920512955	0.461469031	0.531754028
## 4	0.0669311168	-2.115910024	-0.595282886	-0.058047304	0.493247862
## 5	-0.0569491363	-0.998350378	-1.017175115	1.023948990	-0.546501545
## 6	0.2555801672	0.634120419	0.589142375	1.071808428	0.523577956
## 7	0.3975909512	0.171953843	1.359312743	-2.331077946	0.462387864
## 8	0.6548400936	-1.791079610	-0.083893282	-0.829247660	0.038504163
## 9	-0.6150500716	-2.129677331	0.744888923	0.043175122	-0.306819663
## 10	0.0067460787	-2.203513311	0.300256020	0.444121325	0.400121896
## 11	-1.3514833886	0.714910342	2.056836714	-0.830893937	-0.223377312
## 12	2.2938317785	-1.371906244	-0.585775048	1.618152079	-1.072029249
## 13	-0.2407189406	0.936506676	-2.331474379	0.793929707	0.655064148
## 14	0.9555989122	-0.899179899	-0.671608077	-0.769660625	-0.594123896
## 15	0.6689608338	-0.828236578	-1.088935277	-1.708125140	0.441065268
## 16	0.7259857536	-0.074745458	0.403070426	-1.321876219	-0.026456338
## 17	-1.0161582852	-0.454608335	-0.594304671	-0.193165505	0.175207166
## 18	-1.9738623321	-0.898838790	0.388119669	-0.109422140	-2.252001201
## 19	-1.4451925922	-1.386837727	-0.658712653	-0.400629589	0.377216819
## 20	0.4005455949	-0.812561346	-0.538563974	-0.170080117	0.884542025
## 21	0.9503504165	0.510760550	-0.799678495	2.062557795	-0.277163787
## 22	-1.4746047309	0.301850973	1.310310972	-0.286511144	0.082726383
## 23	-0.3948491156	-1.313677295	-0.558209670	-1.885609891	0.745151861
## 24	0.6206016363	-0.607611113	-1.346702042	0.221119113	-2.455381951
## 25	0.8064970457	-0.292080516	-0.167187867	0.663678613	-0.565088666
## 26	-0.1052049221	0.648173999	0.571958631	-0.142371237	-0.676556307
## 27	0.2804701946	0.821998193	-1.054957287	0.687929256	1.680233211
## 28	1.3300488071	-0.786546092	-0.854036528	-1.843942014	0.070870580
## 29	0.7313410654	0.157369194	0.020712016	0.072459961	0.061847314
## 30	0.7391105647	-0.009683662	-1.030098724	2.093288944	-0.852385597
## 31	-0.3107640995	2.117555455	0.014788964	2.225846312	-1.152621694
## 32	-0.8276934142	-0.510126219	0.726637278	1.709993399	-0.195477720
## 33	-0.7681088476	1.721826447	-0.084891062	-0.576541990	0.879703589
## 34	-0.3460778452	-0.138776467	1.263238312	0.784513033	2.314523495
## 35	0.2301868255	2.480780157	0.716069831	0.873653011	-0.432475696
## 36	-0.9092857626	-1.545245677	-1.060468887	0.927067896	0.175992074
## 37	-0.8435142214	-0.273131329	-0.865837283	0.339530447	-0.374598714
## 38	-0.7201521041	1.021643141	1.100947167	-0.882186651	1.147755140
## 39	-0.4627597569	-0.646365837	-1.325298114	0.696854835	0.711427127
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## 42	0.4143488682	1.796678735	1.351944396	-1.510384501	-0.004477074
## 43	-1.2764763887	1.131769673	0.047304381	0.835026314	-2.191144374
## 44	-1.2080934481	-1.303509117	-0.243764974	1.135273299	1.104963716
## 45	-0.0566157650	-0.650580948	0.727625410	-0.431989531	-0.139853984
## 46	0.5029135364	0.268984889	-0.719392714	-0.263194615	0.309426950
## 47	-0.6425059952	1.668463135	0.902912595	-0.242522282	-1.111371404
## 48	0.5987205872	0.087672410	-2.906240303	-1.138426188	0.203982308
## 49	-1.2480871972	0.822886462	0.129348209	-0.013913638	0.450606156

## 50	-0.8801700719	0.710120822	-0.040427038	-1.144242983	-0.412616969
## 51	-0.3975580244	0.510540107	0.495741964	0.217757659	-0.491534188
## 52	0.5455730207	-0.724943776	-2.242315365	0.767577264	1.821545524
## 53	1.3149699750	0.980188735	0.081666308	-0.018912213	-0.708933781
## 54	-0.5413326151	1.371012314	-0.375338399	-0.931944980	-1.202535352
## 55	-0.4199806692	-2.254328299	0.201738331	0.201896504	-0.613722098
## 56	-1.1246956845	-0.005241971	0.213264038	0.726727851	0.713307903
## 57	-0.7039492578	0.746058595	0.465954158	-1.144905966	0.563375158
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## 59	0.6742598951	-0.638622053	1.102203364	0.989062469	-0.262639249
## 60	0.4248915998	0.068811354	-0.261124504	-2.062124516	-1.737497059
## 61	-0.2640928173	-1.372048334	-0.359384435	0.347273062	-0.098312946
## 62	1.1679845534	0.789454622	1.829282548	0.974314894	-0.635047520
## 63	-0.6748148710	0.951078202	-1.604891598	0.961640687	0.401998420
## 64	0.0650135171	-1.016138122	1.076938630	-0.018732112	-0.483294785
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## 67	-0.1376186386	-1.000829544	-1.014661647	-0.337257548	1.749601760
## 68	0.3944331756	1.161581756	-0.637567505	1.636230930	1.005271492
## 69	-1.3128667753	-1.439661436	-0.130017489	0.335936939	-0.781282972
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## 71	-0.3469057441	-2.049595968	-1.016635092	0.862070547	-0.968130555
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## 75	-0.9502820314	1.338906215	0.604216064	1.551564804	-2.575193662
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## 78	0.2053709208	0.575233605	-0.512595107	-0.882864116	0.365669044
## 79	-2.9420044704	0.111859313	-1.182427924	0.076215968	-0.729297726
## 80	-0.9334703194	1.452342856	0.196757765	-0.563278710	-0.345849536
## 81	0.1282053405	1.229121318	-1.400122628	0.570329804	0.835911967
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## 161	-1.1285446597	1.548994862	0.038797486	1.455075411	-0.043071008
## 162	0.0001040115	-0.619177777	0.128581300	-0.414930001	-1.489490970
## 163	-0.4520553403	-1.377668504	-0.877226276	-0.481441850	0.770885593
## 164	-0.0092719800	-0.159926832	0.736796060	0.302098045	-0.972739436
## 165	-0.6775027312	-0.109610312	0.592200343	-0.434366897	-0.750480825
## 166	0.1351048792	1.045137197	-1.749183878	1.804898264	-0.052933659
## 167	-0.5719873419	-0.052874826	-1.116558144	-0.831188839	-0.632240444
## 168	0.7310000203	0.197336512	1.695468126	-1.098879512	1.221811791
## 169	1.0136443060	-0.094114468	-0.262451555	-0.735076294	1.091926310
## 170	-0.9577085375	0.256764097	-0.191232645	-0.014988332	1.446027700
## 171	1.3808036457	-0.051972244	-1.194778679	1.898561045	-0.447708688
## 172	0.6624848371	-1.004915475	-0.152866071	0.223560290	-0.314489328
## 173	0.5319344917	1.310274293	-0.752277433	-0.996985931	-0.085312495
## 174	-1.8196289472	0.575534637	0.248720834	1.306814597	-0.341253984
## 175	1.3183044629	-0.145313154	-0.339326179	0.025379810	2.191315516
## 176	0.0522418571	0.133636917	1.813414043	-0.484108753	0.849848597
## 177	0.9465033961	-0.303245868	-1.047969014	0.406779834	0.145332688
## 178	-1.3208871008	-0.057812489	-0.109143844	0.540380131	0.923074109
## 179	-1.1462332534	-0.005801557	-1.243090288	0.840922193	-0.156852809
## 180	0.7754844323	-1.287013106	0.193544021	-1.121668853	0.020027678
## 181	0.8406209017	-0.649415445	0.378283203	-0.563131856	-0.776767242
## 182	0.0926466462	-0.741289436	-0.844832856	0.928296624	-0.246659597
## 183	2.1291764321	0.680353949	-0.514729094	-0.506483446	-1.074686215
## 184	1.3607186079	0.266954289	0.109022664	-2.741278890	-0.533113418
## 185	-0.7926915597	-1.914697060	-0.067552720	-0.222557701	0.537335653
## 186	1.1823416172	-1.057869058	0.708938734	1.303192768	-0.817995038
## 187	0.4696911766	-2.707322596	-1.363267387	-0.538081256	0.185291918
## 188	1.5183071730	-1.360584165	-1.075932090	0.076349491	-2.741432421
## 189	-0.3427605139	0.829779419	0.277966833	-0.223318119	0.118360959
## 190	-0.0568093389	1.442740330	-1.045827612	-0.076327987	-1.002949766
## 191	-1.1810162585	-1.148974778	-1.470413334	0.075575934	2.206591398
## 192	-2.1613996851	-0.585065243	0.346764015	-0.043803521	-1.958032804
## 193	1.0815837103	-0.554611613	-0.455965246	0.378481664	2.021697943
## 194	1.2001543737	0.450131124	-0.797149387	-1.276205661	-0.124602271
## 195	0.0786647874	-0.354204342	-0.614794676	-0.419379947	0.749494576
## 196	0.3270306184	0.438307128	-1.989818316	0.644705833	1.070903024
## 197	-0.2623625137	-0.484579456	-1.273097418	0.498927610	-1.880700607
## 198	-1.2308914987	0.823886173	0.832926827	-0.200134067	0.703783757
## 199	0.3861971992	-0.759310563	-0.695119864	1.151877105	-1.110534259
## 200	0.3780942130	0.166471216	-0.640815172	-0.871093892	0.251649641
## 201	-0.5667017416	1.018114991	-0.060236305	0.228608988	0.678399969
## 202	-1.0038635578	-0.137797525	0.704642724	0.243174026	-0.524572055
## 203	-0.2853900130	0.602724599	-0.845598726	2.862947729	0.659921275
## 204	-0.3762618126	0.317372637	-0.474104581	-1.322639601	0.776822491
## 205	-0.3568962803	-0.526986821	-0.758110721	-0.431875884	-0.793181841
## 206	-0.0138500042	-0.037311865	-0.796387117	-0.861728026	0.163035836
## 207	1.1661260878	0.349746375	-0.512493520	-0.013459099	-1.922504594
## 208	-0.0812192507	0.317398339	-0.089165099	-0.554212327	1.268607800
## 209	-0.2398616597	1.762230038	0.324557502	-0.361362556	1.235179825
## 210	-1.2232016249	-0.095935536	-0.967188712	-0.964091175	0.991799837
## 211	1.6937961446	-0.486966786	0.834586023	0.203438760	-1.044041186

## 212	0.4650635741	-0.056157815	-0.445550129	1.996195425	-0.916880779
## 213	1.2333044137	-0.897521783	0.785337293	-0.334273339	-0.430465656
## 214	0.3831824231	-0.059265179	1.587538897	-0.340826034	1.374944603
## 215	-0.1830168375	1.116749085	0.463468338	-0.566888824	1.424923659
## 216	0.0474588521	-0.344316732	-1.075077546	0.433050396	-1.372072201
## 217	-0.9028133654	0.243305312	1.196803417	1.346127634	-0.144613797
## 218	1.1962259820	0.131365123	-0.073486313	0.367813313	-0.251349005
## 219	-1.5675611324	-0.340464422	0.462923998	0.302318564	-0.677888034
## 220	0.4885241744	0.149435880	-0.071023635	0.775666660	-0.661468603
## 221	0.0874715763	2.353734634	0.685723095	0.174417898	0.083457214
## 222	0.1414373456	-0.478736326	-0.829763028	-0.787750355	-0.701873916
## 223	-1.0919941082	-0.592099428	0.448944313	-1.420193852	-0.713496422
## 224	-0.5090269452	0.023836523	2.105227926	0.672926039	-0.480848356
## 225	-0.1361643335	-0.024047567	1.326989668	0.028489334	0.640572910
## 226	0.8423788507	-0.272177300	-0.776907456	0.036896740	-1.496385188
## 227	-0.2404009008	0.447971675	1.015521664	-0.847408057	-1.077446930
## 228	0.6119872300	1.325046131	1.926566180	-0.505300870	0.360784878
## 229	0.6315825048	-0.964917625	0.972147762	1.545091039	2.824986653
## 230	-0.5130288034	0.601298637	0.863705685	-0.724141590	-0.708037154
## 231	-2.0745881160	0.236414893	1.999862159	-0.541651880	0.652123133
## 232	0.9769542300	1.010686942	-2.300889601	0.958300002	-1.480026809
## 233	0.9751020150	-1.202464208	0.178877135	-0.375807043	0.130480117
## 234	0.1450017222	-0.245103372	-0.121639201	-1.368937526	0.927673326
## 235	0.1697424920	-1.048232309	-0.333771597	-0.844600006	-0.774787123
## 236	-0.6700302290	0.529387214	1.581715444	-0.380344617	-1.708677599
## 237	-0.4972630617	-0.451082925	-0.353778433	-1.737266155	-0.889666527
## 238	1.4973839836	-0.467393699	1.135421677	-0.077598411	-1.386996942
## 239	-0.5101631922	0.188276343	0.633698401	0.201806941	-0.250473815
## 240	0.5601822302	1.844454631	0.212722456	-0.062868974	0.258574963
## 241	0.5419955954	-1.382123720	-0.977610423	-0.958647622	-1.014462056
## 242	0.9768330004	0.159286045	-0.219999747	1.299114399	-0.402722383
## 243	0.8989086304	-0.202440184	0.615020279	0.299062470	-0.838280312
## 244	0.1806093028	-0.540770633	1.604787917	-0.254901151	0.063797225
## 245	-0.0533000620	2.059277177	0.655560530	0.200193945	-0.635232691
## 246	0.4081733122	-1.087111707	-0.006626079	-0.087616963	1.088079648
## 247	0.1526969582	-0.596150714	1.275966983	-0.111582913	-0.062462426
## 248	-0.0590281053	0.245660583	-0.515013500	-0.869386265	0.562716792
## 249	2.1685937688	-1.901101133	0.239520622	-1.151345967	0.414049100
## 250	1.5216299199	0.931731129	-1.092578942	1.774901336	0.884822106
## 251	-1.2264881566	-1.019503061	-0.633444833	0.425721432	-0.032439781
## 252	0.2813382998	-0.393747963	-0.507259597	-1.468243833	-1.081652545
## 253	0.4810710618	-0.710957943	1.020494821	-0.826018965	1.071393412
## 254	0.6479097852	0.321024407	-0.071123626	-0.626441647	-1.454999611
## 255	-0.2639834425	0.327957991	-1.183794891	-0.885867465	1.570032552
## 256	-1.1650459537	1.484918104	-0.330950185	1.683417604	-1.694650826
## 257	0.9102873194	-0.543750749	0.650588517	-0.576428325	0.416952609
## 258	1.5196822155	1.557793984	0.223891295	0.601500935	1.859221949
## 259	1.4312082728	-0.371093807	-0.948414653	-0.600190739	0.183864210
## 260	-1.2764149877	-2.511451774	1.606039626	0.772082075	0.464694660
## 261	-0.4979415839	-0.651782050	-1.207230870	-1.638706257	1.345468324
## 262	1.4153188937	-1.783008232	0.223510642	-0.029053083	0.560207665
## 263	-1.1053388536	0.347985084	-0.601973575	-0.706086824	-0.411583433
## 264	1.3832280411	-0.389052093	-1.618208181	-0.221570415	0.216936092
## 265	0.5834496070	0.576091580	0.529166472	-0.316893171	-0.171921638

## 266	-0.8907444257	0.570919647	1.199812704	0.231667924	-0.625834766
## 267	0.8084942156	0.497190237	-0.120170275	0.201182310	-0.082275935
## 268	1.3363506124	0.351553380	-0.611072518	0.006082520	-0.334088960
## 269	1.9068928604	0.645304635	-0.219078198	-0.381604162	0.327276240
## 270	0.9334481910	-2.229713991	-1.270104109	-0.547849330	-0.674239479
## 271	-2.1485716235	-0.529657803	-0.416872615	0.354963340	0.469512314
## 272	-0.7357682994	-0.436789051	0.611189800	1.424366779	0.515081919
## 273	0.1767845442	0.515799805	-1.028356647	-2.219015479	-0.352486943
## 274	-0.2640389266	-0.303117629	-0.606555088	0.018645203	1.300709967
## 275	-0.2674535296	0.753293282	-0.898467435	0.098622336	1.029750364
## 276	0.0269463776	1.858991576	0.347962735	-0.288206554	-1.699328316
## 277	-0.3657730244	-0.548939895	0.258586994	0.533493688	0.187504036
## 278	-0.4496313683	-0.728177719	1.294392586	0.400021291	-0.854331178
## 279	-0.8816983085	-0.610301358	-1.081216285	0.121910829	-0.679701207
## 280	-0.5014155094	-0.291229619	-0.181168873	-0.063389776	0.121188922
## 281	-1.5609439861	-0.723374402	0.103432690	-1.485042076	-2.113227657
## 282	0.1924052505	0.940889421	0.064583061	0.300121930	0.557676604
## 283	1.2781974671	0.446384129	0.005926109	1.358799928	-0.341266620
## 284	0.9960878283	0.063250972	0.994290303	-0.668284307	-0.023849040
## 285	-1.9504790497	-0.220594868	0.184352995	-0.714993825	1.037623488
## 286	-0.0497501247	0.223281368	0.381601568	1.171152699	-1.871895290
## 287	-2.2177543774	1.090533524	0.443662954	1.228532734	0.059390722
## 288	1.3309397002	-0.380057742	-0.913960087	-0.048989257	1.146180262
## 289	-1.1634467238	-0.996468835	-0.512654233	0.377202227	1.350795333
## 290	-0.3772870919	-1.223886931	0.249651921	-2.392367420	-0.945639521
## 291	0.1954060828	0.395667644	-0.329203160	-1.333759560	1.028581383
## 292	-0.4088850069	-0.489847488	0.451030294	-0.559112446	1.297176120
## 293	0.5710818672	-0.904751716	-0.596706672	0.952006029	0.322759692
## 294	0.4522719963	0.400731049	-1.592762809	2.835413065	-0.277446801
## 295	-0.8133373973	-0.824836895	-0.055332339	0.124395809	-0.490609109
## 296	-0.0009612474	0.227120292	0.354766421	-0.272432924	-1.406740271
## 297	-2.3552117504	0.235647765	0.478576044	-2.394101815	-0.431419764
## 298	-0.5195986549	1.500385885	-0.066368492	-0.691438194	-1.108657062
## 299	-0.5216469164	-1.077280207	-2.199883097	-0.350623776	0.371114969
## 300	1.0776661090	0.900208885	-0.261255979	-0.088519216	0.696923583
## 301	0.7042930947	0.171801906	-0.697509156	0.023503098	-0.632199019
## 302	-1.1523234994	-0.064620333	-0.519649768	0.784739314	-0.526872308
## 303	0.5179262888	-0.363568023	1.062196133	-0.870678331	-1.193639358
## 304	0.4887424438	-1.062481000	-0.859524975	-1.644928420	-0.483016367
## 305	0.7731908614	0.012635359	0.241186794	-0.473707068	-0.756376377
## 306	-0.7828693299	-1.002169158	0.722421871	-0.299021494	-1.007056105
## 307	0.2562069076	-0.888538185	-0.865182868	-1.072648979	0.042783545
## 308	1.4108627261	-1.723832789	-0.029133935	1.479548783	-2.247462930
## 309	-0.9611881650	1.196804875	-0.454423166	-0.808059543	1.631342230
## 310	0.6321581567	-0.166530359	-0.776177494	2.312457513	-0.120740785
## 311	0.1019983783	-0.645431706	0.653941754	1.527013554	1.212464840
## 312	0.2807304696	1.882295268	-0.429027937	-0.114612197	0.524708598
## 313	-1.5435029662	0.373182050	-0.981474153	-1.203793555	0.007799252
## 314	-3.3487848671	0.751067188	-1.006331673	0.885008393	2.974269599
## 315	0.8911388554	0.058708340	0.786944483	0.582743668	-1.379173889
## 316	-0.0277743574	0.264528290	-1.342766243	-1.703473760	-0.223567591
## 317	-0.8853817965	-0.070219471	1.135168737	2.579225693	0.603368006
## 318	0.5358642747	0.247230386	-1.148922864	1.245348279	1.123122168
## 319	-0.4062283134	0.738453597	-0.035608932	-1.851218230	-0.824082677

## 320	0.3649155836	0.209664375	0.285929304	-0.919253561	0.277908023
## 321	2.5298564616	-0.420330898	-1.363063549	-0.670615737	-0.062248125
## 322	-1.5012758453	-0.551849693	-1.247038114	-1.160714872	1.797617096
## 323	-0.9834046968	-0.651388404	0.993831710	0.641797700	0.235073430
## 324	0.5427032689	-0.394367313	0.115800337	-1.593828827	1.053456470
## 325	1.2857901120	0.628472036	-0.643829999	-1.497271439	0.484551498
## 326	1.6109635898	0.005393979	0.065185284	0.676298061	-0.290953541
## 327	1.5733849808	-0.314191513	-0.886152714	-0.310965212	0.870964370
## 328	-1.0840382203	0.142430009	-1.233105301	0.471288884	1.517669640
## 329	0.8406884420	0.518463178	0.012359654	0.163918837	-0.180066516
## 330	-1.3917744320	2.424967050	1.982374946	-0.926780768	1.059062885
## 331	0.3503339089	-2.121057626	1.388048614	-0.660562039	-0.911208640
## 332	0.9951435893	0.214300834	0.119354366	1.395386438	-0.712089718
## 333	-0.1849528793	0.779094877	-0.667563990	0.101846982	-1.232629625
## 334	-0.5161673452	-0.187173219	-0.022999300	0.423825372	-0.486802946
## 335	0.0300182612	0.270856223	0.894088572	-1.571622955	-2.413330062
## 336	0.7681956590	0.883339813	0.147493515	-0.489628727	-0.624527209
## 337	1.3175107671	-1.469236066	-0.083328514	0.051632450	1.361343027
## 338	-0.2627419580	1.252077993	0.008236722	-0.717970272	0.352886194
## 339	-0.4484640978	-0.126903890	-0.238966689	0.969971957	-0.454036341
## 340	0.2387115171	-0.590481149	-1.591887979	0.611619633	1.373034509
## 341	0.0820149911	-0.608697050	1.095885342	0.436358029	-0.175679949
## 342	0.4824190573	-3.515276059	-0.813439222	-0.211824835	-1.139703543
## 343	-1.9928862796	1.752226466	1.278064287	1.474849649	-0.350112691
## 344	-0.1104029580	0.854751521	-0.340362300	-0.114667468	0.026382198
## 345	-0.0301514549	0.253277105	-0.338960660	-0.038536055	-1.192450376
## 346	0.4799399969	0.615245703	-0.477970346	0.817340282	-0.920824980
## 347	1.1217916523	0.337031259	1.564247843	1.159220450	0.682399935
## 348	-0.6916650639	0.098351478	0.389084479	1.022815243	1.035485993
## 349	-0.4736256398	0.009437273	0.624442289	1.804444083	0.229987177
## 350	-1.1696370182	-1.187833795	-0.223193530	0.492787798	0.666011871
## 351	0.0863551772	2.033359513	-1.143457295	0.437213516	1.907763470
## 352	2.3585592662	0.597293744	0.093048348	0.348970403	1.468695070
## 353	-0.4971042361	-1.117390382	0.708986703	0.411441645	-0.648920723
## 354	-2.8133666617	-1.151232911	1.202579155	0.122938227	0.316185505
## 355	1.0012414449	-0.555123976	1.062401603	-0.222020709	-1.161257897
## 356	-0.1391531957	1.098929185	1.598087252	0.345216456	0.896410988
## 357	0.6037491801	-0.176931390	1.270549816	0.642348519	-0.564532792
## 358	-0.4342404727	0.120863750	1.578007617	1.809481232	-0.251613005
## 359	-0.7366299464	0.621314723	-0.598562466	-1.027183755	-2.137730590
## 360	-1.5136416867	-0.277842613	-0.415784166	1.437517011	1.433850612
## 361	0.8007696594	-0.661175970	-0.186798100	0.668418469	-0.942047608
## 362	-0.8175722638	-0.361115735	-0.875994375	-2.530912416	0.971991964
## 363	-0.0215263676	0.752366885	0.189050209	-1.788304623	-0.458767619
## 364	0.8199622283	0.525641018	0.182750842	0.404709539	1.713087434
## 365	0.9055647569	-0.180923900	0.499393521	2.068954812	0.884074355
## 366	0.9967066498	-1.046130139	2.290508427	1.060206794	-0.009923601
## 367	1.0483541368	-0.922087956	0.274519155	-0.731054242	0.767196015
## 368	-0.2646180929	-0.374979959	-0.403700394	-1.186002746	0.288153614
## 369	0.9312248324	0.950065195	0.887900497	-0.245676863	0.610690353
## 370	1.5502964821	-0.883565951	-0.723484718	-0.443865947	-0.464659848
## 371	0.4605438333	-0.471308562	-0.752147501	0.091027831	0.646781950
## 372	0.7105311603	-2.146410132	-0.801704866	-0.801657425	-0.433676759
## 373	1.1681819571	0.052532298	0.436863431	0.109614739	-0.004329832

## 374	1.7207214853	0.269998675	0.908808491	-0.067063214	0.549571783
## 375	-1.2323104507	0.427341426	0.474421396	0.358069635	1.307202411
## 376	1.4538477479	-0.127685634	-0.102273113	-0.466673402	0.039095829
## 377	-0.3048116012	-0.715164859	0.272438221	0.211591637	-0.759556727
## 378	0.6683523897	-1.471845388	0.373009307	1.248074765	2.040334426
## 379	0.2908097276	1.296313813	-1.979561318	0.096515482	-2.032823697
## 380	-0.5660595313	0.748146853	0.662897321	0.202727116	0.458055415
## 381	-1.5351973616	0.829845812	0.972321259	-0.141997060	0.648519185
## 382	-0.2237834023	-2.337546949	0.348211759	0.162183846	-1.992806269
## 383	-1.1782040922	-2.109800870	-0.363134496	0.689096133	0.636985932
## 384	1.3458152290	-0.092804170	0.440414618	-0.022002171	0.751182588
## 385	0.9441820471	0.521758011	-1.146277740	-0.655571266	-0.004861432
## 386	1.3673436049	0.739968269	-0.473780604	0.107155896	0.472768766
## 387	-0.1307295175	-0.491828744	-0.137208628	-0.216817478	0.567634459
## 388	-0.3934488161	-0.881816268	-0.526209998	1.159684765	1.310332280
## 389	-0.1848557455	-0.430356282	-0.880768076	0.916093240	-0.428315945
## 390	-0.5404020470	-0.795135901	1.198593934	-0.788253029	-0.674283165
## 391	0.6574684244	-1.479847999	-0.782730425	0.091597860	-0.931010360
## 392	0.2266276239	0.509996698	-0.180175841	0.088646288	0.072981580
## 393	-1.1752508538	0.770231304	-0.170722711	1.655944172	-0.863525025
## 394	-0.4548341993	1.493636388	-0.608050682	-2.471260754	0.618255708
## 395	2.3678105767	0.659427580	0.153732558	-0.077665571	0.465928568
## 396	-1.2894094542	-0.413461940	0.047370163	0.893160958	-0.195425091
## 397	0.1445644241	-0.501513181	-0.985565144	0.197603046	0.121035574
## 398	1.0312357354	-0.407972895	0.045684643	0.902859344	-0.044584438
## 399	-1.3888010669	0.721473065	1.480253290	-0.243000505	-3.039541643
## 400	-0.4613246034	-0.126441943	1.180256953	-1.141589447	-3.100392308
## 401	-1.6438404563	-0.605744974	1.280484186	1.510971513	-0.502882684
## 402	0.8465412797	-0.114434200	0.939637311	-0.812679109	-1.202090133
## 403	0.2560800041	-0.652506970	2.237318632	-1.143185619	-0.560302228
## 404	1.5490990341	-1.774893225	-0.686080264	-0.383518151	-0.909222732
## 405	0.8793395477	0.113910934	1.011966269	0.040068250	-0.518414263
## 406	0.4388376172	0.163077195	-0.502754849	0.764228462	0.016810730
## 407	-0.8876455257	-1.454077107	1.609276454	-1.219973237	0.908216187
## 408	-1.9277574563	0.859523453	-0.827480714	0.296053275	1.337920734
## 409	0.6142266235	-0.453521928	-0.268125969	-0.209880381	-0.445939580
## 410	1.1960763109	1.234038435	0.184161993	-1.081634820	-1.016595787
## 411	2.2195112468	-0.664344142	1.989985973	0.165905228	-1.844391508
## 412	-0.7700891792	-1.858574862	-0.414655089	-1.577411289	-0.096498696
## 413	0.6429701031	-0.458068866	2.039135586	-1.169371739	0.204620842
## 414	-1.0901420327	-1.407517182	1.839295633	-0.548183175	-1.498678780
## 415	-0.4341601970	0.135362955	-0.443501381	-1.479335673	1.702669393
## 416	-0.2350302537	1.756499446	-0.940082659	0.744127229	-0.442471466
## 417	-0.4613225574	-0.194198507	2.301796007	1.269596774	-1.666172000
## 418	0.7129712005	0.399352881	-0.659214224	-0.578802971	-0.712416085
## 419	-0.4133348853	0.056265347	0.218898993	-0.213151459	-0.255326832
## 420	-0.3364038474	1.245871015	-0.741908316	-0.566738501	1.598468236
## 421	0.6375329359	0.594030035	1.028868311	-1.286589926	-1.169508874
## 422	-1.1613316477	-0.267439328	-0.292536599	0.095911652	0.155763185
## 423	0.5574817154	-1.633826550	1.895218320	0.741555924	-1.371862488
## 424	-0.7358844865	1.869248442	0.289513105	-0.355172676	0.411087693
## 425	1.6131065738	1.163928823	0.284351465	0.123992526	0.900506977
## 426	1.0327550239	-2.916589767	-0.539470040	-0.940492674	0.379345292
## 427	-0.2327543064	-0.157838315	-0.280235111	-0.688671426	0.366429999

## 428	0.5272329077	-0.606428867	-0.441087103	-0.978339264	-0.473445602
## 429	0.3209316900	-1.803375000	0.125964417	0.917978361	-0.132743611
## 430	-0.0032260656	-1.479228813	0.626007145	1.057151276	0.856202550
## 431	0.2423834273	0.151177600	-0.304320689	1.834390746	-1.036891858
## 432	-1.0213744162	0.028791560	0.048481183	1.149187931	0.575880616
## 433	0.6359523200	-1.322684822	1.377519556	0.301412613	2.569237618
## 434	-0.8185413875	1.805888405	0.759249633	-0.280195335	-0.058986556
## 435	0.2621594445	1.493654343	-0.898077194	-0.513481503	-0.428399593
## 436	1.1901054714	1.436893138	-0.993316285	-0.944829394	1.776041059
## 437	0.1989043772	0.151920841	2.205575468	0.833382319	-0.720306106
## 438	-0.4233343505	-1.879261928	-1.102443735	-0.355192089	-0.210003776
## 439	-0.8672211989	0.770379949	-0.382975302	0.422017098	0.550148277
## 440	-1.3059718276	1.500688874	0.898051620	0.765300671	-0.907797751
## 441	0.5117432514	-0.115968269	0.723221451	1.158119565	-1.800683387
## 442	1.7520092536	1.700438130	1.932212337	-0.065950178	-0.863067926
## 443	0.2837111549	-0.181033161	0.772038527	-1.179460965	-0.735606725
## 444	0.5619419174	-0.641324257	1.559370200	0.572024421	0.544989979
## 445	-0.0270817442	-0.658787430	1.694990523	-0.567976076	0.848048891
## 446	0.1024001760	0.851398920	0.177091123	-0.627602037	0.914050836
## 447	-1.1164795197	0.273371895	1.412393795	0.401771125	-0.734937944
## 448	-1.5138890790	-0.682762083	0.043999126	-0.887210170	0.370829795
## 449	0.7070250786	0.082655061	0.894529134	-0.170076928	-0.637289248
## 450	-1.6453406144	-1.835161267	-1.485819176	1.263012728	-0.392991187
## 451	-1.6809854212	0.110552687	-1.066599671	0.157972713	-1.045480316
## 452	-0.7278059495	-0.207088919	-0.070532459	0.478206882	-1.475609678
## 453	2.3322003770	0.268230886	1.870175773	0.789895845	0.157934204
## 454	-0.1802099723	1.070615319	0.085086891	-0.023250257	0.739738717
## 455	-0.2920098463	-1.255440808	0.588605071	0.410862470	-0.455455445
## 456	1.8324447573	1.728606924	-0.605324203	0.214273401	-0.441138381
## 457	0.6794176333	-0.694797808	-0.568003178	-1.842390654	-0.667205105
## 458	-0.3121404537	1.690115250	0.288866618	0.444370470	-2.533942555
## 459	1.1382604101	-1.134341306	0.315329335	0.688963441	0.951310291
## 460	0.7838418825	2.092586753	-0.298122297	-1.117683375	1.279827778
## 461	-0.1520048150	1.057773265	-1.686687219	-0.823187762	-1.387830129
## 462	-0.1504618055	1.692024817	-0.550240202	0.791739889	-1.855237261
## 463	0.2932563356	0.382988420	-1.856106389	0.051234323	-1.085357678
## 464	-1.0968811350	-0.043119260	0.313556811	1.829152978	0.729833404
## 465	0.2986680603	-0.398433024	0.338797606	0.771367712	0.714555304
## 466	0.8306901297	0.191837585	0.750702106	0.474088195	1.100219085
## 467	-0.8745883609	1.145941305	-0.852153249	-0.357903853	-0.003454645
## 468	-0.4777160029	-1.212639949	-0.966905673	0.498637512	-1.764701328
## 469	-1.1438129200	0.149348139	-0.894260489	-1.551307232	-0.032156394
## 470	1.3899771485	-0.866017922	-1.091929590	-0.261665149	1.584821475
## 471	-1.3268845961	0.232182637	0.985214185	1.184587607	0.072670483
## 472	0.4975956489	0.936099179	-0.274417214	0.671630569	-2.156637207
## 473	-0.2913310869	0.327901331	1.226983177	0.460236707	1.566776153
## 474	0.6523519110	2.099969940	-1.177123999	-0.409620806	-0.016128267
## 475	0.5498932492	1.955212108	0.061771534	1.652680288	1.118630008
## 476	-0.9463507188	1.116656837	-0.809680572	0.523814719	-0.197414058
## 477	0.2715338467	-0.658230889	0.295679505	1.347369681	-1.200165236
## 478	-1.0312122966	-0.187948144	1.356914210	-1.951953717	-1.161381362
## 479	0.2698948472	0.775459179	-0.359119849	0.346392444	-1.857163051
## 480	-1.1700854673	0.126221859	0.232361169	0.219885440	0.680030643
## 481	-0.4537620837	0.904468870	0.311770563	-0.455388039	0.770791375

## 482	0.5806547495	2.394536839	0.040456282	-0.639624079	-1.858008963
## 483	1.8635840727	0.063109509	1.511961261	1.851817050	-0.751332301
## 484	0.5416295980	0.348048886	-0.952479677	0.801492329	0.215683684
## 485	-0.5549692858	-0.902718195	-0.432785018	-0.840058553	1.173373150
## 486	1.0528573922	0.895915694	-1.008084304	-0.332021854	0.766025517
## 487	-1.7061739438	0.159441609	1.366461404	-0.730082937	1.175001806
## 488	-0.0522515791	-2.105257987	-0.696643139	-0.120636489	1.019800566
## 489	-0.3962898350	-0.572138970	1.276073552	1.185465380	-0.668507229
## 490	1.2261360096	1.011155116	1.357592116	0.005164082	0.407349456
## 491	-0.0916191091	-0.624194573	-0.909094697	-1.331278765	1.156791046
## 492	-0.9840721467	-1.591422258	-0.681715484	-1.017164095	-1.304424046
## 493	-0.7411659236	0.505644032	0.408338746	0.639906971	-0.764410492
## 494	1.7603009089	-1.497211151	-1.332110695	0.552987866	0.060813908
## 495	0.3645095715	0.715247562	-0.060819098	0.431649682	1.713406586
## 496	0.6129469545	-0.933679668	-0.946701099	0.225753962	-0.445477380
## 497	-0.2035774916	-0.010401140	-0.637472313	-0.964045355	0.773010581
## 498	0.1171345677	-0.655347067	0.708529995	0.766450014	0.387758668
## 499	-0.2741476471	-0.709055509	0.182450435	0.988062314	-0.144943886
## 500	0.1589970348	0.003421413	1.096011862	0.877116153	-0.776149433
## 501	1.9835198924	1.251529315	0.301006052	-1.873702543	-1.746007623
## 502	0.0594780933	-0.070066981	-1.205956977	-0.454635692	-1.120016276
## 503	-1.1173644700	2.194233190	0.790062443	-1.048471450	0.313819327
## 504	0.5897916722	-1.081204565	-0.076399208	2.115092864	0.560558485
## 505	-1.5438333029	0.551586191	-0.017025214	-0.122422321	1.135365683
## 506	-0.9808228133	-2.361820779	0.535207828	1.079264428	-0.220861574
## 507	0.7724853718	-1.496409280	-0.046901205	0.016899378	0.481519728
## 508	-0.4241839156	-1.467327697	-0.396447347	-2.123263640	-0.496337560
## 509	0.8682037849	2.121910090	-1.458380062	0.324832087	-0.155965271
## 510	1.2559896329	-0.842543740	-1.112040807	0.727171531	1.450820220
## 511	-1.1954546289	-0.350089281	-0.813930019	1.010952408	-0.165608878
## 512	0.2274752836	-0.206258842	0.366616634	1.358481397	-0.254883980
## 513	0.4629850514	-0.041849930	-0.459817365	1.921755952	2.872658791
## 514	-1.4925147909	-1.882681034	-1.773409434	0.052862776	0.629448684
## 515	-1.3343459014	0.045623359	0.419411343	-1.144866931	-1.061706525
## 516	-0.4070083160	-0.053647588	-0.243766820	-0.719616241	-0.772913230
## 517	0.4370202261	-1.261394576	-0.662643909	1.382836181	0.476831183
## 518	0.9271631750	-0.414694738	0.756715640	-0.084736982	0.332998844
## 519	-2.7204426705	0.853125837	0.621432971	1.895552422	-0.068145745
## 520	0.7276919591	-0.146325386	0.193845894	-0.780116238	-1.387740102
## 521	-2.1301452942	0.627483911	0.179871327	0.728096531	-0.172162177
## 522	-0.7235033804	-0.642450703	0.065979241	-0.936325503	1.192749036
## 523	0.2797964480	2.107229521	-0.418941749	1.584265340	-0.471200237
## 524	0.3353752175	-0.256840614	0.648140177	-0.229264808	-1.338104536
## 525	0.4746183522	1.535550769	-0.249316959	0.769361497	0.602003219
## 526	-0.6046706660	1.403174749	-0.529145117	-0.287254970	0.084454955
## 527	-0.7884829512	1.041346615	0.684995664	-0.858897384	0.061709777
## 528	0.8361420110	0.355314187	-0.173162231	-1.282592902	-0.522864581
## 529	1.3624639447	0.414275844	1.597075369	0.653960916	-0.719808252
## 530	-2.6788980671	0.643003094	-0.399662172	-0.198171631	0.360714381
## 531	-0.0552882917	-0.351133071	-0.854555260	0.304433461	0.598918195
## 532	-1.4737606348	0.136928248	0.624332975	-0.652383710	0.998370788
## 533	-1.1082839679	0.104686963	0.170582994	-0.261789604	-0.885618462
## 534	0.7207349890	-1.517310905	0.216513388	0.732729436	0.443333035
## 535	-0.7191634637	1.488645128	0.079396640	-0.596999709	-0.293445322

## 536	-0.1692611736	-0.812811804	0.064938380	-0.485610100	1.669156235
## 537	-1.2987093916	0.340645944	-2.575181394	-0.673510908	-0.342625551
## 538	0.2638927895	0.551385671	0.168805630	0.546707343	1.744935440
## 539	-0.4857682684	1.221417262	0.668883036	-0.778367629	0.092757098
## 540	-0.6479910296	-0.156213090	-1.718350281	1.279163920	0.470884348
## 541	0.4154731795	-0.191506716	-0.234566883	1.596983820	-0.242727398
## 542	0.1263330481	0.049719728	1.036921290	0.250031610	-0.612489928
## 543	0.2054303594	-0.724964170	-1.148420306	0.402080039	0.758154886
## 544	-0.2765850494	-0.480264847	0.809574868	-1.414592363	-0.548272798
## 545	-0.6123330657	0.365050771	-2.183303568	0.691479231	-0.132635424
## 546	0.4650725019	-0.574694041	-0.578564350	-0.344006649	0.797964905
## 547	0.4946356533	-0.453100741	1.130108577	-0.560517881	0.836736738
## 548	1.2510347143	-2.254388065	0.999564256	1.592634165	-1.647057468
## 549	-0.3138705790	0.323239407	-0.587708927	0.961410113	0.120366493
## 550	-0.8495951308	-0.317133549	-1.182652820	0.711387332	1.451984243
## 551	-1.7726882641	-1.019999386	-0.120426497	-0.722200596	1.996030200
## 552	0.8891657923	-1.205177225	0.851837273	0.366214165	-1.337009987
## 553	-0.6277797458	0.146580328	-0.337140061	0.843398394	-0.183106095
## 554	0.3144318596	0.310529618	0.239614815	0.026594101	1.447957923
## 555	-1.4624559821	-1.144986173	-0.412102204	-0.564689328	-0.559580934
## 556	-1.9396813000	0.374882264	-1.356793122	0.332575772	-1.117975740
## 557	-0.2199562981	1.668541605	0.461594551	0.403174319	-0.432000473
## 558	0.5951447807	-1.498033852	-2.695928334	0.629680269	0.836001562
## 559	-0.5062749895	0.491437437	0.701375227	-0.555168218	-0.256343676
## 560	-1.0435589966	-1.473276396	2.173757898	1.261206719	0.461089421
## 561	0.7546287464	-1.485928172	-0.962940825	0.024458645	1.045355939
## 562	-0.3943811891	1.819341300	0.932279447	0.836329814	0.770541617
## 563	-0.2794872046	-0.304923000	-0.787828656	1.488370275	0.001729282
## 564	1.0777074690	0.548328451	1.589348885	-1.007739331	-0.985597708
## 565	-1.5177645542	0.563220679	-0.348873943	0.801618116	0.317859425
## 566	0.2177689931	-1.297342961	-0.322867539	-0.433247616	0.173288802
## 567	2.1053579214	-0.467252724	0.563399191	0.430949222	1.395320568
## 568	-0.8940136952	0.319881044	1.070672379	1.339078469	-1.356947845
## 569	1.5512139490	0.162284375	-0.381069955	-0.351889689	1.581624406
## 570	0.1726818080	-2.197956714	0.410866624	1.372221113	-1.112123244
## 571	0.5368706209	0.958187758	-0.522372780	-1.573406434	1.205426459
## 572	0.4903809919	0.615694178	1.108231414	1.885605358	1.889541008
## 573	0.7074047480	-0.787069534	0.767901025	-0.119674004	1.791671963
## 574	-0.0767841668	-1.538928427	0.160618667	-1.153727937	0.833490913
## 575	-1.0508868716	-0.911764999	0.606411631	0.031178923	-1.578919581
## 576	1.4479406329	-0.293897717	0.769489779	0.239825423	-0.110056007
## 577	-1.6389364205	0.843879497	0.496890984	0.767532681	-0.748655444
## 578	0.5361965661	-0.372747031	-0.671663655	1.152999538	-0.544943805
## 579	-3.0055389047	-1.615216482	-0.317088732	-0.252911648	-0.120573920
## 580	0.6866514577	1.421429264	0.878753421	-0.996243081	0.709821497
## 581	0.7672057718	-2.561869349	-0.686416741	-0.605537331	-0.824094568
## 582	-0.4316515301	0.341112743	-0.861610758	0.620286769	1.246722744
## 583	0.6147316766	-0.638189095	-0.219506723	-0.906306753	1.333396051
## 584	-0.4521756530	-0.055297149	1.381384499	-0.200132065	-0.047009640
## 585	1.5605799404	1.276155657	1.704849043	0.109902764	0.432370690
## 586	-0.5389005556	-0.399774925	-1.692720207	0.594789962	2.500063211
## 587	0.9157393908	0.382427429	-1.015737420	1.713844177	-0.183907203
## 588	-0.1120799480	0.613269727	-0.425456310	-0.332497160	0.281182764
## 589	1.5070591570	-0.699967422	0.752925740	-0.948098576	1.507240939

## 590	0.6235418803	0.391326971	0.822057182	0.078703874	0.546876807
## 591	-0.0884425874	2.190894073	-0.567842034	1.717891587	-1.620090008
## 592	0.5228981525	-1.798627898	0.127744762	0.608867989	-0.156941806
## 593	0.0804724555	1.207703178	-0.324987878	-0.931745066	-0.955639425
## 594	0.3899905919	-1.214394867	-1.042298910	0.821864460	-0.461947562
## 595	0.5644102542	0.639312355	0.554696483	-0.681564597	0.124639609
## 596	0.2453427891	0.055054842	0.044299257	-0.939278207	0.150746396
## 597	-0.3489653873	-1.217407581	-2.041219014	-0.211053391	0.819652700
## 598	0.4556205089	1.476678095	-0.552815841	-1.558035805	-1.965726993
## 599	1.3880981702	-0.081115939	0.236452106	-0.661402567	-0.306302106
## 600	-1.4399120540	0.173284704	-1.029171389	0.686755234	1.031252557
## 601	-0.0740600794	-0.242836837	-1.101390128	0.772092033	0.041843716
## 602	-1.4800334781	0.335923784	0.348738850	0.054094166	0.094618121
## 603	-0.8810188515	-0.207999972	0.492940628	-1.023433821	0.360495353
## 604	1.2079081153	0.054585332	0.645885828	1.957838393	1.309602071
## 605	0.9972849725	0.262700135	0.258945546	1.251833448	-0.277088478
## 606	-1.8252507046	1.009194703	-0.704193965	-0.448770640	0.708360425
## 607	-1.0851569592	0.218431765	-1.199047112	-2.286392327	-0.405559015
## 608	-1.8814957822	-0.452384566	-0.259919998	0.557925906	0.419797927
## 609	2.6628145669	-0.275516553	-0.183256835	-0.555784263	0.853450921
## 610	1.4429620348	-0.372231460	-0.380985061	-1.046944546	-1.068029385
## 611	-0.5620149077	-0.051126191	0.154458186	-0.935314663	-0.331822443
## 612	-0.3989472091	1.087597911	1.061384531	-0.358190022	-0.077926485
## 613	-0.2990986810	-1.654123037	0.879148828	-1.609847352	0.413714782
## 614	0.3493251103	1.143027804	-1.201554155	0.105009094	1.388256241
## 615	0.2983319585	-0.972877296	0.558587245	0.894782611	-0.596102642
## 616	0.3616704633	2.055192331	0.284297244	-0.924171160	0.433838956
## 617	1.2462141316	-1.321787899	0.257787893	-0.714670190	-0.861211120
## 618	0.9888881024	0.686004121	0.494855330	0.768894543	0.408928172
## 619	1.5319375305	-1.114535643	0.726984733	0.880770013	-1.518115998
## 620	1.0197411941	0.704135657	-0.123954769	0.026085731	0.694261989
## 621	-0.9730861333	-1.489201840	-1.232554208	-1.415087355	1.674906764
## 622	-1.4266869030	-0.363389150	1.537570340	-0.441486306	-0.202031656
## 623	-1.1120342696	0.767672055	-1.624657235	0.258944201	-1.506430842
## 624	0.9803377898	-0.289666609	0.294104830	-1.507352143	0.555423232
## 625	0.5398729335	0.343645060	-0.111419461	0.369126961	2.127432151
## 626	-0.1742366067	-1.493254822	1.064945777	0.212911474	-0.384679246
## 627	-0.8893956985	-1.378899884	-0.216067002	2.506267823	0.040681881
## 628	-3.0085924015	0.807732286	0.943414498	0.165396695	-1.168033778
## 629	-1.3636956691	0.329198845	-2.492313244	0.282287117	-0.298615535
## 630	0.7434024420	-0.096832017	0.398799567	-0.117709713	-0.737832170
## 631	0.6980045777	0.742556168	0.163952828	0.666749926	-0.330828491
## 632	0.3575909254	-0.627001960	0.323979368	0.789989472	-0.735212133
## 633	-0.2540190606	-1.339778786	0.258402927	-0.759011710	0.792280595
## 634	1.4166147032	0.411052084	0.022588553	-0.179103599	2.091687018
## 635	-0.0814130147	-1.346838099	-2.131967648	2.126438771	0.943950091
## 636	-1.9084924227	-0.778121723	0.235550649	-0.115107328	-0.520184723
## 637	-0.0363090244	1.513735140	-1.247867579	-0.110951925	-1.937990984
## 638	-1.5278010067	0.401530604	-0.329421936	-0.936857119	-0.564537776
## 639	1.2845048929	1.527725104	2.149583419	1.614005695	0.593969559
## 640	0.8613586452	-0.264935677	1.180400561	-1.019313281	-1.572650483
## 641	-0.6948245494	-2.015708792	-0.809199786	-1.111510158	1.265834910
## 642	1.3077570653	-1.084391653	-0.167334281	-0.252259762	-1.039889581
## 643	1.0667892490	-0.166816921	1.257146489	2.664266346	0.495371701

## 644	0.1213841243	1.123996028	-1.344027052	-0.863742420	-2.255920263
## 645	-0.1525897400	-2.075242856	0.513854056	1.692916155	0.900330728
## 646	-1.0741434278	0.902787446	-2.784102583	0.002142161	0.170649945
## 647	0.3826326493	0.449964860	-0.398998080	-0.569639874	-0.583143301
## 648	-0.0580730626	-0.863766365	0.153133047	-0.147593436	0.993128571
## 649	-0.8912035980	-0.071789012	0.423614221	-0.088065540	0.791905138
## 650	-0.1523741015	1.393616199	1.133918036	-0.335015716	1.139314751
## 651	-1.5620697860	1.277874651	0.661788864	-0.766826259	-0.548258048
## 652	1.1981135603	0.387329880	-0.048622090	-0.725752497	0.042860386
## 653	-0.4362094626	0.676278040	-0.278142096	-1.564099676	0.381692098
## 654	-2.0886405327	-1.840380539	0.462075531	0.940596316	0.066954600
## 655	-0.0530519510	1.187066576	-0.006773660	-0.082132174	1.097976942
## 656	0.5099051820	1.785776008	0.303424038	-0.893836988	0.692555761
## 657	-0.3845343390	0.798676973	1.330146708	-0.506048866	-0.989676040
## 658	0.8839357251	-1.810794542	-0.021397888	0.869492851	0.504709944
## 659	0.0897449959	-1.354381405	-0.949055583	0.183524580	-0.210629524
## 660	-0.4132688344	0.112914275	0.038722458	-0.412097463	-1.406886970
## 661	1.8984317989	0.381368522	0.888099978	1.096286790	-1.335013878
## 662	-1.8106590667	1.536899393	0.789803459	-0.118153687	1.472166534
## 663	-1.3777506237	-0.691648197	-0.392201591	0.076567207	1.495703378
## 664	-0.4978462849	-1.956363121	-1.226662139	1.707764558	1.449027039
## 665	0.0770874986	-1.105270554	0.879275583	-1.995072070	-1.625925549
## 666	-0.3935832377	-0.569171025	0.728118868	-0.529640448	-0.942331083
## 667	1.6591317992	-1.068834176	-1.013818353	-0.048242703	0.968627555
## 668	2.1885686703	0.752363595	-0.760271463	-0.326880568	1.623886852
## 669	-0.2842824122	-0.737065508	0.916636070	2.152927464	-0.170044725
## 670	-2.7946784950	0.035103030	-2.392589164	0.204114235	-0.621442307
## 671	-0.8100498966	1.418831787	-0.857800863	1.590985379	0.401176459
## 672	-1.0619511598	0.235063374	-1.152580370	-0.776852442	-0.734868688
## 673	-1.9146368712	-0.092939222	1.073029498	0.693295825	0.554033127
## 674	0.4173055841	-0.038575166	1.598201465	-0.864199798	-0.716546210
## 675	1.4496100767	-0.018113324	0.975782388	1.042698157	1.308709333
## 676	-0.9004733290	-0.655384180	0.702755197	-0.486319627	0.503035670
## 677	0.8920771709	-0.193356627	0.553197123	0.067351529	0.624238642
## 678	0.6540001264	-0.236770580	-0.119730288	0.910904796	0.778486799
## 679	-1.3425471756	-0.693460133	-0.946090455	-0.511695846	0.566358221
## 680	-0.3639029156	-0.240413395	-0.259663054	0.103782718	-1.588576079
## 681	-0.5077329827	-0.474764178	-0.690025105	1.713468850	1.107737597
## 682	0.2089562932	0.341406696	-0.316811864	0.329863086	-1.024794495
## 683	0.3539455169	-0.953150840	-2.211656096	1.462825857	2.783065885
## 684	-0.3889230938	-0.292678878	-1.133137597	0.520068701	0.244461097
## 685	1.2167581514	0.554587085	1.233784722	-0.776408002	-1.156741600
## 686	1.1858968203	1.174129344	1.120281999	-0.427174330	-2.302902958
## 687	1.6002699425	-0.477047023	-0.555537672	0.236939418	-0.605792599
## 688	0.8465325515	-0.945905007	-2.573233543	1.662653245	0.954607063
## 689	2.2190066733	0.641000247	0.557089566	0.202267559	0.916939936
## 690	-0.3184165750	-0.823729551	-0.476590283	0.371326207	-0.714953900
## 691	-0.9103881822	-2.035922363	0.270247301	1.161679563	0.545050387
## 692	-1.4958414159	1.384228361	0.982336929	-0.206130845	-2.490112201
## 693	1.4055578494	1.151365883	-2.353826255	-0.696336307	-0.583328269
## 694	-1.0141586236	0.051189375	0.258517526	1.406857988	0.576572787
## 695	0.2083618730	3.132690199	-0.611803318	0.309028192	1.030655196
## 696	0.4966716916	0.725139481	-1.605943508	-0.825001367	-0.382622391
## 697	0.4265630633	-0.416577951	-1.335520239	-0.755926560	1.110892632

## 698	-0.3790773947	-1.248010146	-1.350791267	0.588326340	-0.100371737
## 699	-2.4438839900	-0.189878992	1.144230138	0.173734160	-0.179533185
## 700	-0.5698501824	-0.947531058	-0.244665497	0.013872842	0.574071075
## 701	0.9292017998	-0.865311083	-0.296357444	-0.524734425	0.616291027
## 702	-0.3222552406	-0.284077319	-0.212584394	-1.703969580	0.020968068
## 703	-0.2072449050	0.334821003	-0.794617205	0.309592904	3.061746513
## 704	0.8340278368	1.140007990	-1.188077142	-1.435087749	0.601789611
## 705	1.6517021390	0.221783385	0.325682249	0.409964434	-0.183980482
## 706	0.9816081240	-1.172969501	-1.376112500	-0.473519815	0.566555652
## 707	0.0874900511	2.033192237	1.195728266	-0.502926137	-1.021791931
## 708	-1.0844813618	-0.915384535	0.909116998	0.347996080	-0.915349445
## 709	-1.5585086579	1.019494000	-0.141746268	-0.314460012	0.705994718
## 710	0.3153448750	0.386984904	2.890473253	-0.289487489	0.921845675
## 711	0.9519962839	0.775207609	-0.634085501	1.014920164	0.923458052
## 712	0.1753554582	0.759010389	0.716513394	-0.901565532	-0.779791392
## 713	0.5829123152	-0.133681396	0.137522540	0.528453147	-1.053661241
## 714	0.2516210573	1.301705243	0.599530321	-0.217211181	-0.306317452
## 715	-2.9845239036	0.142290454	-0.148262080	-0.182244980	1.507816948
## 716	-0.9193227465	1.823635702	0.017198434	0.448817066	-0.881632304
## 717	-0.1874787267	0.569436968	0.157921364	-2.129818278	-0.311448290
## 718	-1.5013140701	1.063833752	0.934001135	1.182871344	0.426923770
## 719	-0.4461452392	0.032602867	-0.665959617	0.264052723	-0.051273603
## 720	-0.3749579714	0.057790233	-1.180686561	-1.166755967	-0.149165454
## 721	0.3512185071	0.140133183	-0.363474833	-1.953791889	-1.891050896
## 722	-0.7148789398	-0.063156674	0.281167904	0.354882187	1.116834381
## 723	-0.7666610472	1.513082415	-0.111257396	0.222352219	0.286379033
## 724	2.2714156872	-0.266669147	1.998222825	-0.071847721	0.319585131
## 725	-2.0673160909	-0.039244106	-0.972770552	0.017867923	0.204820532
## 726	-0.0447274995	0.542262642	-0.251004471	-1.080874519	0.186988885
## 727	0.4406696470	-1.067248870	1.061869860	1.344292383	0.653225537
## 728	-1.4733191334	0.073888058	1.856305621	-1.418814910	0.408998007
## 729	1.4965819451	-1.354441591	0.633490973	-0.068258935	0.165922665
## 730	1.4802429411	0.110728750	0.824847418	0.733281570	1.758519682
## 731	0.1754599148	2.924024893	-0.360650709	-0.985590634	0.297993358
## 732	0.5745869153	-1.211695059	0.503206982	-1.784889402	0.931218960
## 733	-1.0514255380	0.321260631	0.315533528	0.772007918	-0.286171517
## 734	1.4330919849	-0.534238490	0.044399981	-0.189393489	0.664988232
## 735	0.5947288334	-0.560580574	0.747668916	-0.638095293	-0.149883823
## 736	-0.5408444486	-0.894196212	1.562190056	0.016848303	-0.556969810
## 737	0.1090315983	-0.161572781	0.761420954	0.128139938	0.661320335
## 738	0.9364930845	-0.927701189	1.022121658	1.526690916	0.705568734
## 739	0.2675627447	0.308104858	0.717356861	-0.409571377	-1.662678685
## 740	0.3172857316	0.537512786	-0.505851523	-1.750122093	0.622371915
## 741	0.1888381065	-1.601766726	-0.549589009	1.043583790	-0.458467784
## 742	0.0018532806	0.509133153	-1.613102191	1.010624582	-0.504535124
## 743	-1.7475172186	-0.378063982	-1.120772599	-0.110925418	0.681782523
## 744	-0.0799948869	-0.813254101	-0.306519956	0.598723028	0.021816023
## 745	1.2816836198	1.608780131	-0.643321537	0.390145631	-0.332251847
## 746	0.0431734025	1.768496560	-2.997670660	0.627481664	-1.277033382
## 747	1.1466267894	-1.467050784	-1.779113271	-1.510870251	-0.157538824
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## 751	0.0638054501	0.259909119	-0.253154511	-0.679977478	1.268429690

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## 944	-0.2588099778	1.307093189	-0.555168338	-0.635604891	-1.703714011
## 945	-0.6737741159	-0.718545483	-0.718499049	-0.618156472	-0.718947678
## 946	-0.4674741482	-1.152234681	0.262975388	0.839181001	-0.115356400
## 947	-1.0352368918	-0.568247901	0.409468021	0.099824615	0.505189808
## 948	-0.9501735754	-1.032456981	0.244967552	-0.011685890	0.931194223
## 949	1.0296566519	1.419256592	0.412565046	-0.476731496	0.627797673
## 950	0.6688120870	-1.488528137	-0.853474262	-0.377139215	-1.031641051
## 951	0.9208145025	-0.705370603	0.501095564	-0.423271776	0.323002832
## 952	0.6294673553	-1.504430906	-0.974506351	-0.375663759	2.717195209
## 953	-0.2452539992	1.767085809	0.617846729	0.106803398	0.332398290
## 954	0.9159694458	0.725707789	0.189158989	-0.259789097	0.273606090
## 955	2.5790886445	1.048549247	-0.080762303	-0.098886925	-1.103672683
## 956	-0.9044866713	0.174090547	-0.875503339	0.589788473	0.170451802
## 957	-0.0162904590	-0.922859684	-0.362537817	0.247642860	0.697929440
## 958	0.4290454753	-0.100656622	-0.342243269	1.098386189	-1.462030262
## 959	0.0352331642	-1.033549157	1.072370924	0.404140985	1.106629812
## 960	0.6562365391	-0.009949261	-0.890367525	1.949384618	-1.215942314
## 961	-0.1269308332	-0.455371589	0.985980765	-0.030791064	-1.421875853
## 962	1.0833003624	0.031617998	0.534477234	0.668540427	1.065526064
## 963	0.7247765842	1.294405065	1.587831050	0.469278219	1.284283560
## 964	-0.2797761612	-0.807539681	0.058781724	-1.779308667	0.672766911
## 965	0.1519047543	-1.308869833	1.095478307	-0.755696620	0.526283714
## 966	1.5409504205	-1.071323672	-0.344053104	1.317008766	-0.863764127
## 967	-0.7221925173	1.060678017	-1.558645568	0.994795742	1.263976804

## 968	0.7630190866	0.818386948	1.008123208	0.974283608	-0.868415079
## 969	-1.8059715925	0.128543716	-0.261722859	-0.202044621	1.146621586
## 970	-0.2599590539	-0.394876864	0.415336448	0.412384853	1.024702401
## 971	0.5256059535	-1.362004038	0.676007383	2.525788240	-1.296582293
## 972	-0.3733879956	0.037850984	0.019294100	0.625596118	0.733760741
## 973	0.0618410519	0.072313718	0.844056356	0.200721163	0.233844840
## 974	-0.1928146912	-1.424047087	-0.693324067	2.102669700	0.875330427
## 975	-0.3000116833	1.159991026	0.686458633	1.838785811	0.109240071
## 976	0.8751476102	1.191127324	-1.153464538	-0.232408581	0.440814966
## 977	0.2054466916	0.325870268	-1.291049990	0.166933472	-0.249989245
## 978	-0.9022868120	-0.132313296	1.696451714	0.085334603	0.663643229
## 979	-0.4008989455	0.019858705	0.023217090	1.238581742	0.992752517
## 980	-1.6518753500	-0.851848383	0.254464198	2.249109114	0.295484279
## 981	-1.0812846449	-0.142794336	2.866075030	1.503415990	-0.788922421
## 982	1.2760931464	-1.321607310	1.330708061	0.923455202	0.094218700
## 983	-1.1459696563	-0.262418120	0.019908385	-0.180091019	0.392612693
## 984	0.5600949328	1.048449975	0.843593377	-1.054809238	-1.018162192
## 985	1.4342512379	-1.423493418	-1.177959916	0.443020995	-0.062137474
## 986	0.2546893112	-1.806512299	0.066465564	1.700201740	-0.063210283
## 987	-0.7770380851	2.369383929	0.187625345	0.435749273	1.361880134
## 988	-0.9197791112	0.750330395	0.849846364	-0.271076116	-0.765004046
## 989	0.6223507769	0.554176573	-0.687679569	-1.227144760	-0.294209603
## 990	-1.1815496040	0.480345654	-2.539168462	0.339779927	-2.049500464
## 991	-1.3386821193	-0.218749322	-0.881448169	0.221011435	0.427807455
## 992	-0.1995276128	0.290894408	1.717180241	-1.361336672	-0.850401763
## 993	-2.7353995122	-0.467356903	-0.114443488	-0.670943187	1.029165420
## 994	-1.9734331188	-1.297312216	1.082274262	0.856763638	1.750682965
## 995	-0.3262463079	1.007548430	-0.440692063	-1.963762222	0.092700725
## 996	-0.3865352012	1.205292002	0.096201077	-0.265857718	-0.607828065
## 997	-1.4327932550	0.920029325	1.827516595	1.528158639	-2.859230488
## 998	-0.3718431084	-2.488121798	0.048836299	0.342514369	-1.684094968
## 999	-1.1201498182	0.690170126	-0.182964640	-1.260138368	-0.824311162
## 1000	0.6778248102	1.222297727	-0.069563965	0.582139167	1.151026431
##	V16	V17	V18	V19	V20
## 1	-0.4087576278	1.338882855	-1.078403154	0.340300300	2.1129283199
## 2	-1.0759653642	1.140132280	1.393355665	-0.187426721	-0.2375745500
## 3	0.8524326297	-0.147306734	1.273383279	0.378799150	3.0727057138
## 4	1.1176121717	0.961480980	0.724152578	-0.293355768	-0.1448561265
## 5	0.9210962101	-1.390854693	1.019171555	-1.355363884	0.6645379713
## 6	0.1765437542	0.588530580	-0.688774713	0.997395088	-0.7198834687
## 7	1.6174118637	-1.657088154	0.485304123	-0.346146294	0.2843211729
## 8	0.0922596439	1.141485851	-0.365472552	-0.416325107	0.1764329883
## 9	-0.5564991150	-0.815551821	0.820570657	0.950345950	0.7215386162
## 10	-1.1281212498	-1.359929832	0.545683304	-1.162732284	1.0708654104
## 11	0.4496173753	-1.651197932	0.589550628	-0.736018815	1.1164298813
## 12	-0.6322450784	-1.120285114	-0.982612735	-1.350260481	-0.3035755344
## 13	0.7742144953	0.201476112	-2.115951682	-0.252000388	-1.9873908374
## 14	0.1616287114	1.175878854	-2.187347717	0.918620056	-0.3217833594
## 15	1.4803745454	0.864339918	0.559404411	-0.627844735	1.0336706983
## 16	2.2151250121	1.262992366	-0.275701681	-0.742860012	-0.1555890306
## 17	0.3010201457	1.625542384	0.359193748	1.388944637	1.0026290207
## 18	1.0936510282	0.926762853	-0.146880165	0.540234660	0.5732034095
## 19	1.2432002129	0.046434429	1.168795704	-0.278565246	-0.3830768237
## 20	-0.5980426234	-1.641455998	0.229900923	-0.639264305	1.2523964855

## 21	-1.5105457390	1.126920760	-1.167830883	-0.630037290	1.4698957331
## 22	1.6537325067	0.724672271	0.037102554	-0.552834068	0.0731337608
## 23	-0.1508497269	-0.924742536	0.481761324	-0.049097971	1.2756211248
## 24	-2.1237883260	2.618344730	0.107889836	-0.692874486	-0.4424721825
## 25	0.6802886377	0.796097841	-0.592651528	0.235805731	-0.5287232001
## 26	0.4609769651	-0.862183504	0.155362501	0.507279528	0.8447191693
## 27	0.3544558218	1.007158234	-1.489051589	-0.722324746	0.5780389617
## 28	-0.6588208578	-1.053900956	2.324176547	-0.853184887	-1.3918558087
## 29	-0.9073928784	0.311188932	-1.900751324	1.259106156	-0.8627803864
## 30	1.9500086570	0.027630326	-1.456829732	-1.217869015	0.4080345220
## 31	2.7862772915	-0.249096743	-1.130796915	-0.510239194	-0.4069811827
## 32	-0.0735011071	0.744639736	-0.296967880	-1.485436644	-1.3928603192
## 33	-1.2693459029	0.042689322	0.872829625	-0.760340693	0.3118187160
## 34	-0.4496224959	-0.582105964	0.843147829	0.504602734	0.3796777138
## 35	0.1905523308	-0.689246210	-1.061477119	-0.533066161	-0.9853903827
## 36	-1.3952055496	1.239293548	-0.456842561	-0.225706528	-0.3258781196
## 37	0.6671269973	-0.006755142	0.724198053	-0.196039904	-0.0260624831
## 38	0.3467130526	-0.643500973	-1.550150880	-1.188482651	0.5719768468
## 39	-0.7776303922	-0.693279720	-0.359390089	0.638103534	0.8921644259
## 40	-0.1038754090	0.102438628	0.981310245	0.558987323	0.7350293678
## 41	-0.1283790692	-1.402785265	-0.626993822	0.119847020	0.9689923966
## 42	1.2322033254	0.748510349	0.150127866	0.531981639	-1.6721001206
## 43	-0.8856856453	1.284670398	-0.015115208	-0.225176306	-1.1011230720
## 44	-1.1473506497	1.735138990	0.545655892	0.221633219	0.7330051954
## 45	-0.6747468453	1.101211147	1.455600765	-2.065289209	-0.0811683306
## 46	0.4459781131	-1.472153131	0.726235915	0.309206657	-1.2917047331
## 47	0.2788116787	0.712795010	1.533845867	1.140188567	1.3527879888
## 48	-0.2192565650	0.733172529	0.383943343	0.906628453	0.2431983510
## 49	-1.1559507736	2.254077027	0.515599213	0.714814288	-0.0950999824
## 50	0.0398496180	-0.621244062	-1.012407196	0.588749874	0.0353836569
## 51	1.0345640437	0.911370625	-0.753149208	-0.090460048	0.2557983359
## 52	0.9721943106	-1.498628130	-0.327892296	0.475583441	-1.4360654858
## 53	0.0955914585	-1.407067895	-0.897702014	-0.975756545	-0.4162530622
## 54	-0.2213102523	-0.089725370	-0.628786185	0.062588112	-0.1091339885
## 55	1.5029596166	0.021185780	0.894716440	0.165392628	-0.4211142873
## 56	2.3535212242	-1.812958253	0.036758921	-0.005818750	0.2770103296
## 57	0.0970372012	-0.298734606	0.791430933	-2.341921793	0.2276706638
## 58	0.5788701332	1.714902969	1.122112594	0.316623272	0.6676865879
## 59	-0.6379380823	0.602560476	-1.165757781	0.289072703	1.2253339489
## 60	-1.4874010068	-0.341769777	-0.450471801	1.868519724	-0.4631462059
## 61	-1.1858838305	2.201147544	0.222660498	0.474945268	-1.2853869970
## 62	-2.3077196149	0.391665167	0.518527026	-1.738652269	0.9038351978
## 63	0.4405884819	0.624336690	0.791669704	-0.775666443	-2.7069418845
## 64	0.5176103764	-0.535784203	-1.365328431	0.940031506	0.9668949031
## 65	2.5137738465	-0.081807053	-0.478797043	0.715619807	-1.4519963253
## 66	0.6305072589	-0.162025283	-1.491220727	-1.164958242	-0.9943357492
## 67	1.1169837897	-1.769486160	0.849386194	1.456250982	-1.4862153061
## 68	1.0936535892	1.809046841	1.261467940	0.892558404	-0.2304791633
## 69	0.8607607139	0.648540167	1.177502511	-3.815665784	-0.7842580402
## 70	0.8765865925	-0.238099444	0.467718112	0.039422023	-0.3180972319
## 71	-0.7920629050	-0.292862013	-1.469887993	-1.951316225	1.6539480961
## 72	0.9508830865	-0.733897552	1.654991277	0.094176085	0.6928840057
## 73	0.1680800444	0.793152444	0.080888222	0.728249499	-0.0832297297
## 74	-2.1038079836	-0.585583528	-0.933708256	-0.008155855	0.0591853612

## 75	0.9880609837	0.763660550	1.328012703	-1.701918558	-0.6619510314
## 76	-0.6608895280	0.367641943	0.615489063	0.786873389	1.9282498567
## 77	-1.1739064509	-1.409035571	-1.024940706	-0.390004294	-0.5642742501
## 78	-2.5508320796	0.537661412	-0.828133851	0.745762251	-0.5988919494
## 79	0.3376888667	0.007916219	-0.741401623	-0.225597871	0.1376326895
## 80	-0.0005362776	-0.231319519	-0.916369793	0.591757916	0.8573088748
## 81	0.3494086658	-0.531814463	-0.495577830	0.279916792	0.0050907388
## 82	2.2961142732	0.315596750	0.439607993	-0.056270896	0.7437760118
## 83	-0.6211763924	0.644885989	0.577868705	-0.166264355	-0.7150720560
## 84	-0.5013516437	0.463336077	0.339370623	-0.320088560	1.8351581637
## 85	-1.2631780475	-0.414189574	-0.310120225	1.543995375	-0.5177737074
## 86	0.6885328744	1.990356062	-0.856843632	0.470469854	-2.0750057970
## 87	0.3137574784	1.878636542	0.068425101	-1.070452152	1.0204384147
## 88	0.2783990127	-0.971566180	-2.596389645	0.875829463	0.7076621128
## 89	0.0062602751	1.192686639	-0.866856267	-0.573006821	-1.2826745936
## 90	0.3960596991	0.634246588	0.198596629	1.375199921	-0.2989555577
## 91	0.7502266020	-2.861116101	0.451099165	0.002301816	-0.5603622012
## 92	-0.2409346210	-0.140335906	-0.642811330	0.498711700	0.1281499601
## 93	-0.4534553513	1.066297318	0.938220935	0.271234287	1.0758272062
## 94	1.2904357678	1.518318070	-0.860492859	-1.146547290	0.4912439230
## 95	-0.6776979279	0.332950830	-1.103241069	0.546777569	1.3638782174
## 96	-1.0116502673	1.334428015	0.800107753	1.026247611	-1.5110173843
## 97	0.0166439600	-0.670006471	0.351692435	-0.164554892	1.4566156168
## 98	0.7390770257	-0.273927165	0.494692365	-0.367920155	-0.4870985631
## 99	0.4000522960	-0.469545944	-0.604617214	-0.893778223	-1.0734682811
## 100	0.6099146215	1.407140417	-0.408976973	0.756617664	0.7493441850
## 101	-1.1436879656	-0.606367724	0.617801156	0.859889392	0.4522477503
## 102	-0.0380406867	0.268381575	0.853480759	0.771882759	0.4084873489
## 103	0.1375507991	-0.072169722	0.142985042	2.688188587	1.0744587817
## 104	-0.1011410983	0.320757304	-2.160746936	-1.139335347	-0.2101619278
## 105	1.8344693701	-1.779290960	-1.010743344	1.698572123	1.2258489175
## 106	-0.2841513043	-2.305093202	0.906460434	-0.603951772	0.6075794267
## 107	1.5041983016	0.813314401	2.247353298	-0.398958407	-0.2225425710
## 108	-1.0036247259	-1.224470514	1.079019707	-1.114036490	-0.0403790162
## 109	-0.3951207259	1.321288549	0.609851855	0.509208328	0.2738091534
## 110	0.7067426639	-0.647415970	0.109082596	-0.463041147	-1.8096452483
## 111	-2.3727817362	1.401347440	-0.095822165	0.751175453	-1.6172930416
## 112	0.5848889025	-0.392834346	1.427361838	-0.253132815	1.0532156904
## 113	-0.4450021023	0.148814119	0.433629381	0.792486799	-0.0491250968
## 114	0.4851063604	0.389023796	0.539708651	0.995280759	0.5983168679
## 115	-1.5369480041	-0.397022781	0.048021783	0.613032560	-0.2664227591
## 116	-1.0823799164	-0.603632658	1.239797868	2.246729340	2.2113715504
## 117	1.3380970334	1.276416085	-1.675761072	1.113483827	-0.6996579003
## 118	1.2201671562	-0.695768384	-1.381080084	0.006581738	0.4461075304
## 119	1.1061823132	-1.250644998	-0.746866962	0.946519118	0.6449470084
## 120	0.5079041526	1.131602847	-1.361500085	-0.976979816	-0.0786923084
## 121	-0.6242546472	0.770247720	0.016717821	-1.257086171	1.7322832957
## 122	2.9465710604	1.727903709	-0.562509329	-0.118185560	0.2723446124
## 123	1.1591340744	-1.033478072	1.029550942	-0.829664456	0.2379158795
## 124	-0.6059809721	-0.266631362	-0.345027820	1.029651562	0.2924190542
## 125	-0.2090010834	0.842521894	-0.756546021	0.334564261	-1.2482864651
## 126	-0.5380906950	-0.495251329	0.646579860	0.033797202	2.1439886554
## 127	0.9533675449	-0.201639024	0.006665734	-1.661154459	0.4616408651
## 128	-1.2150719244	-1.165109957	-0.978225808	0.280345440	0.6096058300

## 129	2.1111424594	-0.626051833	0.566380827	1.644809259	0.0109923907
## 130	0.5497224533	-0.332244408	0.444997471	0.821706141	-0.0888430947
## 131	-0.3974547008	0.984180669	0.303017223	0.592764534	0.3822918148
## 132	1.4593085421	0.292366751	-0.610464771	0.616812212	0.8379689668
## 133	1.1905509713	0.404635537	0.583749185	0.967781292	-1.8382900690
## 134	0.9111479182	0.231729871	0.281453308	-0.025399395	0.0738847589
## 135	-0.3778497804	0.740356118	-0.482923940	-1.194083077	0.0415253676
## 136	0.2509362488	1.290778770	0.293583268	0.611578994	0.3337182101
## 137	-0.3856988174	-1.992988819	0.268574514	0.699711685	-0.0482178747
## 138	0.9107580819	0.071854178	-0.704191280	0.870133498	0.7100615141
## 139	-0.3622629633	0.444280943	-0.495025930	1.422837968	0.5954325197
## 140	0.7001021241	0.238544010	-1.481567343	-0.128719752	-0.3093294966
## 141	0.9472927065	-0.270502597	0.212910864	0.103546512	-0.6953750364
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## 143	-0.9406746947	0.298956300	2.614695863	1.862636495	0.8113985106
## 144	-0.0959570702	0.668603919	0.679470105	-0.990890981	-0.3473028013
## 145	0.9738267529	0.442069586	1.091963681	0.070145504	0.0108144862
## 146	-0.5578681879	-0.044777381	-0.820881892	1.058103718	-1.3054601893
## 147	-0.1559695520	0.612774639	1.830198050	-2.441931469	-1.8884683175
## 148	-0.3945618965	-0.169445704	0.530423518	0.763685390	0.1910074651
## 149	1.7135530279	-0.097922757	-0.292446194	-0.880627516	0.6386329769
## 150	-1.4380111952	0.210914109	0.267636209	0.246374250	-0.0409480851
## 151	-0.5481364271	-0.019533311	0.054972755	-1.248732379	0.6097105993
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## 153	-0.0483188806	1.112389164	2.446639344	-0.975807635	1.2161959513
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## 156	-0.0581610036	0.756572976	-0.872560844	0.304742933	-0.8461503873
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## 254	-0.9951143464	-1.020818185	-1.813046973	-1.692378891	-1.2787473468
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## 554	-0.6414292518	0.197942240	-0.281957977	-0.306261610	-0.2471406808
## 555	-0.8609274753	0.866598609	-0.793533672	0.045442103	0.5667660701
## 556	0.9850147754	-1.582320073	0.415267512	-1.036622713	0.1102335294
## 557	-1.3151992384	-0.892127205	-1.975395319	0.104815180	0.1407177226
## 558	-0.1790123465	-1.716351442	1.393889097	0.185137102	-1.8781390387
## 559	2.2457416007	0.702508707	-0.608058933	1.131806025	-0.6693402507
## 560	-0.7472431608	-1.436767989	-1.405768568	-0.065288265	-0.5191510285

## 561	1.0208480393	-0.537950725	-0.175029708	-0.362544697	-0.1439797554
## 562	-2.1164999460	-0.036442769	0.527231610	0.586700927	-0.3763088681
## 563	-0.9077357459	0.066287485	-0.345987708	-0.147028317	0.8425924950
## 564	1.0759655742	-1.790723133	0.498428890	-0.438462851	-0.4551809652
## 565	1.5718788446	-0.399303488	-0.619383968	0.674114325	-0.1616873701
## 566	-1.0253074908	0.719894965	0.314609518	1.365391392	0.0728981135
## 567	-2.1194042256	0.213154975	-1.308905782	1.546555616	0.7187181188
## 568	1.8553843060	-0.683339657	0.608534672	0.241435678	1.0015390633
## 569	-0.0784714128	0.352519453	0.735565692	1.380057495	0.2590556425
## 570	0.0824755279	2.089010571	0.263362408	-0.473492536	-1.1246315996
## 571	-0.9149091837	-0.213397428	1.186022050	-0.304909487	1.0699724046
## 572	1.6141436975	-1.971681221	-1.268236259	0.326068041	-0.6359690960
## 573	-0.8902141588	1.366436677	0.341997352	-0.537654965	1.8314905913
## 574	1.0373248233	0.400689620	-2.122908327	-0.951135322	0.6533205672
## 575	0.1328801546	-0.047961385	1.585732321	0.073351473	-0.6212886016
## 576	0.4766974309	-1.636656751	0.003449608	0.394134889	-1.2654660725
## 577	0.2187330666	1.318028879	1.295661908	-0.947623400	1.0503184783
## 578	-0.3196188162	-0.577977591	0.503032452	-0.602148877	0.8192656460
## 579	0.7007216219	-0.047302512	0.039817882	1.238279010	-0.4229632742
## 580	0.5471420871	-0.112968337	-1.793073648	-1.162543189	-0.9769148520
## 581	1.2487596885	0.316089397	-1.337675783	0.236701706	0.5772463253
## 582	1.1504689848	-0.627100331	0.056656076	0.514853389	0.0996603406
## 583	0.8075130989	0.800695245	0.041132319	0.582136964	-1.0021771607
## 584	0.5878068764	0.277352739	0.373757200	-1.289788215	0.3701102937
## 585	1.0504114847	-1.172766517	-0.576832200	0.823817821	1.1160286437
## 586	1.9419459446	0.292025591	0.838525957	-1.118657408	-0.6561939453
## 587	-0.1439696442	-0.082961944	-0.114925458	0.641297359	0.1587551832
## 588	0.0425164667	0.095290568	-0.314253362	0.755412926	0.8918046010
## 589	0.6749198827	-0.760594380	-2.760743372	0.966695811	1.6234013609
## 590	0.2623013993	-1.252247261	2.110205413	-0.873643994	0.2154620902
## 591	0.0496994732	-1.004644705	1.261042146	-0.258685913	0.1191485498
## 592	0.2630089516	1.967041395	-0.315006584	0.204865539	2.0561873964
## 593	-0.8534806830	-1.044991788	0.733032339	-0.237970673	1.1009169978
## 594	-1.1545724076	1.545506267	0.221096326	0.154754409	-1.3361972803
## 595	-0.5425058704	0.513221659	-0.161847753	0.128433178	0.0954301503
## 596	-0.3156154462	1.309467786	2.255413267	-1.363587937	-0.0673473461
## 597	0.5973755535	-0.519693785	0.660911161	0.323464815	-0.3009452163
## 598	-0.1550082065	-0.171580468	0.257244045	-1.279719993	0.6602901373
## 599	0.8622522669	-0.225639238	-0.291802290	-0.211857411	2.1854279321
## 600	0.8674227975	0.811434113	0.522420900	0.790168017	-0.8905498633
## 601	0.2557867399	1.592953194	1.295980736	0.543815544	-0.9782200346
## 602	0.8237823927	-1.064537358	-0.327024781	-0.204415440	-0.8425040035
## 603	-0.9013497563	-0.827323128	-0.566154131	1.294657463	-1.2787340649
## 604	0.2849448907	0.680935306	1.887661464	0.364181503	-0.8207773453
## 605	-1.0105000075	-0.627011629	-1.065313966	0.532236488	-0.4245090719
## 606	0.4086266626	-0.802981294	0.844656978	1.182117170	-0.0776894741
## 607	-1.1797236937	0.788850217	-1.267278627	1.004709504	-1.5622181964
## 608	-0.0060995704	1.382654825	0.421670730	-0.918069740	1.3803712002
## 609	0.3138087043	1.091720032	-0.480155833	0.270709013	-1.0156848721
## 610	-1.9967499704	-1.360188757	-1.385105207	-0.894271864	0.0772971317
## 611	-1.4165374743	-1.377079624	-1.565270676	-0.626319741	0.2900137721
## 612	0.1695796704	-0.229762502	0.353326568	0.873219015	-0.9849823049
## 613	2.2697371765	0.381165363	-1.114839765	0.347788737	-0.9638931944
## 614	0.2649598005	-1.163791928	0.423549767	0.177103500	-0.0231954219

## 615	-1.8502802606	-0.113974415	-0.152254450	-1.479865493	1.4812091498
## 616	1.0535185363	0.315535408	0.134353657	-2.160099030	-0.5190198319
## 617	0.4527645402	-1.170395443	-0.980015604	0.594485393	-0.6584889640
## 618	-0.4573079930	-0.549795443	-1.090679963	0.138651843	-0.2045871608
## 619	0.1812944056	-0.445366343	-0.268357292	-0.282402188	0.8202848283
## 620	1.5910932002	0.046192651	0.740021067	-0.104163314	1.3559568210
## 621	-0.8360548795	1.883512975	-1.860617227	0.050864245	0.7763658051
## 622	0.9405229168	-0.910626697	2.829167472	0.329339389	0.8378008701
## 623	0.9759178050	-1.441884724	0.359581457	0.845825049	0.7535651414
## 624	-0.1613425908	-1.618372669	-0.097866466	-0.402297376	2.0451679479
## 625	-0.8889504754	0.951980903	1.568855330	-0.640201833	0.1657756796
## 626	1.9233304436	-1.275721256	1.223485072	1.782288625	2.0103561266
## 627	0.2963173061	-0.281446223	-0.411562620	-0.772748851	-0.0881948153
## 628	1.3344540239	-0.852553308	0.277803096	-1.774943366	-1.2999672436
## 629	0.7637920746	0.356120452	-0.664038473	0.434167550	0.7990960305
## 630	1.8417794378	-2.449756428	-1.876528542	-1.266489929	0.0729850030
## 631	0.8183121697	1.783123677	-0.805461360	0.253931882	0.2635097790
## 632	0.4792135204	-0.370833060	-0.270116018	-1.667438152	0.7733843102
## 633	-0.4334732978	1.231034240	0.214130528	0.078429216	-0.6528129653
## 634	-0.7666879714	-0.836110306	-2.360057216	-0.765926398	0.0358288185
## 635	1.4355500862	0.114731773	0.585090356	0.088890978	-0.6137603143
## 636	-1.3859751693	-0.091731916	-0.283528540	-0.474231071	-1.7867455401
## 637	-1.5836451500	-1.636064263	0.345263086	1.295534778	-2.3508400878
## 638	-0.4045140018	0.474938167	-0.317171558	-1.230340910	-1.0694284708
## 639	0.4767104604	-0.971282483	0.725900160	-0.717345194	-1.1625643181
## 640	-0.0644076625	1.523674018	0.084476482	-0.455559424	1.6047060287
## 641	-0.3014727897	-0.300247777	0.442825415	1.508385410	0.6188895427
## 642	0.4046416009	-0.144809435	0.334985528	-0.029770359	-0.4892191618
## 643	1.0978391193	-0.936700777	-0.249020930	-0.871032743	0.2097836337
## 644	-1.1826319675	-0.196545525	0.069880292	1.119588104	0.3489535507
## 645	1.1162721180	-1.981188736	0.313861079	0.024596360	-1.4517732297
## 646	0.2009300742	1.344874651	0.017347040	-0.838192813	0.0385253713
## 647	-0.1142594499	-1.473731854	0.318658805	0.232974609	-1.5057329530
## 648	-1.4420549573	-0.174394536	-0.489151233	-1.524840491	-0.0162015272
## 649	2.8375416204	-1.290771076	-0.632904646	-0.817438959	-0.9224351980
## 650	0.3107246006	2.005734337	0.256914858	-0.045081020	1.0077952051
## 651	1.5748891707	1.320969138	0.906365773	0.655446513	-0.0528989892
## 652	-0.2810228390	-0.339291910	1.938771182	1.001395255	-0.1998663652
## 653	0.7765195016	-0.397187981	-0.392226642	-0.436037536	0.7133439102
## 654	0.8227208708	-0.180407753	-1.553715603	-1.639317704	-0.9491997061
## 655	0.7392667748	-0.734181219	0.402336995	-0.276010107	-1.0948000188
## 656	1.7463875043	-0.051380759	0.609730211	-0.597179521	0.4435086421
## 657	0.6092557553	0.053764860	0.453950911	-0.362181817	0.8435155933
## 658	2.0152656668	-0.675073373	0.138232013	0.078817347	0.6192174401
## 659	-0.5021639507	-0.617791666	0.627416758	-0.950480517	-1.2808437843
## 660	-0.0366663934	0.233809549	0.423259556	-0.953360656	-0.0377381580
## 661	1.2363252946	-0.038538854	-0.169676419	-0.670703150	-1.3041712279
## 662	-0.4780976165	0.639954626	-1.227279947	1.164305647	1.0013519214
## 663	0.4588823939	-1.087041937	-1.761278357	0.668366925	0.7360084805
## 664	0.9892954333	-0.674344265	-1.526116637	-1.203843479	1.2957002599
## 665	-0.7112354660	-1.307582088	0.779230602	0.566826758	0.3513239242
## 666	1.5284575993	-0.706099868	0.668231373	1.891914410	-1.4721542556
## 667	-0.9761845024	1.021671842	0.768665178	-0.083523475	-0.8166356328
## 668	-1.2675516035	0.333711413	0.697455026	-0.691280835	0.5725074189

## 669	-0.6142862121	0.107723793	0.311527294	-0.943884545	-0.5581708822
## 670	0.3765763572	1.098098686	-1.219195924	-0.278511472	-1.0002851248
## 671	-0.6706405514	-1.565921334	-0.826389644	0.174851784	2.0171865490
## 672	-0.2559750658	0.271491806	1.414158457	0.666217010	1.4839114342
## 673	0.7729488235	-1.385457843	0.269258859	0.326272441	-1.0317434681
## 674	0.0191515581	-0.020739177	1.314561528	0.045777996	-1.4263762362
## 675	0.1535482786	-0.727259624	0.619129602	0.743475016	-0.6040577888
## 676	-0.3815603614	0.147487298	-0.507082613	1.655257219	0.0880243034
## 677	-2.4617920798	-0.080915354	-0.327613685	-0.518780338	1.2095590566
## 678	0.6361646002	1.040405843	-1.338305812	-0.553812069	-0.4215598019
## 679	1.6198894753	1.088759523	0.935008074	-1.937543959	-1.0009371240
## 680	-0.7598303509	-0.426692609	0.963192197	1.631365936	0.9549527341
## 681	-1.1698735331	-0.046879132	0.069779693	-1.242546234	0.2382825591
## 682	0.0334248348	1.057094913	0.861927190	-0.536761871	-1.0660184345
## 683	0.8356481101	-0.016192000	-1.227385316	0.161176176	-0.5075893630
## 684	-0.7889431912	-0.945986124	1.596966771	1.809499016	-1.5310641963
## 685	0.9836901399	0.063634401	-0.383989676	-1.603885005	-0.5497102810
## 686	-1.7500392759	-0.911532366	-1.461897430	0.287839067	-0.2691792446
## 687	1.1774146910	0.870006121	-0.430916922	1.085808465	-1.6001554273
## 688	-0.1628872348	0.879021868	-0.047646884	0.532747150	-1.7242085021
## 689	-1.9164354638	0.844301308	-1.206097011	1.705125485	0.5371193721
## 690	-2.2612464181	0.182482020	0.069659051	0.665409482	1.6619786154
## 691	-0.8422539344	-0.539700389	0.123319507	-2.112771903	-1.6414513885
## 692	0.7376628378	-1.478601549	1.070535764	0.784080307	1.0519675959
## 693	-2.0577650903	0.443648763	-0.296138382	-0.194095915	0.5816747841
## 694	0.7599162145	-0.838023243	-1.944249442	0.931642299	0.4132450624
## 695	0.7127205317	-1.239099719	-1.768357603	-0.617481172	-0.4959259683
## 696	1.3366672031	-0.503369985	-1.397913906	0.728817904	-1.2859329531
## 697	0.5257284337	-0.639562219	-0.154470022	0.708527335	0.1914401978
## 698	-2.2892397306	1.716062857	-1.403457542	-1.291564579	0.2397668365
## 699	0.5511385731	1.124811313	-0.396265018	-0.189769931	1.0058627931
## 700	-0.1838007512	0.985654914	0.653561815	-0.575594996	-1.0686372463
## 701	1.0273338704	0.133408632	-1.080698692	1.033268475	-0.2037736645
## 702	-1.6366021047	-0.956149274	-0.870962634	-0.271273019	0.4178576781
## 703	0.1627712297	-1.320876430	-0.488518428	1.606266708	-0.8195512816
## 704	-2.2536157135	-1.031995508	0.257274911	0.589092173	0.6912765466
## 705	-0.1521175325	-0.341466881	0.724671175	0.274397957	-2.1537969783
## 706	0.5680344919	-1.011734036	-0.398548110	-0.880205936	1.2746294280
## 707	0.2481479216	0.849582670	-2.128038430	-2.213735351	-0.9174169111
## 708	0.1125960395	-0.025393922	0.845036284	-0.538647540	0.0946228760
## 709	0.6919111472	0.690560839	0.097831361	1.241004367	0.8014127514
## 710	0.0012291587	1.316713607	-0.760337307	-1.758901866	0.6542171394
## 711	0.3171247677	1.685797219	-0.355068520	-0.741735580	-0.8231579415
## 712	1.4468021564	-0.500988365	-1.552587676	-0.243938290	-0.3400100888
## 713	0.9868511641	0.765206071	-0.782794994	0.637010999	1.0173132174
## 714	0.8575334016	1.742673041	0.831523591	0.687556777	0.8358732428
## 715	1.1820751044	0.732302034	0.897137098	1.441258051	-0.1234113723
## 716	0.3749486804	-0.067509740	1.181475745	-0.923228287	0.0749994753
## 717	0.6759046762	0.291458011	0.975180401	-0.736118560	-0.0561691953
## 718	0.4550457131	-1.119340854	-0.929616678	-1.436215145	0.1088904103
## 719	-0.8302271333	0.116663412	-0.038981092	-0.846747572	-0.2514823737
## 720	2.2742157615	0.463788855	-0.066460287	0.822091346	-1.5206983680
## 721	-0.2033990742	-0.200692753	1.797963527	-1.457775450	-0.4816612815
## 722	-1.6201735327	-0.230992692	-0.419505680	0.797990546	-0.0401990367

## 723	1.6583456972	-0.591633532	-0.274805475	0.493799168	-0.7483852339
## 724	1.5637544851	1.591383229	1.021747229	-0.559484097	0.1508964140
## 725	0.4502896203	-0.715569077	-0.977448213	0.035780521	0.4511387862
## 726	-0.8487138221	-0.064979523	0.416459496	1.106694740	1.2285676410
## 727	0.1106504304	0.407389478	-0.035216443	1.007152874	0.1612624923
## 728	0.0628344436	0.093171261	-1.742172907	0.705342235	-0.6575668510
## 729	0.2671809885	-3.290979642	0.728632790	-0.056201185	0.2389555278
## 730	0.4142509390	-0.413104229	-0.189279381	1.063267904	-1.1463658176
## 731	0.5959778153	1.317037974	0.319470448	0.321629182	0.8704318034
## 732	-0.9359144528	-0.024013367	-0.292392443	-0.387076125	0.5239324167
## 733	-2.1388202722	0.425128055	-0.732203420	-0.179897159	-0.4212262096
## 734	-0.4743807599	-0.663995438	-1.119803349	0.578359061	1.1475574230
## 735	1.5193305862	2.755617849	0.728925263	0.083270640	0.5036213753
## 736	0.4275489487	-0.230032380	-0.223557247	0.445898548	0.3443937941
## 737	1.4410980383	0.150397425	0.308357280	0.068421992	-0.4076758859
## 738	0.3919429771	1.621269286	-2.102890663	-1.993652922	0.8600960189
## 739	0.1324662796	-1.010306559	-0.514229061	-0.733068611	2.4672381522
## 740	-0.2570732117	-1.154566819	-1.402484191	-0.317859149	0.1340226555
## 741	0.0057539862	0.811687449	1.766011870	-0.389052230	-0.0235556285
## 742	0.2924495106	1.407332107	0.905519465	1.551766020	-0.8184162390
## 743	-0.6606646876	1.478053197	0.200024582	0.088907341	1.4397471369
## 744	-1.3739410834	0.058130947	-1.133065493	2.759183342	0.2007227044
## 745	-0.2340795172	-1.700325689	1.409923243	-0.368534107	-0.1426096457
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## 764	0.5813055432	1.383226776	-1.641286324	-0.443628602	-1.2169283587
## 765	2.6693830049	0.270376285	-0.517165056	-0.165190685	-1.2621033427
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## 898	0.0660570741	-0.553100243	0.814077988	-1.582884880	-0.3159750830
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## [868,] 4.604761291
## [869,] 3.821107952
## [870,] -1.815562863
## [871,] -4.312177491
## [872,] 2.411979948
## [873,] -3.931919078
## [874,] -0.953400432
## [875,] -3.727732413
## [876,] -3.809221054
## [877,] -0.149770255
```

[878,] -2.919767233
[879,] -4.342293220
[880,] 5.544003875
[881,] 4.498175883
[882,] -1.850727405
[883,] 2.027817884
[884,] 3.949143118
[885,] -2.250461711
[886,] -2.101362155
[887,] -0.123376802
[888,] 3.023984130
[889,] -2.718297071
[890,] 1.389637639
[891,] -4.334683380
[892,] 0.940753926
[893,] 3.220408248
[894,] 0.504188560
[895,] -4.710918043
[896,] 7.525256020
[897,] -2.876611601
[898,] 1.540290038
[899,] 0.611066741
[900,] 1.983214333
[901,] 5.504653699
[902,] 0.948726096
[903,] -2.203954788
[904,] -5.725585069
[905,] 7.196733941
[906,] -4.463456301
[907,] -1.642197368
[908,] -7.753542752
[909,] 1.020652188
[910,] -1.958033012
[911,] 4.089817535
[912,] -2.064204937
[913,] 2.643259182
[914,] -5.054008609
[915,] -0.474300854
[916,] 5.048854429
[917,] 6.018099890
[918,] 5.334475687
[919,] -3.422646817
[920,] 0.354428684
[921,] 2.114436794
[922,] -1.648729852
[923,] 2.677053869
[924,] -1.652199816
[925,] -3.059450626
[926,] -0.952581885
[927,] -1.513251626
[928,] 4.976111519
[929,] 1.313089679
[930,] 0.194636864
[931,] 0.493577795

```
## [932,] -0.367954246
## [933,]  0.213337649
## [934,] -6.768665159
## [935,]  1.721397230
## [936,] -0.035437951
## [937,] -1.451779564
## [938,]  1.860154611
## [939,] -2.249110834
## [940,] -11.445724600
## [941,] -6.112873776
## [942,]  1.146056173
## [943,] -4.463614505
## [944,] -1.538435311
## [945,]  0.273784353
## [946,] -3.371721331
## [947,] -2.059598958
## [948,] -8.877889457
## [949,]  1.492145980
## [950,] -6.867276394
## [951,] -0.418297845
## [952,] -2.478252878
## [953,]  0.041510877
## [954,]  0.715129945
## [955,]  0.818866045
## [956,] -0.662793733
## [957,] -1.863853801
## [958,] -2.678542263
## [959,] -4.754301693
## [960,]  7.290588168
## [961,] -2.545116580
## [962,]  4.980929427
## [963,] -3.909536034
## [964,]  2.275849536
## [965,]  2.531263888
## [966,]  1.327845884
## [967,]  4.920036701
## [968,] -7.474788806
## [969,]  5.032700475
## [970,]  0.270026141
## [971,] -1.623760228
## [972,] -0.374917186
## [973,] -5.722509104
## [974,] -6.021744735
## [975,]  4.192588987
## [976,]  0.887606109
## [977,] -4.394206211
## [978,] -3.138142743
## [979,] -8.275996307
## [980,]  5.062255844
## [981,] -1.939981781
## [982,] -6.464255661
## [983,]  1.446239566
## [984,]  4.232861812
## [985,] -2.615936583
```



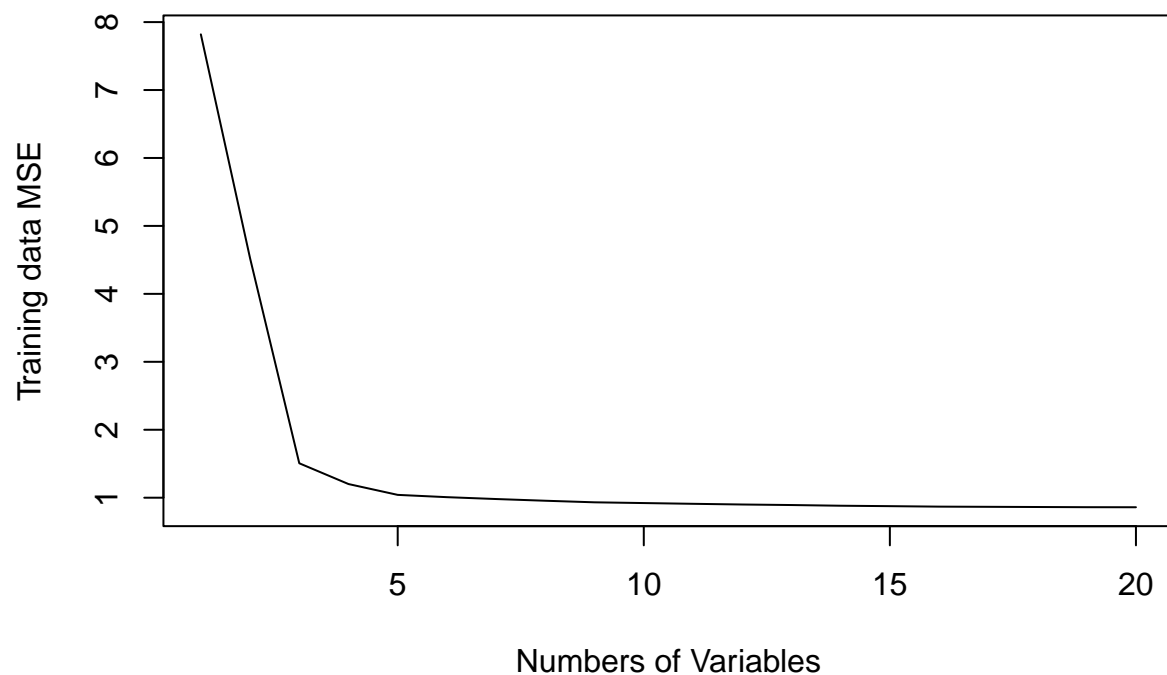
```
## [986,] 6.738332354
## [987,] -0.020455719
## [988,] 1.258899452
## [989,] -2.571206788
## [990,] -4.265030018
## [991,] -0.235114415
## [992,] 0.821580272
## [993,] -1.284891531
## [994,] -3.107569618
## [995,] -1.577332275
## [996,] -0.501472906
## [997,] 0.281699015
## [998,] 4.446018545
## [999,] 1.625693191
## [1000,] -3.607306423
```

Question 2.2

```
n <- nrow(data)
train <- sample(n,100)
test <- (1:1000)[-train]
```

Question 2.3

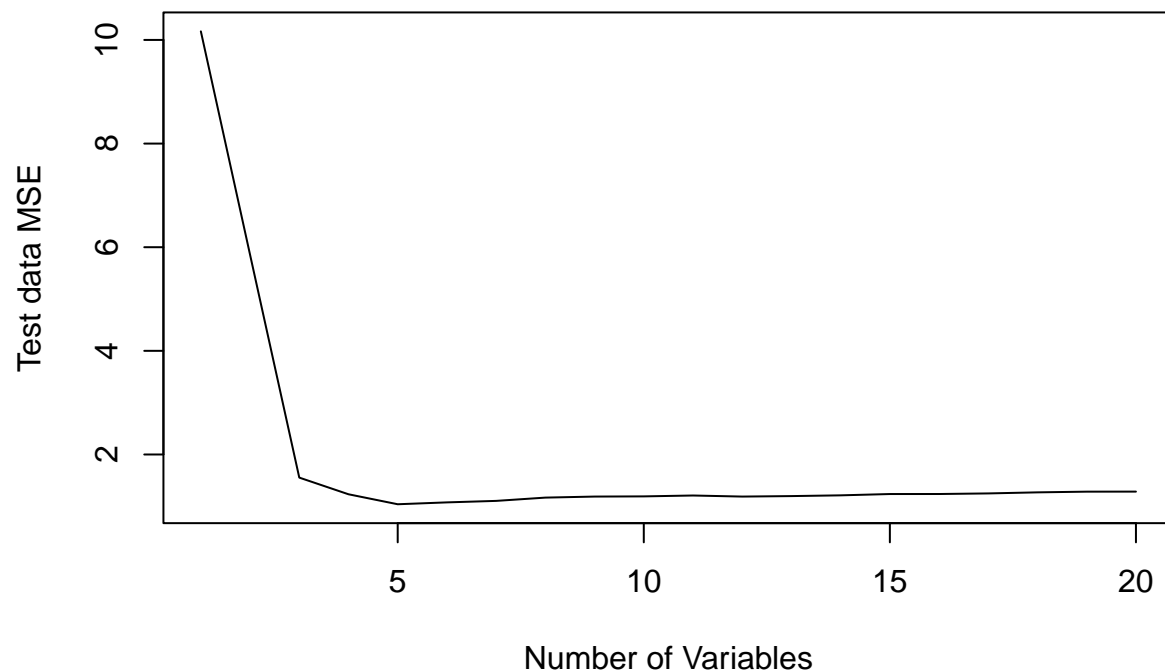
```
regfit.model <- regsubsets(y~., data=data[train,], nvmax=20, intercept=F)
reg.summary <- summary(regfit.model)
plot(reg.summary$rss/100, xlab="Numbers of Variables", ylab="Training data MSE", type="l")
```



IN this plot, the x-axis means the best model with 5 variables and the corresponding y-axis means the correlated training data MSE(best).

Question 2.4

```
test.mat <- model.matrix (y~., data[test,])[, -1]
val.errors <- rep(NA,p)
for(i in 1:p){
  coefi <- coef(regfit.model,id=i)
  pred <- as.matrix(test.mat[, names(coefi)])%*%coefi
  val.errors[i] <- mean((data$y[test]-pred)^2)
}
plot(val.errors,xlab="Number of Variables",ylab="Test data MSE",type="l")
```



IN this plot, the x-axis means the best model with 5 variables and the corresponding y-axis means the correlated test data MSE(best).

Question 2.5

```
which.min(reg.summary$rss/100)
```

```
## [1] 20
```

```
which.min(val.errors)
```

```
## [1] 5
```

Since we could know from the code that when the number of variables increases, then the train data MSE decrease definitely, but for the test data MSE is not necessary decrease when the number of variables increases.

Question 2.6

```
names(beta) <- colnames(data)[-length(colnames(data))]  
beta
```

```
## V1 V2 V3 V4 V5 V6 V7 V8 V9 V10 V11 V12 V13 V14 V15 V16 V17 V18 V19 V20
## 2.0 2.0 2.0 0.5 0.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
```

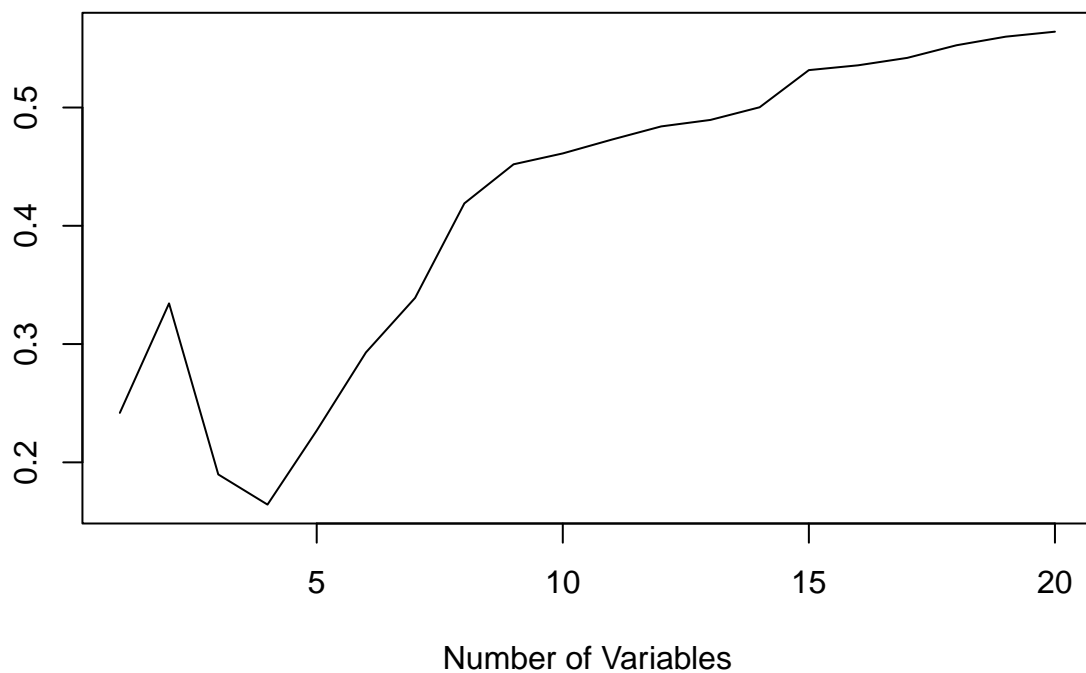
```
coef(regfit.model,id=5)
```

```
##          V1          V2          V3          V4          V5
## 2.0371234 2.0352169 2.1091965 0.6544202 0.3856066
```

Based on the coefficient we can say that it fulfill our prediction that the five variables are closed to our beta 1-5. Also, the beta 6-20 is 0 is proved by the prediction model that fit the case that beta 6-20 hat are all 0.

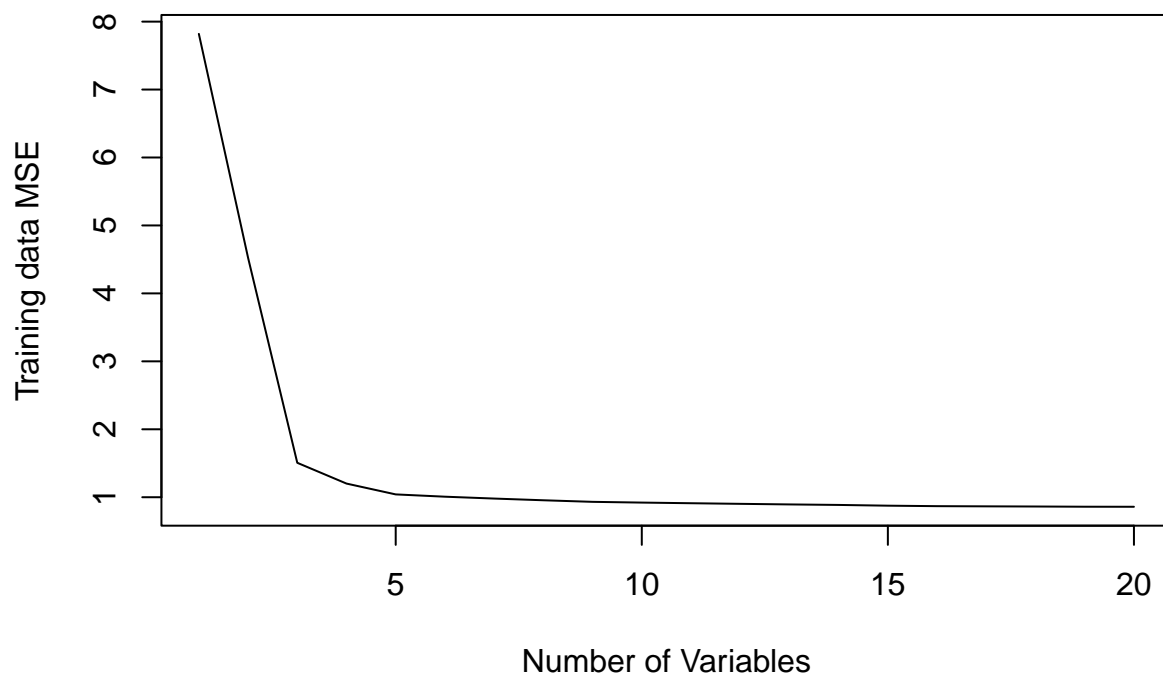
Question 2.7

```
beta.errors <- rep(NA,20)
for (k in 1:20) {
  coef_k <- coef(regfit.model, id = k)
  beta.errors[k] <- sqrt( sum( (beta[names(beta) %in% names(coef_k)] - coef_k)^2 ) )
}
plot(beta.errors,xlab="Number of Variables",ylab="",type="l")
```

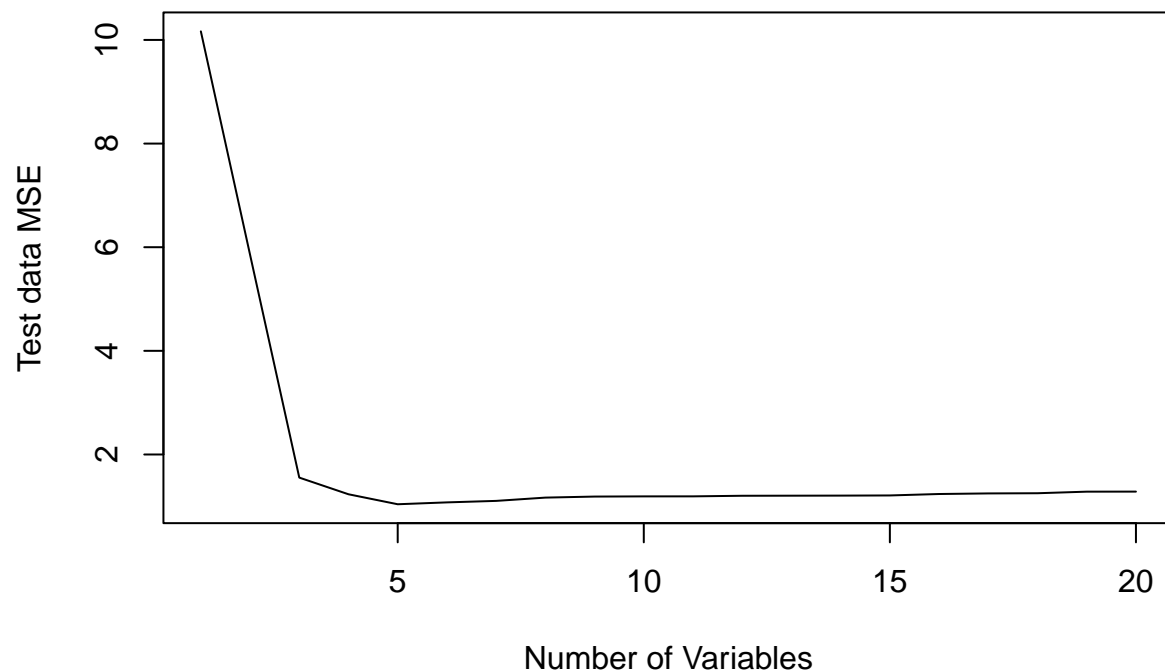


Question 2.8

```
regfit.fss <- regsubsets(y~.,data=data[train,],nvmax=20,method="forward",intercept=F)
reg.summary <- summary(regfit.fss)
plot(reg.summary$rss/100,xlab="Number of Variables",ylab="Training data MSE",type="l")
```



```
test.mat <- model.matrix (y~., data[data[,1:20],])[,,-1]
val.errors <- rep(NA,20)
for(i in 1:20){
  coefi <- coef(regfit.fss,id=i)
  pred <- as.matrix(test.mat[,names(coefi)]) %*% coefi
  val.errors[i] <- mean((data$y[test]-pred)^2)
}
plot(val.errors,xlab="Number of Variables",ylab="Test data MSE",type="l")
```



```
which.min(reg.summary$rss/100)
```

```
## [1] 20
```

```
which.min(val.errors)
```

```
## [1] 5
```

Since we could know from the code that when the number of variables increases, then the train data MSE decrease definitely, but for the test data MSE is not necessary decrease when the number of variables increases.

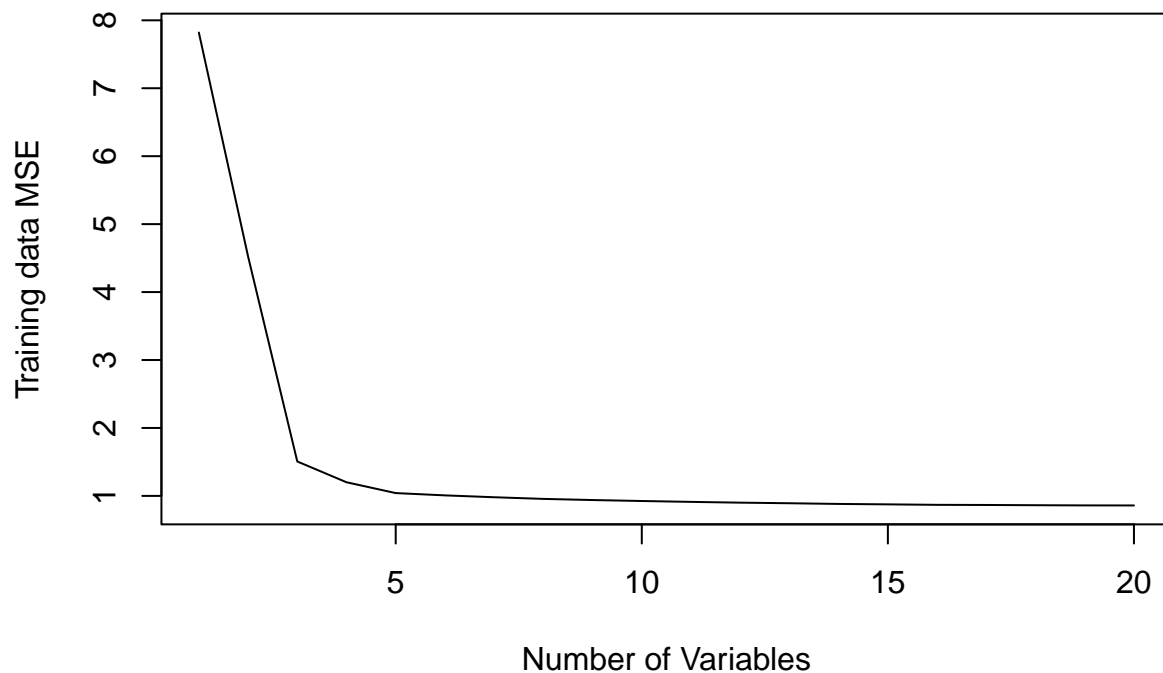
```
coef(regfit.fss, id=5)
```

```
##          V1          V2          V3          V4          V5
## 2.0371234 2.0352169 2.1091965 0.6544202 0.3856066
```

Based on the coefficient we can say that it fulfill our prediction that the five variables are closed to our beta 1-5. Also, the beta 6-20 is 0 is proved by the prediction model that fit the case that beta 6-20 hat are all 0.

Question 2.9

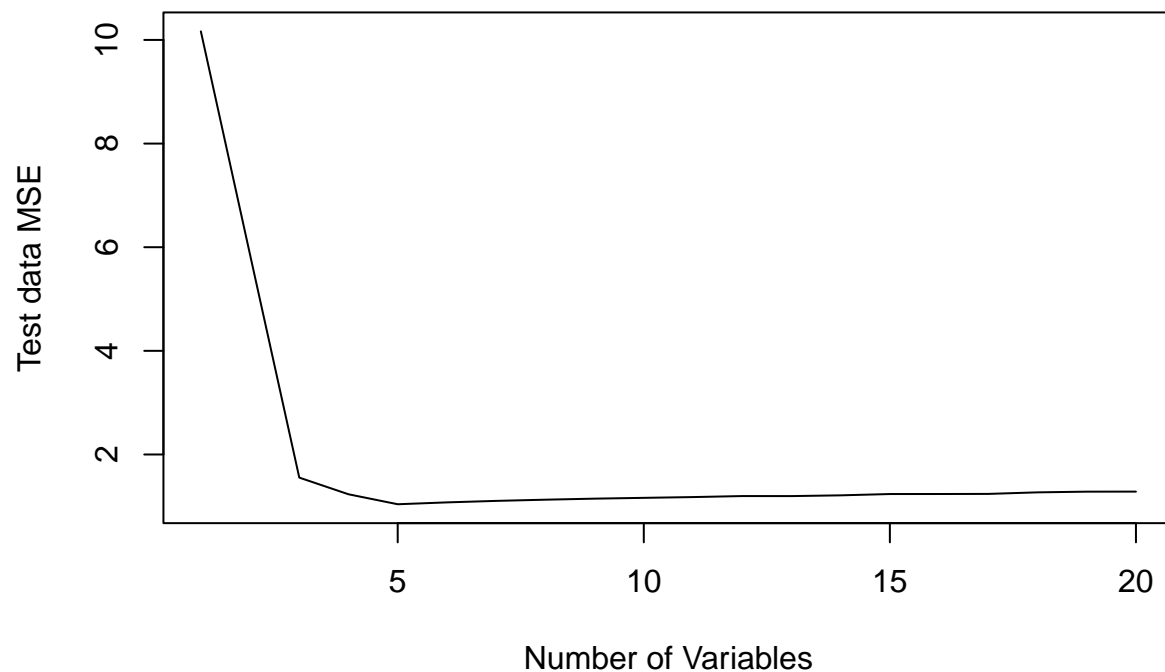
```
regfit.bss <- regsubsets(y~.,data=data[train,],nvmax=20,method="backward",intercept=F)
reg.summary <- summary(regfit.bss)
plot(reg.summary$rss/100,xlab="Number of Variables",ylab="Training data MSE",type="l")
```



```
test.mat <- model.matrix (y~., data[test,])[,,-1]
val.errors <- rep(NA,20)

for(i in 1:20){
  coefi <- coef(regfit.bss,id=i)
  pred <- as.matrix(test.mat[,names(coefi)]) %*% coefi
  val.errors[i] <- mean((data$y[test]-pred)^2)
}

plot(val.errors,xlab="Number of Variables",ylab="Test data MSE",type="l")
```



```
which.min(reg.summary$rss/nrow(data[train,]))
```

```
## [1] 20
```

```
which.min(val.errors)
```

```
## [1] 5
```

Since we could know from the code that when the number of variables increases, then the train data MSE decrease definitely, but for the test data MSE is not necessary decrease when the number of variables increases.

```
coef(regfit.bss, id=5)
```

```
##          V1          V2          V3          V4          V5
## 2.0371234 2.0352169 2.1091965 0.6544202 0.3856066
```


Based on the coefficient we can say that it fulfill our prediction that the five variables are closed to our beta 1-5. Also, the beta 6-20 is 0 is proved by the prediction model that fit the case that beta 6-20 hat are all 0.

Question 3a

```
set.seed(0)
n <- 1100
p <- 50
Model <- matrix(rnorm(n * p), nrow <- n, ncol <- p)
```

Question 3b

```
beta <- c(2,2,2,2,2,rep(0,45))
y <- Model %*% beta + rnorm(n)
data <- as.data.frame(Model)
data$y <- y
```

Question 3c

```
num_samples <- nrow(data)
train <- sample(num_samples,100)
test <- (1:1000)[-train]
```

Question 3d

```
grid = 10^seq(10,-2,length = 100)
```

Question 3.1

```
x <- model.matrix(y~., data[train,])[, -1]
y <- data$y[train]

cv.out <- cv.glmnet(x,y,alpha=0,lambda=grid)
bestlam <- cv.out$lambda.min
ridge.mod <- glmnet(x,y,alpha=0,lambda=bestlam,intercept=F)
pred.ridge <- predict(ridge.mod, s = bestlam, newx = as.matrix(data[test,1:50]))
mean((data$y[test]-pred.ridge)^2)
```

```
## [1] 1.844104
```

```

cv.out <- cv.glmnet(x,y,alpha=1,lambda=grid)
bestlam <- cv.out$lambda.min
lasso.mod <- glmnet(x,y,alpha=1,lambda=bestlam,intercept=F)
pred.lasso <- predict(lasso.mod, s = bestlam, newx = as.matrix(data[test,1:50]))
mean((data$y[test]-pred.lasso)^2)

```

```
## [1] 1.145567
```

We can tell from the result that the lasso method will lead to a smaller MSE compared to ridge method.

Question 3.2

```

MSE_ridge <- rep(0, 50)
MSE_ridge[1] <- mean((data$y[test]-pred.ridge)^2)
MSE_lasso <- rep(0, 50)
MSE_lasso[1] <- mean((data$y[test]-pred.lasso)^2)
for (i in 2:50) {
  set.seed(i)
  n <- 1100
  p <- 50
  Model <- matrix(rnorm(n * p), nrow <- n, ncol <- p)
  beta <- c(2,2,2,2,2,rep(0,45))
  y <- Model %*% beta + rnorm(n)
  data <- as.data.frame(Model)
  data$y <- y
  num_samples <- nrow(data)
  train <- sample(num_samples,100)
  test <- (1:n)[-train]
  grid = 10^seq(10,-2,length = 100)

  x <- model.matrix(y~., data[train,])[,,-1]
  y <- data$y[train]
  cv.out <- cv.glmnet(x,y,alpha=0,lambda=grid)
  bestlam <- cv.out$lambda.min
  ridge.mod <- glmnet(x,y,alpha=0,lambda=bestlam,intercept=F)
  pred.ridge <- predict(ridge.mod, s = bestlam, newx = as.matrix(data[test,1:50]))
  MSE_ridge[i] <- mean((data$y[test]-pred.ridge)^2)

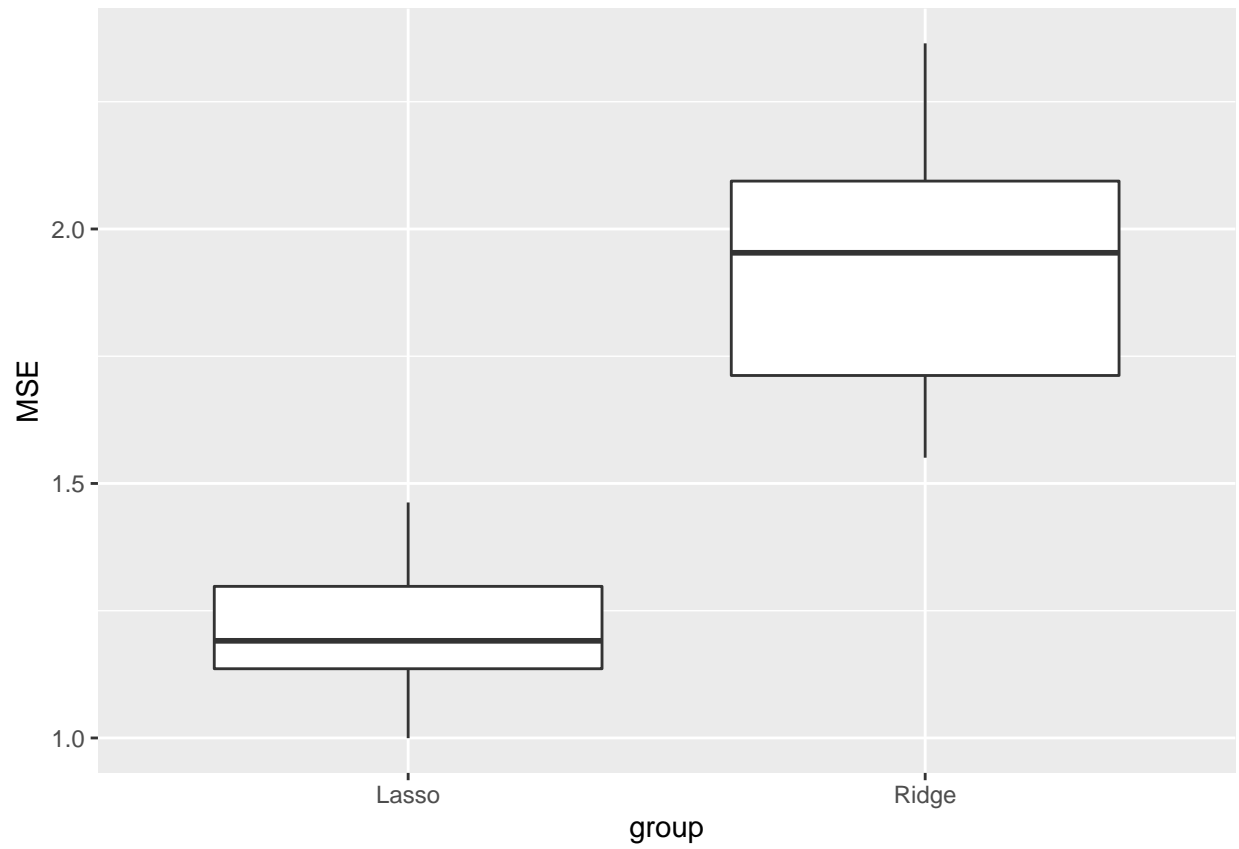
  cv.out <- cv.glmnet(x,y,alpha=1,lambda=grid)
  bestlam <- cv.out$lambda.min
  lasso.mod <- glmnet(x,y,alpha=1,lambda=bestlam,intercept=F)
  pred.lasso <- predict(lasso.mod, s = bestlam, newx = as.matrix(data[test,1:50]))
  MSE_lasso[i] <- mean((data$y[test]-pred.lasso)^2)
}

```

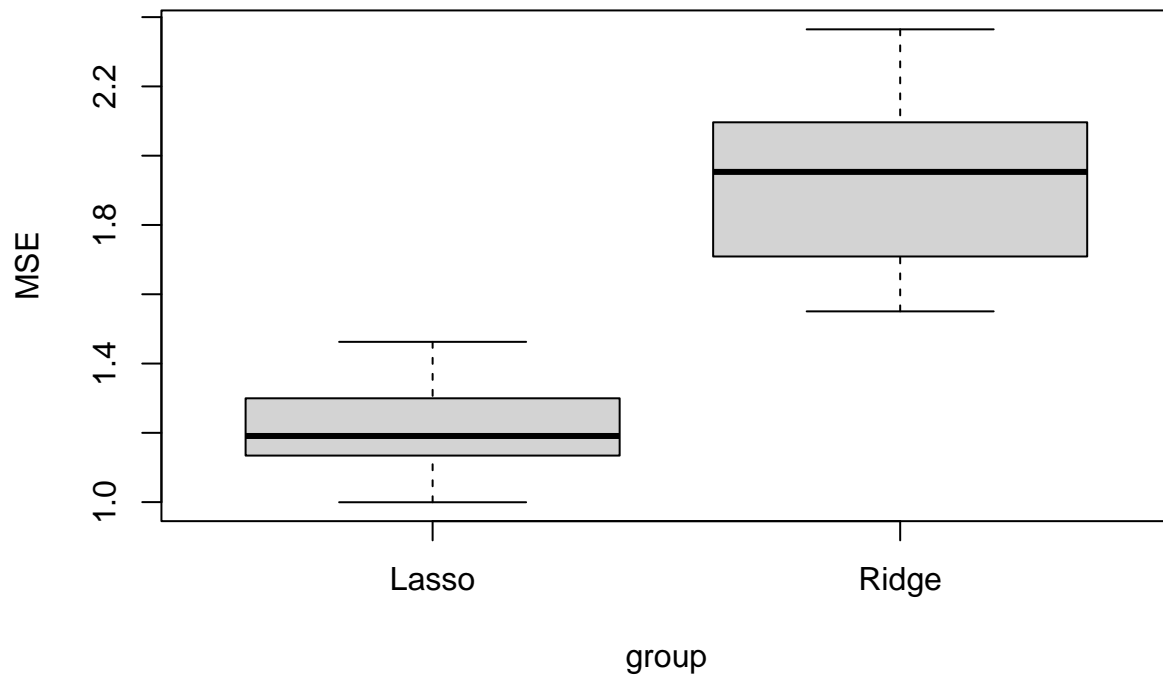
```

MSE.data <- data.frame(group = c(rep("Ridge", 50), rep("Lasso", 50)),
  MSE = c(MSE_ridge, MSE_lasso))
MSE.data %>% ggplot(aes(x=group, y=MSE)) + geom_boxplot()

```



```
boxplot(MSE~group, data=MSE.data)
```



We can know from the plots that the true value is 2,2,0,0,0 and the data is divided. Also, the true coefficients are sparse, and therefore leads to a smaller MSE test for lasso than ridge.

Question 3.3

```
set.seed(0)
n <- 1100
p <- 50
Model <- matrix(rnorm(n * p), nrow <- n, ncol <- p)
```

```
beta1 <- rep(0.5, 50)
y <- Model %*% beta1 + rnorm(n)
data1 <- as.data.frame(Model)
data1$y <- y
```

```
num_samples <- nrow(data1)
train <- sample(num_samples, 100)
test <- (1:1000)[-train]
```

```
grid = 10^seq(10, -2, length = 100)
```

```

x <- model.matrix(y~., data1[train,])[, -1]
y <- data1$y[train]
library(glmnet)
cv.out <- cv.glmnet(x,y,alpha=0,lambda=grid)
bestlam <- cv.out$lambda.min
ridge.mod <- glmnet(x,y,alpha=0,lambda=bestlam,intercept=F)
pred.ridge <- predict(ridge.mod, s = bestlam, newx = as.matrix(data1[test,1:50]))
mean((data1$y[test]-pred.ridge)^2)

```

```
## [1] 1.589468
```

```

cv.out <- cv.glmnet(x,y,alpha=1,lambda=grid)
bestlam <- cv.out$lambda.min
lasso.mod <- glmnet(x,y,alpha=1,lambda=bestlam,intercept=F)
pred.lasso <- predict(lasso.mod, s = bestlam, newx = as.matrix(data1[test,1:50]))
mean((data1$y[test]-pred.lasso)^2)

```

```
## [1] 1.760844
```

We can tell from the result that the ridge method will lead to a smaller MSE compared to lasso method.

```

MSE.ridge <- numeric(length=50)
MSE.ridge[1] <- mean((data1$y[test]-pred.ridge)^2)
MSE.lasso <- numeric(length=50)
MSE.lasso[1] <- mean((data1$y[test]-pred.lasso)^2)
for (i in 2:50) {
  set.seed(i)
  n <- 1100
  p <- 50
  Model <- matrix(rnorm(n * p), nrow <- n, ncol <- p)
  beta1 <- rep(0.5,50)
  y <- Model %*% beta1 + rnorm(n)
  data1 <- as.data.frame(Model)
  data1$y <- y
  num_samples <- nrow(data1)
  train <- sample(num_samples,100)
  test <- (1:n)[-train]
  grid = 10^seq(10,-2,length = 100)

  x <- model.matrix(y~., data1[train,])[, -1]
  y <- data1$y[train]
  cv.out <- cv.glmnet(x,y,alpha=0,lambda=grid)
  bestlam <- cv.out$lambda.min
  ridge.mod <- glmnet(x,y,alpha=0,lambda=bestlam,intercept=F)
  pred.ridge <- predict(ridge.mod, s = bestlam, newx = as.matrix(data1[test,1:50]))
  MSE.ridge[i] <- mean((data1$y[test]-pred.ridge)^2)

  cv.out <- cv.glmnet(x,y,alpha=1,lambda=grid)
  bestlam <- cv.out$lambda.min

```

```

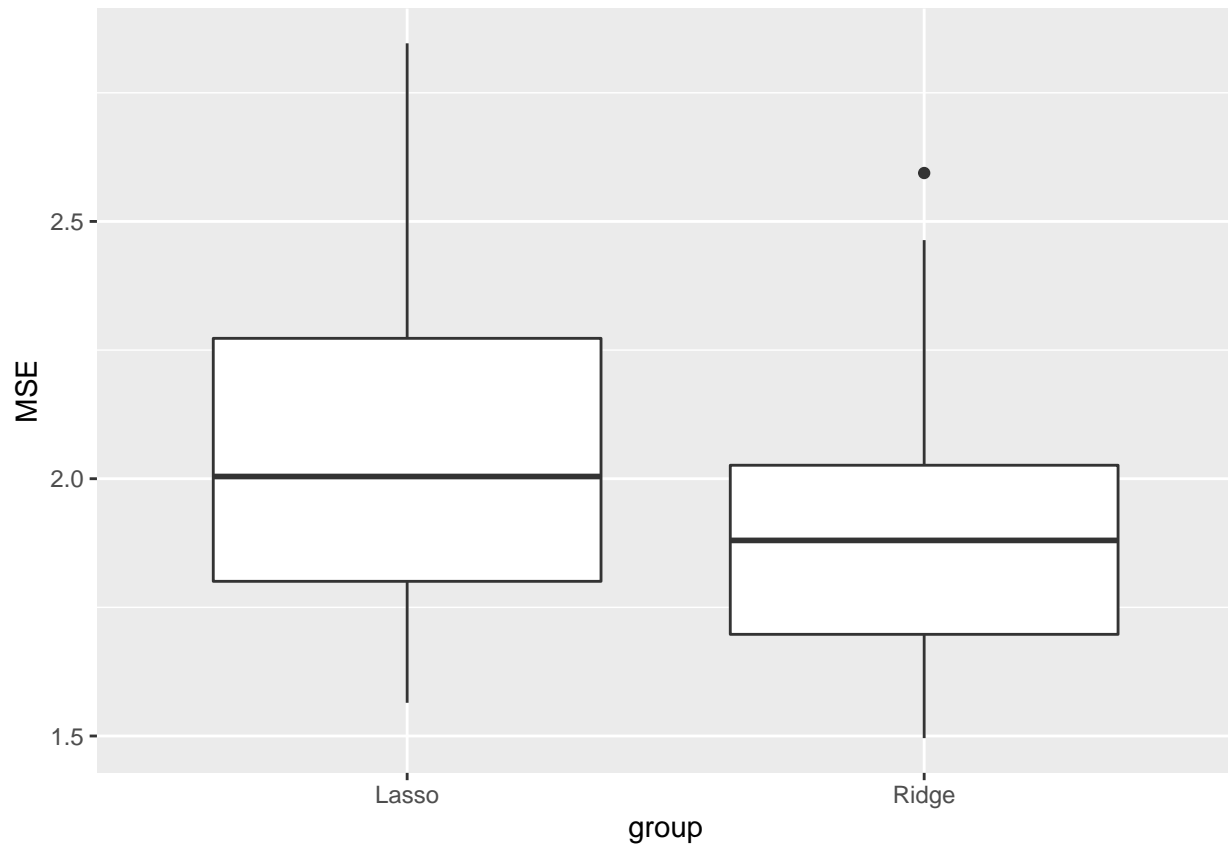
lasso.mod <- glmnet(x,y,alpha=1,lambda=bestlam,intercept=F)
pred.lasso <- predict(lasso.mod, s = bestlam, newx = as.matrix(data1[test,1:50]))
MSE.lasso[i] <- mean((data1$y[test]-pred.lasso)^2)
}

```

```

MSE.data <- data.frame(group = c(rep("Ridge", 50), rep("Lasso", 50)),
                        MSE = c(MSE.ridge, MSE.lasso))
MSE.data %>% ggplot(aes(x=group, y=MSE)) + geom_boxplot()

```



```

boxplot(MSE~group, data=MSE.data)

```

