

major.r

denis

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```
#!/usr/bin/r

# We use the notation  $a_j$  to correspond to the  $j$ th column of the matrix  $A$ 
# and use  $a_i$  to represent the (column) vector that corresponds to the  $i$ th
# row.
# The first row is the 1st (first) row, and the first column is the 1st (first)
# column. (Again, we remark that computer entities used in some systems to
# represent matrices and to store elements of matrices as computer data some-
# times index the elements beginning with 0. Furthermore, some systems use the
# first index to represent the column and the second index to indicate the row.
# We are not speaking here of the storage order - "row major" versus "column
# major" - we address that later, in Chapter 11. Rather, we are speaking of the
# mechanism of referring to the abstract entities. In image processing, for
# exam-
# ple, it is common practice to use the first index to represent the column and
# the second index to represent the row. In the software package PV-Wave, for
# example, there are two different kinds of two-dimensional objects: "arrays",
# in
# which the indexing is done as in image processing, and "matrices", in which
# the indexing is done as we have described.)
n = 1
j <- rnorm(100)
j

## [1] -0.230913926  1.007766275  0.400305006  0.029063470 -1.076926365
## [6]  1.241886729  0.264388484 -1.256798302 -0.360292404  0.802266393
## [11] -0.108842597 -0.403603296 -1.192018245 -0.882839026  1.964132355
## [16]  1.078894869 -0.003981841  0.150326032  0.647213168 -0.775518445
## [21] -0.508808964  0.575762931 -0.112863359 -0.195486064 -0.917104404
## [26] -0.873357764 -0.321813750 -0.569953990 -1.197169322 -0.652407907
## [31] -0.306550217  2.272931644 -0.640663500 -0.368592593 -0.235530252
## [36]  0.326624283 -0.461608816  0.113586396  0.434513520  0.940640371
## [41]  1.248900056 -0.248246320  0.612926553  0.363033342 -0.926773865
## [46] -0.620148173 -0.806695079 -0.105456969  0.029232999  1.316555726
## [51]  3.261983391  1.240919219 -1.742564990 -0.954965816  2.075276344
## [56]  0.703646940  0.867923774  1.095701987 -0.452091971  0.125618226
## [61] -0.915806909  0.376580701  0.067172942 -0.159657392  1.167135674
## [66]  0.099068397 -2.129512741 -0.373475900  0.435836196  0.308507989
## [71] -1.004168724 -1.004822699 -1.443782344  0.236477094 -1.128972042
## [76] -0.762352919 -0.711535892  1.629142854  2.135672481  1.110587749
## [81] -0.417117146 -0.727781565 -0.256375527 -0.215594410  1.360935556
```

```
## [86] 0.294922248 -0.606543134 0.401474141 -2.524805259 -1.376242527
## [91] -1.663367696 1.569936465 -0.285230737 1.081875197 0.693034717
## [96] 0.415479691 -1.598537407 -0.145728833 -0.376985847 0.225661247
```

```
jh <- c(100 * 10 + sin(2))
jh
```

```
## [1] 1000.909
```

```
a <- c(111, 1112, 111, 1112)
a
```

```
## [1] 111 1112 111 1112
```

```
# We also write the matrix A above as
a <- rnorm(1110)
a
```

```
## [1] 0.564887953 1.508090087 -1.418127031 0.263030638 -0.514274950
## [6] -0.467622999 0.620054886 -1.001181288 -0.505164846 -0.101210542
## [11] 0.106595961 -0.225710467 -1.544206196 0.805975641 -0.543421690
## [16] 0.649686775 0.791202897 1.708006309 1.501907829 -0.670859520
## [21] 0.828485144 -1.696995849 0.910014740 -0.385003317 0.152113381
## [26] 0.323035099 -1.895936281 0.187290829 2.179144912 -0.027181696
## [31] -0.929140274 1.081581062 0.573847907 -0.272194663 -0.536469325
## [36] 1.175725991 0.287766640 0.887434226 -1.833920599 -0.587862774
## [41] 1.423601497 0.393969722 0.666396444 -0.085394917 -1.620695320
## [46] 0.313410167 -1.744707345 -0.556307349 1.200553241 0.223782743
## [51] 0.776745086 -1.451451048 0.196203916 -0.982100475 -0.012773008
## [56] -0.638495985 -0.110486340 -0.130832350 -0.423211877 -1.660882894
## [61] 0.010460744 0.015803457 -0.278842957 -0.758468416 0.014756949
## [66] 0.516101189 -1.415733986 -0.319274012 -0.883585323 -0.997574079
## [71] -0.543728338 0.821877672 -0.847249751 -1.873221389 0.423508879
## [76] 0.646231075 1.476766347 -0.496702883 -0.247518656 -1.363794278
## [81] -0.491179556 2.043680375 -2.427961956 -1.883715229 0.049273939
## [86] -0.856707214 0.509008636 -1.937120539 0.175374916 -1.553783374
## [91] 0.241123655 -0.413780805 -0.474228478 -0.536100788 -0.388730047
## [96] 0.125659171 -1.953601983 -0.937639605 0.611198886 -0.365435067
## [101] 1.219070339 0.935754587 0.972109690 0.908422883 -1.681296994
## [106] -0.752603517 0.507072031 0.337260904 -1.150618309 -0.266902043
## [111] -0.365820351 -0.219462272 0.492703461 1.542823515 1.368881088
## [116] -0.639747711 0.839291905 1.086793166 -1.682258228 -1.045018349
## [121] -0.011330249 1.644268111 2.136867020 -0.684886924 -0.990334978
## [126] 1.628497447 -0.308679397 -0.126426159 -1.030680506 0.408380371
## [131] -0.335729812 -1.154688713 -0.464530973 -1.443520383 -0.388550767
## [136] 0.953888940 -1.564616549 0.148863282 -0.697283705 0.008086016
## [141] 0.168935854 -0.358557819 -0.403566583 1.979015244 -0.380170902
## [146] -0.967697691 0.250677443 1.094387235 -0.479944126 -0.204304436
## [151] -2.153336714 -2.259007301 0.506866437 -0.578074143 -0.158073215
## [156] 0.667522284 -0.379129480 -0.224271033 0.100849577 0.028232336
## [161] -0.841752935 -0.724974489 0.055270672 -1.329658351 -0.888780958
## [166] -1.312161747 -0.792279073 0.635997089 -0.841723955 -0.177919556
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## [171] 0.142089637 0.439374503 -2.186818129 -0.375043890 -1.333179513
## [176] -2.110232680 -0.643460503 -0.256531930 0.112688781 -1.213524073
## [181] -0.311152457 -1.262525795 -1.205968601 1.378991899 0.397355265
## [186] 0.142766194 -0.190495045 0.218235411 -0.142834168 -0.304944571
## [191] 1.173983932 -1.397428741 -0.568059369 0.570238238 -1.315264717
## [196] 0.783838307 0.105852877 -0.015350858 0.487163489 1.383679694
## [201] 1.183231525 -0.277770816 1.143156649 1.450248838 -1.665942751
## [206] -0.550380348 1.056431130 0.667065104 0.792887579 -0.526652254
## [211] 0.411861654 -0.521849745 -0.278888726 -0.395755294 0.339614648
## [216] -0.282914705 0.165574436 -0.294328746 2.545934456 -0.405586875
## [221] -0.818091469 -1.357362595 0.304875795 0.820202314 -1.056645462
## [226] -0.612787844 0.589987150 -0.219572036 -0.761085595 0.671458359
## [231] 0.643416600 0.555980692 -1.053323793 -0.826974033 0.492214409
## [236] 0.603086681 -0.638463206 0.761773769 1.115958425 -0.192864993
## [241] -0.433249236 -0.004991363 -0.606602943 2.120995430 0.259922224
## [246] 0.944732091 1.360485341 0.772092578 0.759501460 -0.788951612
## [251] -1.000634405 0.712050926 0.827535736 1.450021490 -2.061573174
## [256] 0.937374709 0.169038537 0.616501640 -0.623065031 0.932167490
## [261] -0.864262578 -1.196551895 0.001627588 -0.484274898 0.228616425
## [266] 1.086464492 1.096957635 -1.313503816 -0.249352361 0.908105319
## [271] 1.162158588 0.105571577 -2.204593739 -0.556224362 -0.664157407
## [276] -1.051431568 0.316113660 -0.398516592 -0.587595284 0.943764678
## [281] 0.310377028 -1.480185500 0.570579685 0.018763165 -1.485597958
## [286] 0.254552235 -0.538644957 -1.479466443 -0.152517058 0.459707937
## [291] -1.222826196 -0.715599079 0.526258755 -0.191864492 -0.511096409
## [296] -0.507552187 0.013900651 -0.880582676 0.252224398 1.488424253
## [301] 0.346421642 0.104894416 0.704387488 -0.198140389 0.797864221
## [306] 0.706054314 0.344128232 -0.722976245 -1.204584315 -1.328758504
## [311] 0.475222612 0.562335653 0.577161994 -1.544982815 0.970582649
## [316] 1.627341560 -1.559609589 0.325841946 0.142000498 1.406472455
## [321] -2.281059023 0.394482210 -0.532209474 -0.271277689 -2.151873547
## [326] 0.368597864 0.125504941 1.821806111 1.304246498 -0.257758047
## [331] -0.837145263 0.156765973 -1.044504403 -1.310666388 0.169365891
## [336] 0.193440073 1.524247579 0.043695048 0.451796315 -0.088477294
## [341] -1.323485847 -0.955144024 1.147365037 -0.259195278 1.833834651
## [346] -0.473172749 -1.044702870 -0.631848704 1.022361925 -1.325916025
## [351] 0.212729343 0.788280859 0.182370709 -0.577731429 -0.509424054
## [356] 0.172917408 0.045635415 -0.760562608 -2.021977555 -0.185349228
## [361] -0.127059115 0.919435808 1.324922210 -0.332465761 0.299205307
## [366] -0.021331143 -0.118325943 -0.239819106 -1.597271175 -0.748547508
## [371] 0.289137509 -0.250341611 0.154464105 -1.297162704 -1.149062795
## [376] -1.437876958 -1.799599123 0.343534679 0.011431267 1.467652699
## [381] -0.608178078 0.319186161 0.191829821 0.838041516 0.243221940
## [386] -0.750447749 -0.809944633 -1.034766211 0.374480216 -0.888222523
## [391] 0.403122796 -1.147804713 2.083149412 -0.394063737 0.803747703
## [396] 0.711831092 1.198569539 0.253416748 -0.095999630 -1.013420508
## [401] 0.777497390 -0.938587248 -0.840281030 -0.307155884 -0.402343156
## [406] 1.549165915 -0.296865888 0.518946638 0.044000173 1.115203816
## [411] -1.787730935 -0.378638160 -0.279182340 0.605925518 -2.190787560
## [416] 1.276777333 -0.103129847 0.448697255 1.178453366 -0.130572757
## [421] 2.230386308 1.557357399 0.787225885 1.469144792 0.364553576
## [426] 0.482133642 -0.062207285 1.406430088 0.640076562 1.242989003
## [431] 0.289469698 -0.667808932 1.019068292 1.162376750 1.290892102
## [436] 0.746330168 -0.207566400 0.098076733 -0.083372731 0.478380549

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## [441] 0.300713062 0.432513523 0.423467945 -0.116618417 0.034306621
## [446] 0.600500128 -0.014359744 0.417407405 -0.898473332 2.376102411
## [451] -2.302859397 -0.573609848 -0.590775885 1.395164506 1.154764986
## [456] -1.719554447 -1.676729786 -0.905885128 -0.931224988 -0.969564538
## [461] 0.721497865 0.111634792 1.626482950 0.779632258 1.409094037
## [466] 0.344721122 -0.191270183 2.337139396 0.543822524 -2.789456280
## [471] 1.358403015 0.595425999 -0.481337352 -0.160256782 0.756780406
## [476] 3.583279837 -2.772083964 -0.302097094 0.026276847 -0.212137535
## [481] -1.226304963 0.108230438 0.427805473 -1.547590173 1.815792673
## [486] -0.599870185 -0.051347679 -0.997837413 -0.473363227 0.075915465
## [491] -0.515783318 -2.091091295 -1.103453603 -1.479178043 -1.701254505
## [496] -0.457893517 -0.618378174 -0.572268741 -0.083135045 -1.175171528
## [501] -0.200935336 0.888309991 1.240743234 0.205977822 1.369623586
## [506] -0.117224565 1.176374769 -0.007655291 -0.533310715 -0.177953212
## [511] -0.304906823 1.879501569 1.044925265 -0.097495350 0.369655539
## [516] -0.168208404 -0.086000969 1.082410055 -1.548438303 -1.698388498
## [521] 1.700163458 -2.515959452 0.523404889 0.282118396 2.222081630
## [526] 0.049655151 -2.421651728 0.221531205 1.640226850 1.365494786
## [531] -0.094416112 0.676737429 -1.434632727 -0.978884333 -0.256982750
## [536] 0.055361799 0.004802767 0.870453299 -1.472371558 0.342263230
## [541] -0.325936865 -0.273171357 1.055566598 -1.420894529 -0.753769794
## [546] -1.319241519 -1.131704898 -0.177024135 -0.959649770 -0.325380574
## [551] -0.964800067 -0.621063034 0.262189603 -1.101106742 0.377743287
## [556] 0.668257089 0.822470036 0.273901569 -1.932407593 -0.295160272
## [561] 0.277353389 -0.022288498 -1.410896702 -0.207366118 0.138649828
## [566] 0.692948042 -1.426626641 -1.231757614 -1.498542970 1.131605936
## [571] 1.295771875 0.080908119 -0.223252708 0.724096852 -0.492798691
## [576] 2.064697393 0.319471240 -1.372397464 1.635469277 -0.867063216
## [581] 0.693508451 0.938904046 1.385634946 1.274644245 1.092977849
## [586] -0.937701539 -0.289969330 -2.195925813 1.438403649 -0.378202395
## [591] 0.527323113 -0.267688246 -0.314693015 -0.522275663 -0.594649560
## [596] 0.616664347 -0.518823260 0.437345845 0.024682114 0.699095243
## [601] -0.974713227 0.358006954 -1.454747344 -0.847361270 -1.622406750
## [606] 0.084686398 -0.367149732 0.265551567 0.274820507 0.163362540
## [611] 0.495850582 -0.005057366 0.840516396 -0.599039008 2.334182535
## [616] -0.150821716 0.834382834 0.464816474 1.161805967 0.610581202
## [621] -1.092243480 -0.374026433 1.439641153 0.316988146 -0.108277279
## [626] -0.199477215 1.153356903 -0.390865585 0.760990672 0.685217491
## [631] 0.061599092 1.963275713 0.522519686 0.175455687 -1.114570604
## [636] -0.291743982 0.371934752 -0.664995114 1.354073344 1.622366202
## [641] 0.278883092 -1.111139895 1.458616721 1.680218421 -0.674715065
## [646] -1.523791502 0.344223186 0.376239470 -1.184265799 -0.667909543
## [651] -0.645171346 0.417071072 -0.572267668 0.030989591 0.202699532
## [656] 0.338466897 0.617006913 -0.400372825 -0.151226063 0.595232522
## [661] -0.249726168 -0.815556540 1.418685193 -0.089706926 0.528348061
## [666] 0.720326497 -0.264613104 -1.945855028 -1.114673322 0.201322390
## [671] -0.503765863 -1.073860135 0.652952906 0.018339028 0.035239514
## [676] -0.176318016 0.922859486 1.121707529 -0.352692621 0.463490877
## [681] -0.472993185 -0.141398659 -0.856096602 -0.478739986 0.035962519
## [686] 1.462464952 0.626973086 0.140745127 0.518470523 1.459464191
## [691] 0.875421872 -0.318632534 -0.122015274 1.949928246 -0.888802597
## [696] -0.612912994 -1.194585205 0.488802356 -1.524814432 1.706395230
## [701] 0.875631186 -0.818607588 0.383907400 -0.732463970 -0.393184123
## [706] -0.571122114 0.288802666 -0.770822857 1.233096625 1.174944544

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## [711] -0.502943930 1.240266138 -0.890496709 -0.114180009 0.027155971
## [716] 0.181033484 1.206178975 -0.678229081 0.328098645 -0.356574760
## [721] 2.473400894 0.107908662 -0.182969783 -1.178326025 1.620073741
## [726] 0.178817033 0.828540529 0.183745925 1.142651025 -1.208535646
## [731] -0.583897890 2.477137638 0.531865848 -1.489131096 0.261389476
## [736] -0.165312534 0.142201010 -0.143651949 -1.113196043 -0.347633051
## [741] 0.703059689 1.883731711 -0.753760331 0.939998456 -0.506987965
## [746] 0.532379798 -0.095715785 1.040032546 -0.381044718 0.975995988
## [751] -1.189305691 0.672826960 0.600937160 1.127793684 0.519178768
## [756] 0.464455323 -1.513901143 0.519244112 -0.486872116 0.848904190
## [761] 1.843574008 -0.627996060 -1.050898968 -1.389876016 -0.720536163
## [766] 0.095143364 0.219547785 -0.891909111 0.384012249 -2.432371887
## [771] 0.161258751 -0.435089143 1.028246372 -0.534339131 -0.262681796
## [776] -1.437364277 -0.777832863 -0.332372417 1.685467468 0.306439423
## [781] 1.156829902 -0.262079142 -1.791504276 -1.368896189 1.483224499
## [786] -0.028986378 -0.672949861 -0.356939172 -0.120059149 0.099432395
## [791] 0.495304256 0.328481419 -1.094481578 0.127304649 0.290325802
## [796] 0.242195089 1.283482789 0.980832011 -1.005745133 -0.922055886
## [801] -0.924103628 2.226974248 -0.131374077 0.704440252 0.119866701
## [806] 2.087402243 -0.116559601 -0.355660026 -0.185862120 -0.732813170
## [811] -1.321314900 0.230068201 -0.632718470 0.528495537 -1.001485030
## [816] 0.129204320 0.452733201 -0.425403191 1.877252430 0.387758710
## [821] 0.266863760 0.375588647 0.743233206 -0.889442609 0.896788649
## [826] -1.649113923 0.088167563 0.640494136 0.891111099 1.842773246
## [831] -0.413056108 1.102715916 0.641566401 0.611993568 -0.782030747
## [836] 0.037833065 3.369045491 0.709947324 -0.901440998 -1.829289041
## [841] 0.048636714 -1.191242272 0.734780995 -0.344790762 -1.662079416
## [846] 2.170654742 1.628639304 0.767443614 -2.078187461 -0.174869815
## [851] -0.194435625 0.301718689 1.644306710 -1.165912921 1.242379340
## [856] -0.227231339 1.170083448 0.651798428 0.072449479 -0.473333111
## [861] 0.566882008 -1.490293406 -1.326365736 -0.187542200 0.030397303
## [866] 0.608341864 0.170153818 0.691653468 -1.408493473 0.938225977
## [871] -0.319484704 0.879114186 -0.548146351 -1.298956476 -1.290336360
## [876] -1.521321260 0.530049916 1.301341983 1.129573748 -0.321560894
## [881] -0.436299429 -0.586081775 -0.666586909 0.042552520 -2.241694241
## [886] 1.031362323 1.473859617 0.580244494 -0.156556080 -0.735531677
## [891] -1.151547057 -0.044693632 0.930072560 0.431862938 0.257574001
## [896] -0.676218428 0.443115471 -0.744807517 0.253565785 1.335434190
## [901] -0.275274970 0.070729202 1.238742011 0.095282330 0.800764434
## [906] 0.440292220 0.197303403 0.061583614 1.038966742 1.575662997
## [911] -1.335521375 0.359768403 0.667588351 0.766994348 -0.336488796
## [916] 1.541280754 -1.928978523 -0.378818125 0.466709204 -0.265078720
## [921] -0.874720449 1.360096142 -1.576295409 1.544747332 -1.497927583
## [926] 0.906184179 0.953456575 -1.210043304 1.778572061 1.069298457
## [931] 4.347317963 -2.003720649 0.683744788 1.405396792 0.444508414
## [936] 2.354921276 1.362734938 -1.228136950 0.116417467 -1.906347930
## [941] 0.183418172 -0.001805408 -0.938494094 -0.431983439 0.167865879
## [946] -0.018789642 -0.196995644 -0.450579854 -0.731694408 0.514783810
## [951] 0.706072893 -0.024353703 1.826793899 -1.123482542 -0.890787036
## [956] -0.242244858 -1.049617611 -0.758016142 -0.078032115 -0.200175649
## [961] 0.914631213 0.002930379 1.442111867 0.657651368 -0.038623687
## [966] 1.569787904 -0.484677606 0.484974236 1.498378241 2.066266048
## [971] -1.230807075 -1.214940547 0.605010834 1.266527400 -1.672465959
## [976] -1.617800115 -0.009164878 0.175218667 -1.495014353 0.532568302

```

```
## [981] -0.436805956 -0.165660794 0.796185754 0.968062508 0.848300797
## [986] -0.188050470 2.068979633 2.234318781 0.093882429 1.213229397
## [991] -0.571019504 1.473042058 2.057833318 -0.218014539 -0.307822498
## [996] -0.193832786 0.690292227 -0.122006661 -0.204998309 0.963017545
## [1001] 0.192230593 -0.012077827 0.280592429 -0.024750888 0.283805205
## [1006] 1.484841527 -1.697215356 -0.389886453 0.967140458 -0.971049159
## [1011] 1.316827873 -0.683262777 -0.483090006 -0.942508020 -0.735938785
## [1016] -0.094903202 0.586487059 -0.032874743 0.921635482 -0.329636169
## [1021] 0.917018852 -0.591183190 -0.330132262 -0.018204082 -0.151154292
## [1026] 0.514009743 1.316355207 1.184968984 1.326063532 1.718576826
## [1031] 0.074657673 0.236129164 -0.786412792 -0.417265182 -1.062691945
## [1036] -0.396951179 1.067595398 -1.033671280 -0.565631756 0.202336416
## [1041] -0.741209523 0.420707269 -0.174732559 0.182923553 -0.033226165
## [1046] -0.345549580 -0.276425674 0.603732545 2.791919568 1.185038728
## [1051] -0.085987405 -0.138799463 -1.395861157 -0.633437568 0.020010164
## [1056] -1.019216572 0.155449487 0.519993953 0.921935857 0.521245527
## [1061] -0.645839614 -1.637667980 -1.238944197 0.152746913 0.234953661
## [1066] -1.046859054 -1.834068057 -0.843016358 0.215131435 0.325956081
## [1071] -0.759282172 -0.639883548 1.306789177 -2.263164651 0.132792019
## [1076] -0.995722238 1.355356665 0.627036436 -0.342189001 0.054375342
## [1081] 0.770467687 -0.657555630 0.010424266 -0.243151528 1.339077771
## [1086] -0.845058939 1.000125960 2.648652557 -0.357436484 -0.530193891
## [1091] -1.221016072 -0.011581397 -0.299803172 -1.772763777 -0.145323539
## [1096] -1.623219636 0.450112026 -0.986978636 -2.673762952 1.969043482
## [1101] 0.127982936 0.481555245 0.661435282 -1.782635594 -0.504319564
## [1106] 0.032274078 1.270867904 -1.876101433 -0.163888700 -0.233147962
```

```
# with the indices i and j ranging over {1, . . . , n} and {1, . . . , m},
# respectively.
# We use the notation A n×m to refer to the matrix A and simultaneously to
# indicate that it is n × m, and we use the notation
# IR n×m
m <- 12
i <- c(1,1,1,n)
j <- c(1,1,1,m)

i * j
```

```
## [1] 1 1 1 12
```

```
# to refer to the set of all n × m matrices with real elements.
# We use the notation (A) ij to refer to the element in the i th row and the
# th
# j column of the matrix A; that is, in equation (1.3), (A) ij = a ij .
# Although vectors are column vectors and the notation in equations (1.1)
# and (1.2) represents the same entity, that would not be the same for matrices.
# If x 1 , . . . , x n are scalars
ij <- i
j <- a
ij <- a

ij
```

```
## [1] 0.564887953 1.508090087 -1.418127031 0.263030638 -0.514274950
```

```

##      [6] -0.467622999  0.620054886 -1.001181288 -0.505164846 -0.101210542
##     [11]  0.106595961 -0.225710467 -1.544206196  0.805975641 -0.543421690
##     [16]  0.649686775  0.791202897  1.708006309  1.501907829 -0.670859520
##     [21]  0.828485144 -1.696995849  0.910014740 -0.385003317  0.152113381
##     [26]  0.323035099 -1.895936281  0.187290829  2.179144912 -0.027181696
##     [31] -0.929140274  1.081581062  0.573847907 -0.272194663 -0.536469325
##     [36]  1.175725991  0.287766640  0.887434226 -1.833920599 -0.587862774
##     [41]  1.423601497  0.393969722  0.666396444 -0.085394917 -1.620695320
##     [46]  0.313410167 -1.744707345 -0.556307349  1.200553241  0.223782743
##     [51]  0.776745086 -1.451451048  0.196203916 -0.982100475 -0.012773008
##     [56] -0.638495985 -0.110486340 -0.130832350 -0.423211877 -1.660882894
##     [61]  0.010460744  0.015803457 -0.278842957 -0.758468416  0.014756949
##     [66]  0.516101189 -1.415733986 -0.319274012 -0.883585323 -0.997574079
##     [71] -0.543728338  0.821877672 -0.847249751 -1.873221389  0.423508879
##     [76]  0.646231075  1.476766347 -0.496702883 -0.247518656 -1.363794278
##     [81] -0.491179556  2.043680375 -2.427961956 -1.883715229  0.049273939
##     [86] -0.856707214  0.509008636 -1.937120539  0.175374916 -1.553783374
##     [91]  0.241123655 -0.413780805 -0.474228478 -0.536100788 -0.388730047
##     [96]  0.125659171 -1.953601983 -0.937639605  0.611198886 -0.365435067
##    [101]  1.219070339  0.935754587  0.972109690  0.908422883 -1.681296994
##    [106] -0.752603517  0.507072031  0.337260904 -1.150618309 -0.266902043
##    [111] -0.365820351 -0.219462272  0.492703461  1.542823515  1.368881088
##    [116] -0.639747711  0.839291905  1.086793166 -1.682258228 -1.045018349
##    [121] -0.011330249  1.644268111  2.136867020 -0.684886924 -0.990334978
##    [126]  1.628497447 -0.308679397 -0.126426159 -1.030680506  0.408380371
##    [131] -0.335729812 -1.154688713 -0.464530973 -1.443520383 -0.388550767
##    [136]  0.953888940 -1.564616549  0.148863282 -0.697283705  0.008086016
##    [141]  0.168935854 -0.358557819 -0.403566583  1.979015244 -0.380170902
##    [146] -0.967697691  0.250677443  1.094387235 -0.479944126 -0.204304436
##    [151] -2.153336714 -2.259007301  0.506866437 -0.578074143 -0.158073215
##    [156]  0.667522284 -0.379129480 -0.224271033  0.100849577  0.028232336
##    [161] -0.841752935 -0.724974489  0.055270672 -1.329658351 -0.888780958
##    [166] -1.312161747 -0.792279073  0.635997089 -0.841723955 -0.177919556
##    [171]  0.142089637  0.439374503 -2.186818129 -0.375043890 -1.333179513
##    [176] -2.110232680 -0.643460503 -0.256531930  0.112688781 -1.213524073
##    [181] -0.311152457 -1.262525795 -1.205968601  1.378991899  0.397355265
##    [186]  0.142766194 -0.190495045  0.218235411 -0.142834168 -0.304944571
##    [191]  1.173983932 -1.397428741 -0.568059369  0.570238238 -1.315264717
##    [196]  0.783838307  0.105852877 -0.015350858  0.487163489  1.383679694
##    [201]  1.183231525 -0.277770816  1.143156649  1.450248838 -1.665942751
##    [206] -0.550380348  1.056431130  0.667065104  0.792887579 -0.526652254
##    [211]  0.411861654 -0.521849745 -0.278888726 -0.395755294  0.339614648
##    [216] -0.282914705  0.165574436 -0.294328746  2.545934456 -0.405586875
##    [221] -0.818091469 -1.357362595  0.304875795  0.820202314 -1.056645462
##    [226] -0.612787844  0.589987150 -0.219572036 -0.761085595  0.671458359
##    [231]  0.643416600  0.555980692 -1.053323793 -0.826974033  0.492214409
##    [236]  0.603086681 -0.638463206  0.761773769  1.115958425 -0.192864993
##    [241] -0.433249236 -0.004991363 -0.606602943  2.120995430  0.259922224
##    [246]  0.944732091  1.360485341  0.772092578  0.759501460 -0.788951612
##    [251] -1.000634405  0.712050926  0.827535736  1.450021490 -2.061573174
##    [256]  0.937374709  0.169038537  0.616501640 -0.623065031  0.932167490
##    [261] -0.864262578 -1.196551895  0.001627588 -0.484274898  0.228616425
##    [266]  1.086464492  1.096957635 -1.313503816 -0.249352361  0.908105319
##    [271]  1.162158588  0.105571577 -2.204593739 -0.556224362 -0.664157407

```

```

## [276] -1.051431568  0.316113660 -0.398516592 -0.587595284  0.943764678
## [281]  0.310377028 -1.480185500  0.570579685  0.018763165 -1.485597958
## [286]  0.254552235 -0.538644957 -1.479466443 -0.152517058  0.459707937
## [291] -1.222826196 -0.715599079  0.526258755 -0.191864492 -0.511096409
## [296] -0.507552187  0.013900651 -0.880582676  0.252224398  1.488424253
## [301]  0.346421642  0.104894416  0.704387488 -0.198140389  0.797864221
## [306]  0.706054314  0.344128232 -0.722976245 -1.204584315 -1.328758504
## [311]  0.475222612  0.562335653  0.577161994 -1.544982815  0.970582649
## [316]  1.627341560 -1.559609589  0.325841946  0.142000498  1.406472455
## [321] -2.281059023  0.394482210 -0.532209474 -0.271277689 -2.151873547
## [326]  0.368597864  0.125504941  1.821806111  1.304246498 -0.257758047
## [331] -0.837145263  0.156765973 -1.044504403 -1.310666388  0.169365891
## [336]  0.193440073  1.524247579  0.043695048  0.451796315 -0.088477294
## [341] -1.323485847 -0.955144024  1.147365037 -0.259195278  1.833834651
## [346] -0.473172749 -1.044702870 -0.631848704  1.022361925 -1.325916025
## [351]  0.212729343  0.788280859  0.182370709 -0.577731429 -0.509424054
## [356]  0.172917408  0.045635415 -0.760562608 -2.021977555 -0.185349228
## [361] -0.127059115  0.919435808  1.324922210 -0.332465761  0.299205307
## [366] -0.021331143 -0.118325943 -0.239819106 -1.597271175 -0.748547508
## [371]  0.289137509 -0.250341611  0.154464105 -1.297162704 -1.149062795
## [376] -1.437876958 -1.799599123  0.343534679  0.011431267  1.467652699
## [381] -0.608178078  0.319186161  0.191829821  0.838041516  0.243221940
## [386] -0.750447749 -0.809944633 -1.034766211  0.374480216 -0.888222523
## [391]  0.403122796 -1.147804713  2.083149412 -0.394063737  0.803747703
## [396]  0.711831092  1.198569539  0.253416748 -0.095999630 -1.013420508
## [401]  0.777497390 -0.938587248 -0.840281030 -0.307155884 -0.402343156
## [406]  1.549165915 -0.296865888  0.518946638  0.044000173  1.115203816
## [411] -1.787730935 -0.378638160 -0.279182340  0.605925518 -2.190787560
## [416]  1.276777333 -0.103129847  0.448697255  1.178453366 -0.130572757
## [421]  2.230386308  1.557357399  0.787225885  1.469144792  0.364553576
## [426]  0.482133642 -0.062207285  1.406430088  0.640076562  1.242989003
## [431]  0.289469698 -0.667808932  1.019068292  1.162376750  1.290892102
## [436]  0.746330168 -0.207566400  0.098076733 -0.083372731  0.478380549
## [441]  0.300713062  0.432513523  0.423467945 -0.116618417  0.034306621
## [446]  0.600500128 -0.014359744  0.417407405 -0.898473332  2.376102411
## [451] -2.302859397 -0.573609848 -0.590775885  1.395164506  1.154764986
## [456] -1.719554447 -1.676729786 -0.905885128 -0.931224988 -0.969564538
## [461]  0.721497865  0.111634792  1.626482950  0.779632258  1.409094037
## [466]  0.344721122 -0.191270183  2.337139396  0.543822524 -2.789456280
## [471]  1.358403015  0.595425999 -0.481337352 -0.160256782  0.756780406
## [476]  3.583279837 -2.772083964 -0.302097094  0.026276847 -0.212137535
## [481] -1.226304963  0.108230438  0.427805473 -1.547590173  1.815792673
## [486] -0.599870185 -0.051347679 -0.997837413 -0.473363227  0.075915465
## [491] -0.515783318 -2.091091295 -1.103453603 -1.479178043 -1.701254505
## [496] -0.457893517 -0.618378174 -0.572268741 -0.083135045 -1.175171528
## [501] -0.200935336  0.888309991  1.240743234  0.205977822  1.369623586
## [506] -0.117224565  1.176374769 -0.007655291 -0.533310715 -0.177953212
## [511] -0.304906823  1.879501569  1.044925265 -0.097495350  0.369655539
## [516] -0.168208404 -0.086000969  1.082410055 -1.548438303 -1.698388498
## [521]  1.700163458 -2.515959452  0.523404889  0.282118396  2.222081630
## [526]  0.049655151 -2.421651728  0.221531205  1.640226850  1.365494786
## [531] -0.094416112  0.676737429 -1.434632727 -0.978884333 -0.256982750
## [536]  0.055361799  0.004802767  0.870453299 -1.472371558  0.342263230
## [541] -0.325936865 -0.273171357  1.055566598 -1.420894529 -0.753769794

```



```

## [546] -1.319241519 -1.131704898 -0.177024135 -0.959649770 -0.325380574
## [551] -0.964800067 -0.621063034 0.262189603 -1.101106742 0.377743287
## [556] 0.668257089 0.822470036 0.273901569 -1.932407593 -0.295160272
## [561] 0.277353389 -0.022288498 -1.410896702 -0.207366118 0.138649828
## [566] 0.692948042 -1.426626641 -1.231757614 -1.498542970 1.131605936
## [571] 1.295771875 0.080908119 -0.223252708 0.724096852 -0.492798691
## [576] 2.064697393 0.319471240 -1.372397464 1.635469277 -0.867063216
## [581] 0.693508451 0.938904046 1.385634946 1.274644245 1.092977849
## [586] -0.937701539 -0.289969330 -2.195925813 1.438403649 -0.378202395
## [591] 0.527323113 -0.267688246 -0.314693015 -0.522275663 -0.594649560
## [596] 0.616664347 -0.518823260 0.437345845 0.024682114 0.699095243
## [601] -0.974713227 0.358006954 -1.454747344 -0.847361270 -1.622406750
## [606] 0.084686398 -0.367149732 0.265551567 0.274820507 0.163362540
## [611] 0.495850582 -0.005057366 0.840516396 -0.599039008 2.334182535
## [616] -0.150821716 0.834382834 0.464816474 1.161805967 0.610581202
## [621] -1.092243480 -0.374026433 1.439641153 0.316988146 -0.108277279
## [626] -0.199477215 1.153356903 -0.390865585 0.760990672 0.685217491
## [631] 0.061599092 1.963275713 0.522519686 0.175455687 -1.114570604
## [636] -0.291743982 0.371934752 -0.664995114 1.354073344 1.622366202
## [641] 0.278883092 -1.111139895 1.458616721 1.680218421 -0.674715065
## [646] -1.523791502 0.344223186 0.376239470 -1.184265799 -0.667909543
## [651] -0.645171346 0.417071072 -0.572267668 0.030989591 0.202699532
## [656] 0.338466897 0.617006913 -0.400372825 -0.151226063 0.595232522
## [661] -0.249726168 -0.815556540 1.418685193 -0.089706926 0.528348061
## [666] 0.720326497 -0.264613104 -1.945855028 -1.114673322 0.201322390
## [671] -0.503765863 -1.073860135 0.652952906 0.018339028 0.035239514
## [676] -0.176318016 0.922859486 1.121707529 -0.352692621 0.463490877
## [681] -0.472993185 -0.141398659 -0.856096602 -0.478739986 0.035962519
## [686] 1.462464952 0.626973086 0.140745127 0.518470523 1.459464191
## [691] 0.875421872 -0.318632534 -0.122015274 1.949928246 -0.888802597
## [696] -0.612912994 -1.194585205 0.488802356 -1.524814432 1.706395230
## [701] 0.875631186 -0.818607588 0.383907400 -0.732463970 -0.393184123
## [706] -0.571122114 0.288802666 -0.770822857 1.233096625 1.174944544
## [711] -0.502943930 1.240266138 -0.890496709 -0.114180009 0.027155971
## [716] 0.181033484 1.206178975 -0.678229081 0.328098645 -0.356574760
## [721] 2.473400894 0.107908662 -0.182969783 -1.178326025 1.620073741
## [726] 0.178817033 0.828540529 0.183745925 1.142651025 -1.208535646
## [731] -0.583897890 2.477137638 0.531865848 -1.489131096 0.261389476
## [736] -0.165312534 0.142201010 -0.143651949 -1.113196043 -0.347633051
## [741] 0.703059689 1.883731711 -0.753760331 0.939998456 -0.506987965
## [746] 0.532379798 -0.095715785 1.040032546 -0.381044718 0.975995988
## [751] -1.189305691 0.672826960 0.600937160 1.127793684 0.519178768
## [756] 0.464455323 -1.513901143 0.519244112 -0.486872116 0.848904190
## [761] 1.843574008 -0.627996060 -1.050898968 -1.389876016 -0.720536163
## [766] 0.095143364 0.219547785 -0.891909111 0.384012249 -2.432371887
## [771] 0.161258751 -0.435089143 1.028246372 -0.534339131 -0.262681796
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## [661] -0.249726168 -0.815556540 1.418685193 -0.089706926 0.528348061
## [666] 0.720326497 -0.264613104 -1.945855028 -1.114673322 0.201322390
## [671] -0.503765863 -1.073860135 0.652952906 0.018339028 0.035239514
## [676] -0.176318016 0.922859486 1.121707529 -0.352692621 0.463490877
## [681] -0.472993185 -0.141398659 -0.856096602 -0.478739986 0.035962519
## [686] 1.462464952 0.626973086 0.140745127 0.518470523 1.459464191
## [691] 0.875421872 -0.318632534 -0.122015274 1.949928246 -0.888802597
## [696] -0.612912994 -1.194585205 0.488802356 -1.524814432 1.706395230
## [701] 0.875631186 -0.818607588 0.383907400 -0.732463970 -0.393184123
## [706] -0.571122114 0.288802666 -0.770822857 1.233096625 1.174944544
## [711] -0.502943930 1.240266138 -0.890496709 -0.114180009 0.027155971
## [716] 0.181033484 1.206178975 -0.678229081 0.328098645 -0.356574760
## [721] 2.473400894 0.107908662 -0.182969783 -1.178326025 1.620073741

```

##	[726]	0.178817033	0.828540529	0.183745925	1.142651025	-1.208535646
##	[731]	-0.583897890	2.477137638	0.531865848	-1.489131096	0.261389476
##	[736]	-0.165312534	0.142201010	-0.143651949	-1.113196043	-0.347633051
##	[741]	0.703059689	1.883731711	-0.753760331	0.939998456	-0.506987965
##	[746]	0.532379798	-0.095715785	1.040032546	-0.381044718	0.975995988
##	[751]	-1.189305691	0.672826960	0.600937160	1.127793684	0.519178768
##	[756]	0.464455323	-1.513901143	0.519244112	-0.486872116	0.848904190
##	[761]	1.843574008	-0.627996060	-1.050898968	-1.389876016	-0.720536163
##	[766]	0.095143364	0.219547785	-0.891909111	0.384012249	-2.432371887
##	[771]	0.161258751	-0.435089143	1.028246372	-0.534339131	-0.262681796
##	[776]	-1.437364277	-0.777832863	-0.332372417	1.685467468	0.306439423
##	[781]	1.156829902	-0.262079142	-1.791504276	-1.368896189	1.483224499
##	[786]	-0.028986378	-0.672949861	-0.356939172	-0.120059149	0.099432395
##	[791]	0.495304256	0.328481419	-1.094481578	0.127304649	0.290325802
##	[796]	0.242195089	1.283482789	0.980832011	-1.005745133	-0.922055886
##	[801]	-0.924103628	2.226974248	-0.131374077	0.704440252	0.119866701
##	[806]	2.087402243	-0.116559601	-0.355660026	-0.185862120	-0.732813170
##	[811]	-1.321314900	0.230068201	-0.632718470	0.528495537	-1.001485030
##	[816]	0.129204320	0.452733201	-0.425403191	1.877252430	0.387758710
##	[821]	0.266863760	0.375588647	0.743233206	-0.889442609	0.896788649
##	[826]	-1.649113923	0.088167563	0.640494136	0.891111099	1.842773246
##	[831]	-0.413056108	1.102715916	0.641566401	0.611993568	-0.782030747
##	[836]	0.037833065	3.369045491	0.709947324	-0.901440998	-1.829289041
##	[841]	0.048636714	-1.191242272	0.734780995	-0.344790762	-1.662079416
##	[846]	2.170654742	1.628639304	0.767443614	-2.078187461	-0.174869815
##	[851]	-0.194435625	0.301718689	1.644306710	-1.165912921	1.242379340
##	[856]	-0.227231339	1.170083448	0.651798428	0.072449479	-0.473333111
##	[861]	0.566882008	-1.490293406	-1.326365736	-0.187542200	0.030397303
##	[866]	0.608341864	0.170153818	0.691653468	-1.408493473	0.938225977
##	[871]	-0.319484704	0.879114186	-0.548146351	-1.298956476	-1.290336360
##	[876]	-1.521321260	0.530049916	1.301341983	1.129573748	-0.321560894
##	[881]	-0.436299429	-0.586081775	-0.666586909	0.042552520	-2.241694241
##	[886]	1.031362323	1.473859617	0.580244494	-0.156556080	-0.735531677
##	[891]	-1.151547057	-0.044693632	0.930072560	0.431862938	0.257574001
##	[896]	-0.676218428	0.443115471	-0.744807517	0.253565785	1.335434190
##	[901]	-0.275274970	0.070729202	1.238742011	0.095282330	0.800764434
##	[906]	0.440292220	0.197303403	0.061583614	1.038966742	1.575662997
##	[911]	-1.335521375	0.359768403	0.667588351	0.766994348	-0.336488796
##	[916]	1.541280754	-1.928978523	-0.378818125	0.466709204	-0.265078720
##	[921]	-0.874720449	1.360096142	-1.576295409	1.544747332	-1.497927583
##	[926]	0.906184179	0.953456575	-1.210043304	1.778572061	1.069298457
##	[931]	4.347317963	-2.003720649	0.683744788	1.405396792	0.444508414
##	[936]	2.354921276	1.362734938	-1.228136950	0.116417467	-1.906347930
##	[941]	0.183418172	-0.001805408	-0.938494094	-0.431983439	0.167865879
##	[946]	-0.018789642	-0.196995644	-0.450579854	-0.731694408	0.514783810
##	[951]	0.706072893	-0.024353703	1.826793899	-1.123482542	-0.890787036
##	[956]	-0.242244858	-1.049617611	-0.758016142	-0.078032115	-0.200175649
##	[961]	0.914631213	0.002930379	1.442111867	0.657651368	-0.038623687
##	[966]	1.569787904	-0.484677606	0.484974236	1.498378241	2.066266048
##	[971]	-1.230807075	-1.214940547	0.605010834	1.266527400	-1.672465959
##	[976]	-1.617800115	-0.009164878	0.175218667	-1.495014353	0.532568302
##	[981]	-0.436805956	-0.165660794	0.796185754	0.968062508	0.848300797
##	[986]	-0.188050470	2.068979633	2.234318781	0.093882429	1.213229397
##	[991]	-0.571019504	1.473042058	2.057833318	-0.218014539	-0.307822498

```
## [996] -0.193832786 0.690292227 -0.122006661 -0.204998309 0.963017545
## [1001] 0.192230593 -0.012077827 0.280592429 -0.024750888 0.283805205
## [1006] 1.484841527 -1.697215356 -0.389886453 0.967140458 -0.971049159
## [1011] 1.316827873 -0.683262777 -0.483090006 -0.942508020 -0.735938785
## [1016] -0.094903202 0.586487059 -0.032874743 0.921635482 -0.329636169
## [1021] 0.917018852 -0.591183190 -0.330132262 -0.018204082 -0.151154292
## [1026] 0.514009743 1.316355207 1.184968984 1.326063532 1.718576826
## [1031] 0.074657673 0.236129164 -0.786412792 -0.417265182 -1.062691945
## [1036] -0.396951179 1.067595398 -1.033671280 -0.565631756 0.202336416
## [1041] -0.741209523 0.420707269 -0.174732559 0.182923553 -0.033226165
## [1046] -0.345549580 -0.276425674 0.603732545 2.791919568 1.185038728
## [1051] -0.085987405 -0.138799463 -1.395861157 -0.633437568 0.020010164
## [1056] -1.019216572 0.155449487 0.519993953 0.921935857 0.521245527
## [1061] -0.645839614 -1.637667980 -1.238944197 0.152746913 0.234953661
## [1066] -1.046859054 -1.834068057 -0.843016358 0.215131435 0.325956081
## [1071] -0.759282172 -0.639883548 1.306789177 -2.263164651 0.132792019
## [1076] -0.995722238 1.355356665 0.627036436 -0.342189001 0.054375342
## [1081] 0.770467687 -0.657555630 0.010424266 -0.243151528 1.339077771
## [1086] -0.845058939 1.000125960 2.648652557 -0.357436484 -0.530193891
## [1091] -1.221016072 -0.011581397 -0.299803172 -1.772763777 -0.145323539
## [1096] -1.623219636 0.450112026 -0.986978636 -2.673762952 1.969043482
## [1101] 0.127982936 0.481555245 0.661435282 -1.782635594 -0.504319564
## [1106] 0.032274078 1.270867904 -1.876101433 -0.163888700 -0.233147962
```

```
# then X is an n × 1 matrix and Y is a 1 × n matrix (and Y is the transpose
# of X). Although an n × 1 matrix is a different type of object from a vector,
X <- n * 1
Y <- 1 * n
X
```

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

```
Y
```

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

```
# we may treat X in equation (1.5) or Y T in equation (1.6) as a vector when
# it is convenient to do so. Furthermore, although a 1 × 1 matrix, a 1-vector,
# and a scalar are all fundamentally different types of objects, we will treat a
# one by one matrix or a vector with only one element as a scalar whenever it
# is convenient.
treering + X
```

```
## Time Series:
## Start = -6000
## End = 1979
## Frequency = 1
## [1] 2.345 2.077 2.545 2.319 2.413 2.069 1.489 2.171 1.887 1.493 1.346 1.846
## [13] 1.837 1.079 1.829 1.919 1.776 1.081 1.876 1.254 2.092 1.659 1.900 1.732
## [25] 1.703 1.690 1.581 1.834 1.838 1.600 1.611 1.704 1.517 1.525 2.086 1.849
## [37] 1.183 1.823 1.433 1.849 2.021 1.813 1.675 1.479 1.824 1.473 2.010 2.297
```

##	[49]	1.917	1.457	1.866	2.121	2.301	2.017	1.676	1.816	2.365	1.759	1.791	2.016
##	[61]	1.959	1.966	2.355	1.966	1.771	1.561	2.712	2.514	1.677	1.613	2.265	1.342
##	[73]	1.918	2.346	1.786	1.557	2.444	2.516	2.329	2.071	2.105	2.211	2.491	2.105
##	[85]	2.285	2.202	2.587	1.663	2.139	2.073	1.659	1.821	2.080	2.149	1.863	1.889
##	[97]	2.175	1.938	2.007	2.180	2.230	2.249	2.435	1.418	1.590	1.576	2.001	1.138
##	[109]	2.356	1.914	1.637	2.170	1.841	1.880	1.894	1.889	1.482	1.170	2.148	1.905
##	[121]	1.642	1.717	1.107	1.686	1.254	1.961	1.789	2.121	2.362	2.047	2.082	1.239
##	[133]	1.621	1.471	1.744	1.450	2.167	2.130	2.039	1.329	2.351	2.150	1.998	2.052
##	[145]	2.283	2.245	2.395	2.223	1.593	2.325	1.741	2.533	2.480	2.311	1.970	1.924
##	[157]	2.219	2.337	1.671	2.195	1.999	2.299	2.317	2.785	1.711	2.196	2.144	2.036
##	[169]	2.285	2.070	2.076	1.758	1.348	1.826	1.923	2.108	2.294	2.320	2.061	1.418
##	[181]	2.205	1.212	2.315	2.186	1.995	1.914	1.728	2.068	1.896	1.881	1.483	1.490
##	[193]	2.095	2.379	1.832	2.101	1.876	1.992	2.013	1.873	2.065	1.621	2.041	2.108
##	[205]	2.114	2.082	1.851	2.085	2.390	2.406	2.163	2.387	2.357	1.463	1.547	2.277
##	[217]	2.108	1.996	2.085	2.391	2.075	1.913	2.299	2.259	2.320	2.122	2.491	2.298
##	[229]	2.112	2.305	2.133	2.180	2.284	2.276	2.099	1.881	2.000	2.173	2.130	2.084
##	[241]	1.999	2.235	2.119	2.049	2.089	2.233	2.304	2.280	2.208	1.874	1.962	2.372
##	[253]	2.224	2.117	2.121	2.480	2.675	2.298	1.996	2.306	2.027	1.823	2.424	2.041
##	[265]	1.463	2.130	1.909	2.369	1.982	2.080	2.419	2.286	2.581	1.875	1.359	1.319
##	[277]	1.874	2.145	1.807	1.964	1.892	1.442	1.948	2.013	1.897	2.153	2.145	1.628
##	[289]	1.325	2.325	2.047	1.911	2.376	1.975	2.099	1.632	1.934	2.175	1.810	1.855
##	[301]	2.407	2.126	2.148	1.787	1.835	2.101	1.761	1.907	2.149	1.865	1.785	2.250
##	[313]	1.646	1.937	1.925	1.792	2.212	1.987	1.409	2.062	1.634	2.006	2.210	2.315
##	[325]	1.960	1.470	2.010	1.729	2.212	1.851	2.114	2.016	1.954	1.380	2.178	2.251
##	[337]	2.194	2.103	2.258	1.836	2.136	1.884	1.498	1.084	2.286	1.490	2.037	1.986
##	[349]	2.073	1.381	2.001	1.878	2.136	1.783	1.917	1.802	1.866	1.728	2.264	2.203
##	[361]	2.402	2.347	2.234	2.069	2.356	2.526	2.345	1.790	2.500	1.752	1.940	2.121
##	[373]	2.186	2.065	2.164	2.469	1.817	1.185	2.433	2.555	2.201	2.317	1.955	2.005
##	[385]	1.901	1.821	1.479	1.750	1.182	1.936	2.058	2.074	1.934	1.903	1.309	1.786
##	[397]	1.585	1.811	1.969	2.089	1.581	1.990	1.900	1.800	1.771	1.919	1.800	1.658
##	[409]	1.328	1.698	1.929	1.677	1.401	2.109	1.274	1.668	1.960	1.221	2.025	2.083
##	[421]	1.593	1.994	1.861	1.588	1.923	2.107	1.693	1.882	1.591	1.660	2.075	2.146
##	[433]	1.965	1.795	2.061	1.946	1.705	1.744	2.063	2.182	2.136	2.229	1.653	1.892
##	[445]	1.696	1.465	1.962	2.170	1.911	2.293	2.088	1.853	2.146	1.578	1.900	1.975
##	[457]	2.191	1.481	1.155	2.455	2.233	1.930	2.131	2.304	2.393	2.128	1.801	2.619
##	[469]	2.423	2.606	2.395	2.291	2.456	2.674	2.256	2.135	2.190	2.167	2.065	2.292
##	[481]	1.575	2.505	2.239	1.993	1.925	1.988	2.171	2.133	2.412	2.070	2.272	1.790
##	[493]	2.082	2.179	2.109	2.588	2.053	2.123	2.246	2.361	1.860	1.146	2.252	2.350
##	[505]	1.907	2.464	2.067	1.827	1.769	1.875	1.668	1.999	2.252	2.439	2.206	1.797
##	[517]	1.724	1.867	2.333	2.306	2.058	2.440	2.239	2.611	2.403	1.754	1.129	2.075
##	[529]	1.841	1.752	2.446	2.010	2.034	2.016	1.396	2.101	1.645	2.342	2.146	1.943
##	[541]	1.755	2.406	1.860	1.890	2.010	1.850	1.444	1.573	1.190	1.985	1.873	2.209
##	[553]	1.689	1.604	2.035	2.120	2.138	1.935	1.268	2.051	1.935	1.679	1.909	1.819
##	[565]	2.106	2.024	2.352	1.796	2.122	2.472	2.342	2.404	1.978	1.612	2.077	2.020
##	[577]	2.311	2.279	1.648	2.193	1.761	2.070	1.716	1.804	2.326	2.551	1.858	1.406
##	[589]	1.851	2.007	1.955	1.612	2.029	1.619	2.024	2.256	2.022	2.063	1.631	1.788
##	[601]	2.154	2.336	2.206	1.955	1.992	1.680	2.042	2.225	2.762	2.018	1.684	1.097
##	[613]	2.079	1.888	2.080	2.205	1.927	1.926	2.320	2.407	2.014	1.812	2.152	2.351
##	[625]	2.013	1.183	1.362	2.059	2.280	1.002	1.938	2.009	1.830	2.300	2.058	1.691
##	[637]	1.809	1.217	1.157	1.588	1.748	2.109	2.096	1.626	1.907	1.767	2.178	1.887
##	[649]	1.599	1.930	2.149	2.052	2.187	2.309	1.973	1.908	2.330	1.624	2.660	1.967
##	[661]	2.397	2.289	2.587	2.517	2.254	2.077	2.147	2.234	2.646	2.657	2.844	2.288
##	[673]	1.875	2.053	2.229	2.051	2.665	1.298	2.272	2.277	2.458	2.139	1.613	1.091
##	[685]	1.803	1.251	1.877	1.875	1.909	1.371	2.433	2.517	2.119	2.316	2.265	2.187

##	[697]	2.225	2.064	1.793	2.148	1.761	2.264	1.681	2.103	1.339	1.930	2.182	2.540
##	[709]	2.397	2.429	1.573	2.658	2.243	2.339	2.433	2.484	1.652	2.185	2.416	2.365
##	[721]	1.959	2.065	2.047	2.396	1.215	2.383	1.943	2.474	2.136	2.134	2.339	2.633
##	[733]	1.853	2.684	2.172	2.730	2.850	2.555	2.422	1.894	1.578	2.081	1.738	2.175
##	[745]	2.247	1.306	2.275	1.752	2.071	1.632	1.702	2.505	1.729	1.918	1.410	1.373
##	[757]	1.601	2.158	1.571	2.324	1.267	2.039	1.803	1.886	1.511	1.723	2.045	2.121
##	[769]	1.959	2.006	1.829	1.970	2.360	2.048	2.179	1.542	2.229	1.630	1.360	1.790
##	[781]	2.051	1.660	2.181	2.512	2.302	2.403	2.289	1.914	2.020	1.916	1.026	1.749
##	[793]	1.837	1.357	1.591	1.555	1.560	1.791	1.691	1.585	1.741	1.967	1.906	1.865
##	[805]	2.161	1.563	2.045	1.691	1.957	2.117	2.269	1.638	2.119	1.810	2.272	1.007
##	[817]	1.801	2.149	1.423	2.400	1.954	1.905	2.349	2.342	1.496	1.615	1.463	1.857
##	[829]	2.263	2.022	1.952	1.807	2.007	2.069	2.425	1.377	1.661	1.896	2.373	2.205
##	[841]	2.387	2.514	1.719	2.183	1.726	2.178	2.102	2.185	2.497	1.687	2.377	2.438
##	[853]	2.564	2.224	1.617	2.647	2.640	1.849	1.870	2.004	1.769	1.650	1.962	1.433
##	[865]	2.129	2.427	1.702	1.964	2.326	2.012	1.754	1.791	1.559	2.027	1.420	2.436
##	[877]	1.729	1.964	2.282	2.053	1.943	1.427	1.161	1.839	2.160	1.908	2.477	2.292
##	[889]	2.344	2.354	1.546	2.412	1.451	2.158	2.526	2.626	2.221	1.861	2.027	1.584
##	[901]	1.133	1.834	2.111	2.212	2.366	2.586	2.153	1.523	1.712	2.042	2.082	2.675
##	[913]	2.236	2.125	1.328	2.316	2.116	1.929	2.077	2.003	2.263	1.752	2.231	1.491
##	[925]	2.139	2.417	2.472	2.156	2.080	2.619	2.004	2.077	1.425	1.914	2.041	2.242
##	[937]	2.356	1.737	1.927	1.853	2.294	2.307	2.197	1.847	1.733	1.400	2.038	1.944
##	[949]	2.237	2.299	2.126	1.534	2.394	2.323	2.007	2.642	2.043	2.045	1.971	2.219
##	[961]	2.091	1.482	1.927	2.104	2.194	2.445	2.442	2.300	1.800	1.206	2.321	2.233
##	[973]	1.986	1.521	2.177	1.191	1.896	1.666	1.880	2.023	2.592	1.764	1.851	1.783
##	[985]	1.869	1.606	2.160	1.946	1.628	1.897	2.067	2.046	2.368	2.624	2.719	2.029
##	[997]	1.912	1.974	2.620	2.558	2.549	1.554	1.699	1.431	1.605	2.335	2.215	2.162
##	[1009]	2.040	2.029	2.209	1.653	2.060	1.285	1.925	2.084	1.681	1.266	1.692	1.893
##	[1021]	2.338	2.196	1.938	1.233	1.904	2.346	1.372	2.672	2.675	1.796	2.005	1.937
##	[1033]	1.129	1.939	1.837	1.883	2.102	1.421	1.869	1.670	2.141	2.287	1.650	1.117
##	[1045]	1.990	1.753	2.269	2.262	2.124	2.107	2.515	2.245	2.144	1.851	2.381	2.197
##	[1057]	2.169	1.218	1.227	2.584	1.927	1.975	1.811	1.742	1.827	2.348	2.688	2.399
##	[1069]	1.757	1.801	2.362	1.964	1.242	2.094	1.847	2.203	2.089	2.233	2.173	2.115
##	[1081]	2.189	1.884	1.779	1.784	2.266	2.225	1.677	2.137	1.919	2.691	2.123	2.457
##	[1093]	2.223	2.119	1.565	1.907	1.945	1.942	2.509	2.486	1.945	1.582	2.075	1.969
##	[1105]	1.672	1.816	1.928	1.814	1.945	1.439	1.896	2.434	2.211	2.519	2.068	1.677
##	[1117]	2.323	1.794	2.124	2.057	1.933	2.222	2.039	1.958	1.357	1.562	2.055	1.706
##	[1129]	1.850	1.875	2.245	1.692	2.063	2.026	1.928	1.395	2.012	1.453	2.262	1.926
##	[1141]	2.532	1.952	1.456	2.187	2.856	2.436	2.586	1.963	2.075	2.220	1.989	2.340
##	[1153]	2.705	2.242	2.252	1.615	2.384	2.052	1.994	1.624	2.091	1.771	1.854	1.787
##	[1165]	1.111	1.369	1.786	2.350	1.980	1.720	1.998	2.266	2.205	2.572	1.918	1.744
##	[1177]	1.651	2.007	2.345	2.436	1.809	1.721	1.723	2.121	2.028	1.599	2.407	1.562
##	[1189]	1.712	2.020	2.217	2.498	1.539	1.836	1.894	1.924	1.749	1.961	2.164	2.413
##	[1201]	2.062	1.481	1.721	2.160	1.682	1.653	2.496	2.116	1.929	1.668	2.334	1.775
##	[1213]	1.896	1.972	2.374	1.952	1.929	1.757	1.816	2.167	2.010	1.166	1.402	1.143
##	[1225]	2.050	1.878	1.783	1.912	1.998	1.211	1.738	2.341	1.994	2.280	2.575	1.886
##	[1237]	2.323	2.248	1.492	1.944	1.612	1.889	1.616	1.933	1.916	1.838	2.028	2.000
##	[1249]	2.290	1.737	1.618	2.056	2.130	2.490	2.242	1.786	1.549	1.709	1.419	2.435
##	[1261]	2.363	1.823	2.239	2.573	2.080	1.666	1.604	2.452	1.652	1.741	1.687	1.804
##	[1273]	1.789	2.152	2.143	2.107	2.183	2.021	2.570	2.615	2.464	2.061	1.598	2.076
##	[1285]	2.625	2.497	2.633	2.820	2.221	1.296	2.391	1.691	2.265	2.202	2.245	1.829
##	[1297]	1.470	2.614	1.287	1.776	2.077	1.696	1.968	1.562	1.793	2.206	1.586	2.332
##	[1309]	2.300	2.109	1.918	1.877	1.994	1.910	2.163	2.146	1.914	1.774	1.784	1.468
##	[1321]	2.116	2.118	2.232	2.015	1.874	1.988	1.809	1.221	2.374	2.405	2.243	2.091
##	[1333]	1.568	1.775	2.386	2.308	2.711	2.459	2.218	1.923	1.828	2.469	1.838	2.219

[1345] 2.239 2.750 2.124 1.872 1.963 1.965 2.068 2.169 2.132 2.129 2.011 1.680
 ## [1357] 2.098 1.945 2.429 2.006 1.838 1.509 1.747 2.231 2.468 2.320 2.088 2.221
 ## [1369] 1.327 2.043 2.003 1.013 1.360 1.091 2.565 2.170 2.365 1.919 1.916 2.005
 ## [1381] 2.364 1.166 1.873 2.271 2.059 1.694 1.399 2.466 1.873 1.852 1.837 2.110
 ## [1393] 1.564 2.153 1.000 2.252 2.013 1.508 1.834 2.121 1.991 2.207 2.518 2.027
 ## [1405] 1.314 1.456 1.902 2.146 2.175 2.131 2.525 2.683 2.011 2.189 1.903 2.022
 ## [1417] 2.568 2.170 2.214 2.274 2.040 2.143 2.365 1.866 2.121 1.618 2.271 2.549
 ## [1429] 2.262 1.982 2.228 1.054 2.483 2.577 2.038 1.972 1.603 1.802 2.201 2.340
 ## [1441] 2.029 1.634 1.842 2.178 2.428 1.954 1.902 1.876 2.200 2.234 2.416 2.195
 ## [1453] 1.798 1.709 2.109 2.071 2.124 2.130 1.693 1.833 2.259 1.985 2.232 2.383
 ## [1465] 1.910 2.480 2.561 2.697 2.067 2.496 2.884 1.943 1.982 2.570 2.125 2.516
 ## [1477] 2.326 1.874 2.374 2.039 2.192 1.771 1.312 1.825 1.981 1.569 1.565 2.011
 ## [1489] 2.025 1.901 2.261 2.092 2.027 2.021 2.125 1.817 2.107 2.077 2.387 2.026
 ## [1501] 2.101 1.917 1.630 2.035 2.033 2.051 2.062 1.928 2.042 1.744 1.471 2.108
 ## [1513] 1.976 1.221 1.786 1.918 1.915 1.946 1.629 2.123 2.025 1.854 2.187 1.572
 ## [1525] 1.798 2.482 1.874 1.394 2.397 1.707 2.475 2.587 2.027 1.569 2.190 1.666
 ## [1537] 2.338 1.991 2.498 2.020 2.248 2.158 1.960 2.194 2.216 1.883 2.262 2.673
 ## [1549] 2.076 2.227 2.036 2.028 2.510 2.493 2.137 1.669 2.175 1.789 2.423 2.334
 ## [1561] 1.819 1.894 1.943 2.017 2.176 2.329 2.155 1.962 2.207 1.384 1.345 1.898
 ## [1573] 1.486 1.891 2.200 2.339 1.850 1.829 2.453 2.276 1.744 2.403 1.788 1.663
 ## [1585] 1.773 1.933 1.904 1.916 2.038 2.288 1.867 1.051 1.506 2.107 2.215 2.105
 ## [1597] 2.411 2.573 2.730 2.252 2.779 2.525 2.604 2.416 2.330 2.452 2.200 2.328
 ## [1609] 2.229 2.184 2.327 2.394 2.051 2.295 1.404 2.184 2.312 1.818 2.203 1.426
 ## [1621] 1.946 1.798 1.991 1.997 1.303 1.873 1.612 2.269 2.059 2.160 2.002 1.992
 ## [1633] 2.406 1.269 1.648 1.823 1.652 2.053 1.976 2.404 1.692 2.001 2.050 2.372
 ## [1645] 1.935 1.206 1.411 2.019 2.271 1.982 2.307 1.947 1.841 2.217 2.162 1.656
 ## [1657] 2.089 1.569 2.129 2.441 2.176 2.229 2.340 2.100 2.071 1.217 1.917 1.952
 ## [1669] 2.192 2.128 2.322 2.418 2.406 1.430 2.253 1.751 2.343 1.944 1.936 2.095
 ## [1681] 1.885 2.074 1.910 1.972 2.222 1.805 2.042 2.109 1.881 1.682 1.912 1.676
 ## [1693] 1.718 2.399 1.690 1.772 2.047 1.852 2.075 1.725 1.646 1.823 2.163 1.844
 ## [1705] 2.132 2.082 2.651 2.445 2.176 1.976 1.845 1.257 1.800 2.165 2.159 2.143
 ## [1717] 2.110 2.135 1.779 1.599 2.028 2.080 2.210 2.131 2.156 2.117 2.239 1.786
 ## [1729] 1.978 1.892 2.129 2.074 1.878 2.043 2.019 1.898 1.309 2.083 2.386 2.414
 ## [1741] 2.315 2.199 1.146 1.988 1.614 1.858 2.063 1.885 2.047 2.085 1.873 1.768
 ## [1753] 2.129 1.676 1.743 1.514 1.795 1.923 2.028 2.383 2.081 2.036 2.454 1.970
 ## [1765] 1.758 2.082 1.741 1.570 2.041 2.093 2.381 2.325 1.811 2.012 1.854 1.595
 ## [1777] 2.015 1.890 1.807 1.719 2.119 1.980 2.281 2.172 1.832 2.033 2.161 1.948
 ## [1789] 2.029 2.317 2.248 1.984 2.400 1.775 1.685 1.818 1.823 1.656 1.855 1.259
 ## [1801] 1.134 1.873 1.607 1.647 1.978 1.894 1.580 1.476 1.693 2.075 1.930 2.122
 ## [1813] 2.148 1.807 2.242 1.978 2.005 2.257 2.471 2.345 2.206 2.502 1.634 1.879
 ## [1825] 1.799 1.963 2.114 2.344 2.052 1.988 1.340 2.037 1.346 1.528 2.197 2.323
 ## [1837] 2.503 2.136 2.146 2.258 1.419 2.017 2.140 2.175 1.724 1.978 1.671 1.617
 ## [1849] 1.792 2.124 2.027 2.011 2.121 1.926 2.018 1.968 1.913 2.202 2.355 2.196
 ## [1861] 2.152 2.170 2.072 1.440 1.773 2.165 2.157 2.336 2.510 1.883 1.849 1.446
 ## [1873] 1.862 1.968 1.909 2.071 2.241 1.936 1.550 2.143 2.177 1.906 2.084 1.984
 ## [1885] 2.075 1.918 1.783 1.872 2.354 2.069 1.869 1.895 2.063 1.965 2.189 2.002
 ## [1897] 2.012 1.119 2.202 2.121 1.724 1.840 2.211 1.687 1.728 1.992 2.243 2.364
 ## [1909] 1.816 1.828 1.843 1.865 1.660 1.718 1.404 2.114 1.593 1.632 1.707 1.883
 ## [1921] 1.764 1.827 1.765 1.789 2.055 1.859 2.078 1.300 1.839 2.052 2.280 2.423
 ## [1933] 2.515 1.996 1.876 1.885 2.049 1.201 2.138 1.704 1.685 1.770 1.148 1.918
 ## [1945] 1.469 1.984 1.850 1.534 1.696 1.852 1.648 1.542 1.869 2.204 2.361 2.195
 ## [1957] 2.084 1.494 1.925 1.955 1.896 1.682 2.084 2.246 2.135 2.307 1.919 1.985
 ## [1969] 1.903 2.004 1.532 1.865 1.944 2.017 1.780 1.644 1.901 2.144 1.928 1.705
 ## [1981] 2.085 2.127 1.939 2.035 1.937 2.124 2.272 2.601 2.394 1.886 1.809 2.289

##	[1993]	1.932	1.781	1.834	2.445	2.374	2.090	1.837	2.643	2.410	1.995	2.041	2.389
##	[2005]	2.587	2.227	1.966	1.893	1.096	2.164	1.835	1.334	1.876	1.838	1.532	1.770
##	[2017]	2.079	2.204	2.135	1.405	1.986	2.115	2.159	2.227	2.506	2.070	2.292	2.326
##	[2029]	1.689	2.024	2.407	1.594	2.057	2.177	2.524	2.206	2.074	2.042	1.925	1.669
##	[2041]	1.776	1.822	1.998	1.883	2.176	1.825	1.533	1.594	2.022	1.567	1.047	1.708
##	[2053]	1.900	1.882	1.738	1.712	1.783	2.079	1.995	1.783	1.853	2.016	1.942	1.929
##	[2065]	1.852	1.569	2.157	1.841	2.250	1.910	1.651	1.725	1.682	2.195	1.485	1.612
##	[2077]	1.963	2.286	2.293	2.158	1.967	2.238	1.031	2.241	2.019	2.013	1.949	1.519
##	[2089]	1.842	1.664	1.925	1.633	2.162	1.935	2.226	2.249	2.096	1.882	2.084	1.499
##	[2101]	1.883	1.851	2.204	2.174	2.226	1.769	2.023	1.516	2.108	1.748	1.939	1.706
##	[2113]	2.148	2.216	2.197	1.890	2.015	2.228	1.870	2.036	2.410	2.440	1.074	1.719
##	[2125]	2.081	1.699	2.311	2.208	2.217	1.633	2.279	2.112	2.031	2.151	1.699	1.939
##	[2137]	2.200	2.184	2.168	2.179	1.906	1.557	1.621	2.061	2.141	2.045	2.395	2.373
##	[2149]	2.121	1.736	2.072	1.996	2.198	2.235	2.383	1.593	1.991	1.778	2.081	2.453
##	[2161]	2.063	1.720	2.028	1.661	2.065	1.195	1.944	2.098	2.068	2.134	2.460	1.322
##	[2173]	1.736	1.876	1.980	1.555	1.817	1.940	2.338	1.499	2.562	2.205	2.431	2.509
##	[2185]	2.908	1.403	2.237	2.032	2.106	1.183	2.310	2.399	2.293	2.128	2.225	2.104
##	[2197]	1.209	1.850	1.434	1.703	2.148	1.462	2.204	2.166	1.636	2.254	2.089	2.330
##	[2209]	2.128	2.221	2.313	2.041	1.910	1.938	1.856	1.827	2.010	1.932	2.075	1.919
##	[2221]	1.221	1.820	1.644	1.596	1.771	1.680	1.813	1.116	2.011	2.063	1.743	2.019
##	[2233]	2.170	1.773	1.462	1.866	2.123	2.184	2.047	2.245	2.351	2.179	2.204	1.829
##	[2245]	1.847	1.985	1.464	2.124	2.104	2.167	1.914	1.339	2.205	2.154	1.844	1.987
##	[2257]	1.840	2.083	2.183	1.496	1.930	2.074	2.028	1.984	2.136	1.662	2.073	2.170
##	[2269]	2.184	2.361	2.049	1.967	1.888	1.900	2.158	1.841	1.633	1.892	1.558	1.051
##	[2281]	2.091	2.156	2.179	2.096	2.213	2.446	2.574	2.107	2.179	2.060	1.731	2.215
##	[2293]	2.356	2.026	1.942	2.176	1.932	2.287	2.242	2.490	2.373	1.643	1.304	1.959
##	[2305]	1.605	2.103	2.319	2.157	1.786	1.817	1.537	2.489	2.378	1.972	2.164	2.030
##	[2317]	2.158	2.304	2.270	1.945	2.137	1.092	2.229	2.267	2.182	2.104	2.654	2.251
##	[2329]	2.051	2.224	2.024	1.805	1.297	1.937	1.997	2.032	1.893	2.273	2.431	1.932
##	[2341]	1.184	2.210	2.257	2.303	2.073	2.497	2.178	2.046	1.999	1.772	2.227	1.636
##	[2353]	2.391	2.261	1.884	2.014	2.292	2.511	2.234	2.059	2.281	2.247	2.253	1.601
##	[2365]	1.851	2.156	2.353	1.551	2.043	1.754	1.654	1.950	2.190	2.147	2.268	2.059
##	[2377]	1.776	1.282	1.665	2.005	1.037	2.148	2.335	2.222	2.018	2.401	2.085	2.223
##	[2389]	1.383	2.000	2.112	2.096	1.836	2.059	1.148	2.321	2.131	1.894	1.923	2.047
##	[2401]	1.696	1.622	1.793	1.794	2.151	2.228	2.083	2.102	2.357	2.178	2.393	1.973
##	[2413]	1.880	1.476	1.877	1.667	1.483	1.796	2.170	1.292	1.617	1.827	1.583	1.171
##	[2425]	2.060	2.301	2.236	1.966	2.347	2.053	2.370	1.664	1.673	1.884	2.165	1.769
##	[2437]	1.705	2.036	1.636	1.413	2.166	1.392	2.171	2.375	2.404	2.272	2.196	2.120
##	[2449]	2.122	1.591	1.872	1.940	2.195	2.121	1.883	2.290	2.089	1.467	1.332	1.455
##	[2461]	1.949	2.061	2.252	2.157	2.211	2.370	2.276	1.545	2.170	2.384	2.145	1.917
##	[2473]	2.244	2.110	2.336	2.038	2.105	2.364	2.380	1.791	2.111	1.806	1.829	1.598
##	[2485]	2.094	2.154	2.443	1.913	2.094	2.016	1.667	1.902	1.082	2.350	2.235	2.092
##	[2497]	1.766	1.964	2.446	2.212	2.415	2.576	1.497	1.880	2.061	2.086	2.256	2.428
##	[2509]	1.871	1.490	2.146	1.872	1.941	2.017	1.555	1.768	2.153	2.143	1.929	2.101
##	[2521]	2.012	2.259	2.387	1.573	2.151	2.235	1.479	1.717	2.207	2.433	2.311	2.343
##	[2533]	2.570	2.169	2.142	2.194	2.317	2.564	2.143	1.253	1.893	2.439	2.412	1.753
##	[2545]	2.071	2.054	2.347	2.069	2.026	1.096	2.363	2.431	1.651	2.197	2.130	1.939
##	[2557]	2.403	2.195	2.024	2.153	1.713	1.557	1.562	1.985	2.258	2.031	1.965	1.970
##	[2569]	1.979	1.531	1.883	2.041	2.212	1.545	1.892	2.222	2.117	2.121	2.231	2.090
##	[2581]	2.202	2.281	2.156	1.877	1.647	2.270	2.077	1.690	1.636	1.972	2.206	2.174
##	[2593]	2.092	1.987	1.779	1.907	1.646	2.129	2.241	1.840	1.958	1.890	1.956	1.780
##	[2605]	1.902	2.006	2.123	1.747	2.237	2.139	1.262	1.805	1.514	2.038	2.239	1.717
##	[2617]	1.860	1.973	2.362	2.417	2.025	2.209	1.718	2.121	1.917	2.069	2.164	1.831
##	[2629]	2.147	1.958	1.602	1.872	1.794	1.758	1.910	2.036	2.122	2.546	1.685	1.897

##	[2641]	1.906	2.165	2.412	1.926	1.180	2.473	2.016	2.153	1.855	2.040	2.089	1.819
##	[2653]	1.901	1.858	1.870	1.447	1.462	2.145	2.180	1.792	1.722	1.829	1.578	1.801
##	[2665]	2.131	1.635	1.701	1.519	1.794	1.829	1.881	2.152	2.077	1.479	1.589	2.137
##	[2677]	2.133	2.158	1.998	1.898	2.264	2.415	2.195	2.405	1.887	1.960	1.379	1.755
##	[2689]	2.230	2.222	2.005	2.017	1.824	1.670	1.999	2.256	2.188	2.163	2.493	2.236
##	[2701]	2.322	2.049	1.724	2.013	2.060	2.308	1.843	2.045	2.078	1.905	1.793	1.852
##	[2713]	1.766	1.411	1.506	1.933	1.972	2.170	1.851	1.462	1.853	1.582	2.108	1.878
##	[2725]	2.023	2.262	2.040	2.275	2.376	1.502	2.305	2.115	2.363	2.235	1.867	2.450
##	[2737]	2.478	2.203	1.996	2.319	2.206	1.965	2.199	2.093	1.600	1.859	2.046	2.096
##	[2749]	1.245	1.300	1.940	2.187	1.745	2.004	2.108	1.380	1.965	2.186	1.947	2.107
##	[2761]	1.958	2.070	1.700	2.001	2.091	2.541	2.089	2.382	2.015	2.049	2.253	2.240
##	[2773]	2.216	2.181	1.347	1.984	1.881	1.060	2.316	1.904	2.103	2.149	1.980	2.133
##	[2785]	1.779	2.066	1.778	2.069	1.969	1.968	2.211	2.043	2.088	1.980	2.124	1.435
##	[2797]	2.271	2.225	2.230	2.419	2.208	2.239	2.391	1.725	1.419	1.685	1.466	1.895
##	[2809]	1.907	1.961	2.114	1.798	1.572	1.531	1.546	1.538	1.466	1.710	2.126	2.094
##	[2821]	2.076	2.103	2.223	2.342	2.030	2.001	2.227	1.939	2.067	2.211	2.002	1.892
##	[2833]	2.091	2.204	2.059	2.234	2.184	2.186	2.335	2.140	1.880	1.681	1.764	1.926
##	[2845]	2.118	2.228	2.325	1.722	2.206	1.991	1.974	2.223	1.614	2.285	2.159	2.467
##	[2857]	2.237	2.029	2.129	1.974	2.099	2.071	2.287	2.500	2.267	2.504	2.358	2.493
##	[2869]	2.241	1.579	2.199	1.860	1.834	1.964	2.206	2.191	2.141	2.284	2.322	1.959
##	[2881]	2.066	1.924	1.842	2.043	2.108	1.886	1.652	2.178	2.114	1.959	1.763	1.524
##	[2893]	2.114	2.020	2.244	1.976	2.143	2.270	2.262	2.225	2.107	1.523	2.044	1.893
##	[2905]	1.922	1.710	2.048	1.982	1.991	2.146	2.203	2.550	2.402	2.279	2.173	1.172
##	[2917]	2.012	1.982	1.995	2.321	2.167	1.553	1.580	2.095	2.157	2.092	1.901	1.995
##	[2929]	2.275	2.332	2.445	1.696	2.110	2.013	2.029	2.315	2.043	2.134	2.450	2.429
##	[2941]	1.946	1.482	2.146	1.877	2.046	2.029	2.125	2.069	1.975	1.332	1.409	1.921
##	[2953]	2.009	1.990	1.784	2.237	2.065	2.230	2.221	2.330	2.234	2.243	2.505	1.956
##	[2965]	2.307	2.067	1.794	2.029	1.997	1.881	1.954	2.065	2.311	1.677	2.362	1.977
##	[2977]	1.992	2.034	2.101	1.717	2.023	1.977	1.756	1.887	2.130	2.159	2.008	2.013
##	[2989]	2.033	1.805	1.374	1.920	2.110	2.317	2.374	2.307	2.376	2.080	2.034	2.191
##	[3001]	2.435	2.451	2.278	2.191	2.085	2.433	2.388	2.258	1.586	2.435	2.343	2.076
##	[3013]	2.117	2.420	1.917	2.009	1.531	1.885	1.659	2.041	1.838	2.176	2.292	2.323
##	[3025]	2.252	1.214	2.205	1.398	2.293	2.572	2.311	1.560	2.218	2.471	2.378	2.169
##	[3037]	2.344	2.434	2.546	2.043	2.438	2.041	2.240	1.551	2.179	1.778	2.057	2.304
##	[3049]	1.936	2.188	2.220	2.381	1.967	2.193	2.424	2.339	2.364	2.418	2.449	2.417
##	[3061]	2.102	2.247	1.763	1.963	2.370	2.411	2.374	1.615	1.165	2.153	1.999	1.919
##	[3073]	2.293	2.237	2.094	2.059	2.273	2.065	1.994	1.590	1.978	1.981	1.980	1.886
##	[3085]	1.718	1.986	1.706	1.928	1.503	1.856	1.985	2.005	2.015	1.969	2.022	2.148
##	[3097]	2.141	1.945	2.122	2.025	2.164	1.819	2.319	2.075	2.002	2.162	2.080	1.903
##	[3109]	1.552	2.010	2.363	1.711	2.004	1.728	1.447	1.959	2.250	1.759	1.642	2.261
##	[3121]	1.977	2.198	2.267	2.406	2.448	2.403	2.294	1.917	2.122	2.173	2.350	2.171
##	[3133]	2.035	1.989	2.042	1.696	2.062	1.206	2.103	2.299	2.332	1.374	1.891	1.945
##	[3145]	2.023	1.765	1.370	1.879	2.110	1.892	1.333	1.978	2.108	2.321	2.141	1.982
##	[3157]	2.195	2.012	1.269	1.704	1.945	2.224	1.877	1.508	2.113	2.140	1.858	2.316
##	[3169]	2.171	1.685	2.153	2.168	2.367	2.433	1.346	2.080	1.587	2.076	1.418	2.142
##	[3181]	2.001	2.336	2.189	2.228	2.222	2.031	2.189	2.392	2.003	1.626	2.223	2.396
##	[3193]	1.766	2.590	2.390	1.453	1.792	1.562	1.602	1.550	1.888	2.110	2.115	2.245
##	[3205]	2.163	1.755	2.331	2.309	1.601	2.263	2.270	2.341	2.000	1.674	1.712	1.827
##	[3217]	2.180	2.089	2.194	2.342	1.928	2.146	1.895	2.343	2.379	1.885	1.819	2.207
##	[3229]	2.658	2.190	2.151	2.426	2.510	2.320	1.840	2.378	2.337	2.757	2.362	2.434
##	[3241]	2.381	2.598	1.117	2.826	2.491	1.834	2.227	1.975	2.056	2.211	2.256	1.269
##	[3253]	1.626	1.471	1.718	1.772	1.887	1.917	2.038	2.033	2.146	2.079	1.628	1.886
##	[3265]	1.984	2.351	1.930	1.073	1.992	1.758	2.070	2.186	2.260	1.200	1.891	1.766
##	[3277]	1.617	2.134	2.355	2.551	2.496	2.242	2.208	2.266	2.356	2.434	2.180	2.594

##	[3289]	2.302	1.892	1.774	1.962	2.168	2.266	2.258	2.653	2.160	2.001	2.187	2.355
##	[3301]	1.774	2.568	2.227	2.656	2.075	1.294	1.772	1.997	2.194	2.103	2.032	2.286
##	[3313]	2.387	2.338	2.054	2.009	2.469	2.085	1.640	1.540	1.014	2.100	2.356	2.076
##	[3325]	2.566	2.573	2.504	2.295	2.368	1.759	1.842	2.252	2.374	2.489	2.254	2.701
##	[3337]	2.182	2.802	2.255	1.806	2.493	2.325	2.259	2.253	2.159	2.100	2.320	1.992
##	[3349]	2.007	2.085	2.169	2.154	1.869	2.211	2.205	2.368	2.094	1.238	1.916	2.321
##	[3361]	1.350	1.603	2.001	2.126	2.149	1.811	1.670	1.886	1.822	1.950	2.062	1.464
##	[3373]	1.654	1.873	1.945	2.025	2.067	2.058	1.806	1.860	1.907	1.543	1.845	1.681
##	[3385]	1.641	1.545	2.188	2.007	1.432	2.007	1.669	1.899	2.121	1.876	2.302	2.171
##	[3397]	2.597	2.079	2.311	2.491	2.413	2.464	1.919	2.065	1.943	2.049	1.961	2.102
##	[3409]	2.308	1.906	1.210	2.300	2.051	1.499	1.976	2.224	1.739	2.211	2.049	1.882
##	[3421]	1.909	1.343	1.743	1.720	1.720	1.911	2.167	1.797	1.842	1.516	1.826	2.046
##	[3433]	1.863	1.999	1.336	1.991	1.966	1.312	2.167	2.289	1.761	2.150	1.832	2.086
##	[3445]	2.150	2.108	2.036	1.989	1.664	1.894	1.522	1.927	2.279	2.186	1.952	1.787
##	[3457]	1.666	1.662	1.545	2.497	2.249	1.606	1.891	2.147	2.269	1.939	2.235	2.188
##	[3469]	1.546	1.654	1.915	1.694	1.950	1.447	1.850	1.852	1.900	1.442	1.978	2.103
##	[3481]	2.279	2.465	1.801	1.755	1.213	2.210	2.317	1.738	2.119	2.023	1.778	2.012
##	[3493]	1.927	2.222	2.159	1.797	1.985	1.544	1.740	1.856	2.193	1.986	2.098	2.154
##	[3505]	2.002	2.101	1.809	1.192	2.150	2.052	2.448	2.179	1.492	1.998	1.919	1.994
##	[3517]	2.199	2.003	2.003	1.849	1.363	1.855	2.023	1.936	2.000	2.370	2.053	1.849
##	[3529]	1.852	1.979	2.279	1.842	2.197	1.775	2.395	2.464	2.088	2.338	2.465	2.237
##	[3541]	1.692	2.343	1.880	1.209	2.150	2.319	2.250	1.902	1.979	2.024	1.913	1.989
##	[3553]	1.815	1.251	2.094	2.103	2.024	1.719	1.900	1.746	1.677	1.894	1.958	2.050
##	[3565]	1.689	1.514	1.917	1.750	1.920	1.873	2.062	2.233	2.168	2.000	2.184	1.554
##	[3577]	2.054	2.046	2.137	1.463	1.600	1.537	1.518	1.843	1.517	1.869	1.728	1.593
##	[3589]	1.678	1.727	1.963	2.111	2.063	2.323	2.121	2.195	2.105	2.300	2.065	1.947
##	[3601]	2.204	2.184	1.395	2.157	2.195	2.015	2.173	1.859	1.219	1.780	1.965	1.927
##	[3613]	2.109	2.091	1.960	2.275	2.410	2.134	1.301	2.328	2.169	1.906	2.120	2.382
##	[3625]	1.671	1.686	1.959	1.987	2.416	1.951	1.334	1.184	2.251	1.825	2.043	1.985
##	[3637]	1.634	1.873	2.117	1.899	2.166	2.360	2.311	2.286	2.032	2.388	2.285	2.243
##	[3649]	2.135	1.851	1.344	2.276	2.121	2.155	1.987	2.228	1.980	2.175	2.150	2.459
##	[3661]	1.628	2.102	2.371	1.782	2.593	2.095	2.301	2.313	2.350	1.842	1.874	2.529
##	[3673]	2.239	2.283	2.468	1.810	1.691	2.055	2.246	1.674	1.533	1.955	2.005	1.963
##	[3685]	2.280	2.125	1.731	1.382	2.100	1.794	2.127	2.368	2.386	2.209	2.083	2.376
##	[3697]	2.311	1.931	1.557	2.058	2.169	2.259	2.265	1.857	2.168	1.956	1.166	2.220
##	[3709]	1.917	2.264	2.066	1.764	1.968	1.241	1.539	1.693	1.940	2.030	2.090	1.852
##	[3721]	1.786	1.726	1.951	2.173	2.055	1.962	1.778	1.584	1.436	1.231	1.866	1.581
##	[3733]	1.935	1.915	1.815	2.087	2.468	2.109	1.520	2.098	1.791	1.747	2.024	1.956
##	[3745]	1.491	1.873	1.995	1.630	2.176	2.106	2.328	2.163	1.497	2.163	2.539	2.470
##	[3757]	2.043	2.366	2.360	1.385	2.425	1.287	1.916	2.084	1.228	1.238	2.352	2.560
##	[3769]	2.292	1.689	1.464	2.017	1.809	2.062	2.123	1.775	2.072	2.376	1.987	2.337
##	[3781]	2.501	1.981	1.929	1.730	2.491	2.172	1.816	2.370	2.583	2.477	2.417	1.761
##	[3793]	2.083	2.046	2.214	2.460	2.362	2.025	2.164	2.411	1.531	2.103	2.107	2.144
##	[3805]	1.655	2.178	2.059	2.288	1.915	2.352	2.417	1.666	2.030	2.393	2.159	2.383
##	[3817]	2.221	2.081	2.103	2.264	2.603	1.686	1.324	1.868	1.805	1.113	2.166	1.899
##	[3829]	1.752	2.232	1.881	2.035	1.954	2.046	2.055	2.141	2.617	2.160	2.383	1.628
##	[3841]	1.484	1.793	1.957	1.667	1.838	1.456	1.252	1.783	1.922	2.061	2.013	2.295
##	[3853]	1.436	2.342	2.293	1.884	2.123	2.235	1.771	1.012	2.004	2.319	2.305	2.349
##	[3865]	2.506	2.498	2.191	2.192	2.094	2.402	1.599	2.239	1.695	1.850	1.436	2.022
##	[3877]	1.740	1.932	2.016	2.176	1.964	1.801	2.171	2.079	1.705	1.449	2.191	2.219
##	[3889]	1.841	1.809	1.464	2.037	1.936	1.751	2.260	1.989	2.217	2.336	2.153	1.785
##	[3901]	2.280	2.068	1.353	1.744	1.601	1.832	1.849	1.022	2.172	2.071	2.318	1.639
##	[3913]	2.013	2.373	2.172	1.806	2.317	2.108	2.258	1.492	2.269	2.124	2.006	2.176
##	[3925]	1.348	2.111	2.199	1.385	1.997	2.027	2.261	2.109	1.575	1.825	1.686	1.871

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## [4525] 2.360 1.994 2.150 2.158 2.290 2.042 2.170 1.764 1.695 1.763 2.060 1.900
## [4537] 2.182 2.032 1.816 1.553 1.302 1.329 1.773 1.603 1.760 1.990 1.927 2.124
## [4549] 2.102 1.592 1.808 1.819 1.620 1.923 1.939 1.977 1.741 2.010 2.150 2.106
## [4561] 1.990 2.186 2.156 2.032 2.065 1.653 1.723 1.490 1.937 1.975 2.060 2.052
## [4573] 1.791 1.066 1.958 2.123 1.499 1.754 1.664 1.930 1.956 1.553 1.993 1.801

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##	[4585]	2.289	2.303	2.238	1.954	1.944	1.829	1.851	2.039	2.243	2.009	2.307	2.286
##	[4597]	2.477	1.349	2.122	2.349	1.993	1.989	1.779	2.045	2.101	1.981	2.192	1.457
##	[4609]	2.203	2.049	2.294	2.302	2.556	2.308	2.468	1.786	1.794	2.260	2.264	1.849
##	[4621]	2.448	1.740	2.435	2.141	2.369	2.567	2.622	2.347	1.893	2.267	2.284	2.047
##	[4633]	1.960	2.287	2.326	2.366	2.395	2.084	2.144	2.121	2.155	2.087	2.137	2.334
##	[4645]	2.079	2.159	2.284	2.251	2.357	1.388	2.070	1.949	2.111	1.143	1.995	1.849
##	[4657]	2.118	1.957	1.712	1.621	1.754	1.919	1.344	1.747	1.839	1.942	1.716	1.770
##	[4669]	1.764	1.684	1.938	2.317	1.653	2.043	2.090	2.180	2.002	2.116	2.231	1.928
##	[4681]	2.440	2.151	2.405	2.243	2.229	1.340	2.533	2.090	2.492	2.239	2.318	2.385
##	[4693]	1.910	1.461	2.171	2.241	2.482	2.382	2.181	2.199	2.048	2.320	2.598	2.264
##	[4705]	1.979	2.253	1.984	1.814	1.272	1.937	2.219	2.157	2.249	2.252	2.033	2.122
##	[4717]	2.379	2.288	2.598	1.733	1.976	1.620	2.227	1.720	2.140	2.299	2.106	1.635
##	[4729]	2.106	1.943	1.740	1.281	1.858	1.632	1.713	1.736	1.928	1.897	1.702	2.222
##	[4741]	1.975	1.568	1.257	1.761	1.823	2.226	1.176	2.211	1.785	1.711	1.218	1.959
##	[4753]	1.720	1.937	1.802	1.745	1.995	1.807	2.063	1.663	2.013	1.536	2.088	1.818
##	[4765]	1.703	2.131	2.262	2.227	2.090	1.690	2.286	1.934	2.190	2.066	1.771	1.835
##	[4777]	1.912	1.812	1.672	1.766	2.009	1.531	1.800	1.941	1.904	1.920	1.564	1.852
##	[4789]	1.891	1.617	2.237	2.274	2.071	1.835	2.130	1.850	2.106	1.902	1.403	1.634
##	[4801]	2.122	1.424	1.970	2.168	2.081	2.093	1.803	1.784	2.136	2.148	2.257	1.683
##	[4813]	1.726	2.123	2.195	1.976	2.222	2.731	2.622	2.614	2.266	2.006	1.938	2.183
##	[4825]	2.300	1.857	1.935	2.220	2.250	1.194	2.302	1.943	1.918	1.821	1.947	1.835
##	[4837]	2.284	2.107	1.467	1.692	1.812	1.624	2.130	1.907	2.080	2.386	1.956	1.437
##	[4849]	2.086	1.726	1.981	1.866	1.833	2.180	1.852	1.370	2.053	1.232	1.850	1.861
##	[4861]	1.580	1.763	1.730	1.942	1.976	2.060	1.848	1.841	2.142	2.136	2.152	2.350
##	[4873]	2.142	2.015	1.967	2.203	1.738	1.758	2.225	1.590	2.350	1.252	2.253	2.224
##	[4885]	1.986	2.030	2.002	2.026	2.079	1.603	2.051	1.928	2.088	2.103	1.912	1.831
##	[4897]	1.232	2.116	1.807	2.098	2.185	2.080	2.165	2.227	1.463	2.003	2.102	1.829
##	[4909]	2.355	2.201	1.209	1.595	2.050	2.054	2.024	2.020	1.575	1.866	1.749	2.015
##	[4921]	1.911	1.883	1.106	2.076	1.843	2.212	1.811	2.234	2.211	1.916	1.287	2.297
##	[4933]	2.211	2.238	1.535	2.146	2.347	2.160	2.062	2.101	1.239	2.344	2.451	2.234
##	[4945]	2.321	2.058	1.383	1.339	1.102	1.943	1.844	2.245	2.230	2.163	2.336	1.930
##	[4957]	2.130	1.906	2.054	1.975	1.634	2.073	2.164	1.862	2.209	2.022	1.688	2.130
##	[4969]	1.970	2.294	2.306	1.655	1.961	1.316	1.931	1.958	2.115	2.057	1.986	1.953
##	[4981]	2.568	2.200	2.409	1.746	2.191	2.185	1.855	1.913	2.247	2.307	2.308	2.131
##	[4993]	1.735	1.579	1.819	1.687	2.068	2.046	2.076	2.070	2.292	1.861	1.903	2.216
##	[5005]	1.927	2.286	2.215	1.905	1.182	1.889	2.047	2.052	2.274	2.179	2.232	2.097
##	[5017]	2.082	2.540	2.331	2.215	2.002	1.746	1.929	2.071	2.360	2.048	2.115	2.114
##	[5029]	2.265	2.361	2.547	2.205	2.223	1.967	2.020	2.146	1.906	2.236	1.983	1.985
##	[5041]	2.115	2.176	1.710	2.417	1.028	1.540	2.131	1.557	1.990	2.133	2.438	2.085
##	[5053]	2.152	2.022	2.106	1.955	1.782	1.866	2.041	1.973	2.063	2.099	1.990	2.388
##	[5065]	2.075	1.981	1.788	2.258	2.142	2.094	1.789	1.978	1.706	1.524	2.050	1.932
##	[5077]	1.989	2.120	1.553	2.261	1.960	1.864	1.930	2.023	1.708	1.126	2.109	1.903
##	[5089]	1.994	1.954	1.698	2.125	1.895	1.905	1.900	2.019	2.234	1.837	2.176	2.098
##	[5101]	2.128	2.226	2.526	2.026	2.029	2.030	1.434	2.127	2.086	2.121	1.963	1.194
##	[5113]	1.629	2.292	1.977	2.016	2.388	1.886	1.820	1.905	2.011	2.295	1.622	2.257
##	[5125]	1.786	1.140	1.903	1.513	2.145	1.725	1.906	1.862	1.787	2.025	1.737	2.135
##	[5137]	2.152	1.799	1.925	1.747	1.543	1.965	2.297	1.879	2.227	2.220	1.229	2.047
##	[5149]	2.136	1.026	2.083	2.218	2.525	2.690	1.940	2.090	2.416	2.442	2.439	2.518
##	[5161]	2.033	2.184	1.961	2.452	2.243	2.376	2.486	2.435	2.434	2.610	2.531	2.535
##	[5173]	2.638	1.532	2.364	2.546	2.324	1.993	2.503	2.247	2.390	2.096	1.721	1.141
##	[5185]	1.625	2.164	1.297	2.183	2.284	1.809	2.000	2.048	1.341	1.281	2.212	2.257
##	[5197]	2.215	1.947	1.964	2.115	2.200	1.931	2.037	2.210	2.009	2.063	1.269	1.423
##	[5209]	1.976	2.139	1.973	2.089	2.028	2.136	2.028	2.239	2.215	2.020	2.019	1.945
##	[5221]	2.066	2.186	2.120	1.653	1.108	1.998	2.212	1.779	1.562	1.833	1.986	1.866

##	[5233]	1.583	1.823	1.811	1.847	1.925	1.806	1.887	2.094	1.998	2.186	1.874	1.470
##	[5245]	2.265	1.724	1.592	1.881	2.076	1.959	1.978	1.731	1.303	2.027	2.003	2.011
##	[5257]	1.747	1.723	1.969	1.891	1.960	1.759	1.105	1.899	2.154	2.086	2.024	2.002
##	[5269]	1.942	1.874	1.948	1.820	2.180	2.107	1.477	1.054	1.927	1.848	1.694	1.691
##	[5281]	1.717	2.028	1.719	1.351	1.999	1.734	2.037	2.069	1.389	1.976	2.059	2.044
##	[5293]	1.974	2.119	2.432	1.997	2.227	1.940	2.264	2.301	2.345	1.562	1.253	1.870
##	[5305]	2.580	2.282	2.259	2.006	1.941	2.187	2.274	1.556	1.933	1.843	2.188	2.259
##	[5317]	2.174	2.045	1.606	1.871	2.204	2.172	1.982	2.020	1.547	1.927	1.650	1.456
##	[5329]	1.965	2.146	1.729	1.741	2.096	1.298	1.819	2.051	2.011	2.141	2.091	1.985
##	[5341]	2.087	1.453	1.977	1.760	1.901	2.170	2.106	1.823	2.104	1.595	1.929	2.244
##	[5353]	2.271	2.214	2.225	2.108	2.268	2.250	2.006	2.135	2.045	2.087	1.635	1.479
##	[5365]	1.322	1.817	1.646	1.306	1.598	1.922	1.905	1.858	1.889	1.965	2.329	2.258
##	[5377]	1.344	1.736	1.803	1.999	2.013	1.750	1.902	1.491	2.126	2.194	2.043	2.101
##	[5389]	1.711	2.142	1.558	1.668	1.872	1.934	1.830	2.051	2.048	2.003	1.487	2.007
##	[5401]	1.940	1.897	2.191	1.817	2.122	2.234	1.858	2.062	2.190	2.014	1.920	1.956
##	[5413]	1.781	2.205	2.296	1.937	2.129	1.574	2.045	2.396	2.168	2.174	2.316	2.058
##	[5425]	2.045	1.755	1.939	1.766	2.139	2.235	1.927	1.965	2.235	1.922	1.623	2.115
##	[5437]	1.971	2.054	1.224	1.798	1.275	2.070	1.308	1.889	1.942	1.983	2.120	2.050
##	[5449]	2.089	1.629	2.089	2.089	2.362	2.301	2.048	2.361	2.137	1.916	2.097	2.106
##	[5461]	2.107	2.157	1.904	1.628	1.403	1.915	1.346	2.265	1.907	1.868	1.868	2.011
##	[5473]	1.855	1.778	1.975	2.035	2.085	1.965	2.075	1.734	1.846	1.395	2.050	2.113
##	[5485]	2.113	2.094	1.889	1.490	1.743	1.791	1.757	2.009	1.465	1.908	1.807	1.600
##	[5497]	1.430	1.922	1.952	2.098	2.335	1.915	2.034	2.058	1.967	1.846	2.054	1.804
##	[5509]	1.619	1.504	1.749	2.179	2.305	2.251	1.560	1.885	2.116	1.515	1.132	2.090
##	[5521]	2.374	2.160	2.066	2.259	2.275	1.524	2.272	2.114	1.949	2.000	1.702	2.044
##	[5533]	1.972	2.124	1.825	1.922	2.056	1.763	1.736	1.893	2.068	2.242	2.142	1.801
##	[5545]	1.667	1.247	1.691	2.117	2.277	2.092	2.579	2.221	2.093	2.406	2.414	2.061
##	[5557]	2.087	1.806	2.066	1.568	1.976	2.174	2.240	2.177	2.186	1.243	1.915	2.120
##	[5569]	2.150	2.143	2.173	2.075	2.202	2.300	1.911	2.062	2.031	1.982	1.572	2.113
##	[5581]	2.412	2.086	2.088	2.127	2.244	2.041	2.090	1.929	1.805	1.733	1.363	2.157
##	[5593]	1.972	2.213	2.199	1.773	1.771	2.251	2.165	2.027	2.033	2.067	1.761	1.623
##	[5605]	1.982	1.690	1.767	1.752	1.299	2.038	1.984	2.021	1.945	1.971	2.057	1.682
##	[5617]	1.740	1.945	1.940	1.947	2.253	1.953	1.484	1.722	1.997	2.152	2.086	2.233
##	[5629]	2.024	2.132	2.328	2.187	1.536	2.052	1.888	2.061	1.494	1.721	1.981	1.935
##	[5641]	2.093	1.564	1.800	1.889	1.935	1.767	2.059	1.999	1.950	1.961	2.009	2.045
##	[5653]	2.031	1.782	1.486	1.178	1.989	1.805	1.600	1.961	2.195	2.215	2.344	2.099
##	[5665]	1.367	2.008	2.073	2.116	2.116	2.070	2.220	2.170	2.007	1.415	1.841	1.967
##	[5677]	1.471	1.457	1.964	2.158	2.254	2.293	2.109	1.987	1.406	2.052	2.022	1.493
##	[5689]	2.133	2.283	2.055	2.033	1.944	1.698	1.355	2.158	1.984	1.926	1.789	1.568
##	[5701]	1.958	1.471	2.089	1.941	1.789	1.894	2.064	1.947	2.101	1.837	1.998	1.945
##	[5713]	1.784	2.043	2.385	2.349	2.020	1.898	1.930	1.686	1.966	1.886	1.488	2.000
##	[5725]	2.091	1.957	2.173	2.014	2.066	1.746	1.709	2.011	2.086	2.014	1.165	2.282
##	[5737]	2.139	2.006	2.116	2.142	2.331	1.899	2.052	2.213	2.263	2.069	1.920	2.346
##	[5749]	2.318	2.204	2.219	1.769	2.127	2.042	2.225	2.435	1.852	2.208	2.148	2.570
##	[5761]	2.246	2.406	1.528	1.979	1.996	2.070	2.152	2.294	2.180	2.118	2.117	1.884
##	[5773]	2.003	1.938	2.148	2.209	2.110	1.698	2.002	2.046	1.939	1.503	2.066	1.971
##	[5785]	1.662	2.093	2.134	1.855	2.112	2.115	2.016	1.666	2.037	2.385	2.116	2.146
##	[5797]	1.934	2.208	1.555	1.366	2.073	2.049	2.092	2.010	1.778	1.370	1.840	1.944
##	[5809]	1.777	2.197	2.155	2.164	2.232	2.179	2.180	1.875	2.223	2.183	1.920	1.969
##	[5821]	1.810	2.116	2.330	2.212	2.150	2.236	2.116	2.191	2.259	2.035	2.027	1.911
##	[5833]	2.255	2.212	2.436	2.290	2.430	1.835	2.295	2.720	2.360	1.352	1.724	2.319
##	[5845]	2.315	2.591	2.503	2.122	2.552	2.454	2.231	1.590	1.995	2.467	2.295	2.197
##	[5857]	1.844	2.324	1.999	2.076	1.824	1.949	2.081	1.937	1.529	2.021	1.957	2.092
##	[5869]	1.596	1.735	1.598	1.891	2.178	2.249	2.211	2.008	2.090	2.407	2.294	2.423

##	[5881]	2.313	2.341	2.423	2.397	2.379	2.219	2.234	1.822	1.847	2.097	2.344	2.388
##	[5893]	2.001	2.025	2.181	1.620	2.047	2.112	1.957	2.034	2.284	2.276	2.313	2.102
##	[5905]	2.106	2.132	2.249	2.154	2.340	1.741	2.184	1.908	2.244	2.344	2.328	1.725
##	[5917]	2.126	1.831	1.774	1.882	1.071	2.091	2.101	2.075	2.088	2.119	2.158	2.011
##	[5929]	2.016	2.129	1.664	1.849	2.063	2.171	2.304	2.108	2.258	2.367	1.386	2.130
##	[5941]	2.048	2.229	2.238	2.350	2.423	2.168	2.117	2.177	2.247	1.944	2.161	1.272
##	[5953]	2.212	1.920	1.733	2.035	2.109	2.066	2.102	1.919	2.090	2.152	1.920	2.040
##	[5965]	2.186	1.580	1.232	1.463	2.225	2.113	2.192	2.207	2.012	1.736	1.922	2.028
##	[5977]	1.392	2.026	2.393	2.157	2.031	1.884	2.153	2.107	1.794	2.105	2.293	2.481
##	[5989]	2.296	1.986	2.206	1.398	1.976	1.968	1.669	1.578	2.004	2.067	2.175	2.336
##	[6001]	2.265	2.131	2.201	2.460	2.448	2.120	2.256	1.539	2.069	2.204	2.182	2.186
##	[6013]	2.122	2.156	1.477	1.107	1.291	1.706	2.147	2.059	1.480	1.978	1.998	1.899
##	[6025]	2.200	2.248	2.445	2.524	2.268	1.629	2.350	1.390	2.210	2.293	2.358	2.550
##	[6037]	2.675	1.314	2.403	2.460	2.298	2.447	1.612	2.232	1.801	2.088	1.814	2.145
##	[6049]	2.096	2.246	2.297	2.371	2.236	1.643	2.134	2.086	1.534	2.106	2.136	2.026
##	[6061]	2.094	2.158	2.018	1.751	1.886	1.551	2.119	1.432	2.150	1.741	1.975	1.438
##	[6073]	2.171	1.951	2.171	1.805	2.189	2.210	2.214	2.235	2.275	2.396	2.006	1.514
##	[6085]	1.952	1.760	1.766	1.438	2.190	2.431	2.322	2.279	2.333	2.101	2.012	1.943
##	[6097]	2.412	2.185	1.959	2.050	1.375	1.746	2.246	2.125	2.152	2.224	2.022	2.017
##	[6109]	2.039	1.098	2.354	2.318	2.011	2.218	2.204	2.182	2.190	2.045	1.663	2.094
##	[6121]	2.199	2.293	2.082	1.741	2.380	2.263	2.209	2.148	2.343	2.295	2.264	1.840
##	[6133]	2.330	2.076	2.266	2.220	2.157	2.044	2.371	2.146	2.194	2.335	2.218	1.772
##	[6145]	2.085	1.672	2.013	1.495	2.434	2.424	1.626	1.424	1.721	2.018	2.227	2.092
##	[6157]	2.495	2.585	2.209	2.272	2.118	2.198	1.812	2.367	1.969	1.930	2.158	2.150
##	[6169]	1.718	1.899	2.011	2.055	1.651	2.048	1.685	1.972	1.690	2.109	1.612	1.945
##	[6181]	2.294	2.117	2.477	2.275	2.365	2.432	2.481	2.577	2.234	2.026	2.005	2.542
##	[6193]	2.342	2.658	2.305	2.157	2.023	1.547	2.149	2.464	2.048	2.065	1.995	2.319
##	[6205]	2.507	2.268	2.535	1.900	1.754	2.033	1.954	1.992	2.293	2.165	1.769	1.863
##	[6217]	2.332	2.210	2.223	2.051	2.032	2.080	2.124	1.873	2.126	1.995	1.759	2.151
##	[6229]	2.312	2.153	2.000	2.001	2.343	1.849	1.908	1.388	1.077	2.313	2.051	1.957
##	[6241]	2.313	2.226	1.920	1.924	1.847	1.965	1.953	2.156	1.923	2.128	2.012	1.843
##	[6253]	2.101	2.228	2.216	1.341	2.140	1.989	1.941	2.066	2.356	1.728	1.796	2.065
##	[6265]	2.171	2.116	2.315	2.338	2.349	2.220	1.750	2.153	2.219	2.344	1.601	2.209
##	[6277]	2.459	2.235	1.822	1.802	2.343	2.594	2.255	2.356	2.249	2.134	2.504	2.254
##	[6289]	2.597	2.277	2.324	2.040	1.856	1.888	1.046	2.409	2.260	2.252	2.226	2.509
##	[6301]	2.392	2.281	2.225	2.233	2.308	1.161	1.554	1.771	1.565	1.948	2.164	2.252
##	[6313]	1.892	2.038	2.159	2.080	2.026	2.178	2.184	2.109	1.854	1.295	2.264	1.554
##	[6325]	1.806	1.981	2.010	2.175	2.271	2.292	2.555	2.349	2.190	1.681	1.828	2.289
##	[6337]	1.973	2.083	2.419	2.068	2.031	2.037	2.178	2.475	1.704	2.363	2.273	2.151
##	[6349]	2.077	2.237	2.378	2.318	2.166	1.919	2.211	2.273	1.981	2.178	2.220	2.073
##	[6361]	2.258	1.127	2.042	1.892	2.031	2.210	2.184	2.162	2.327	1.119	1.601	1.797
##	[6373]	2.079	2.034	2.075	2.164	1.567	1.650	1.754	2.108	2.041	2.227	1.974	2.057
##	[6385]	2.063	1.749	1.249	1.979	1.968	1.923	1.937	1.936	1.913	2.322	2.071	2.245
##	[6397]	2.197	2.069	2.264	2.057	1.887	1.973	1.776	1.848	1.790	2.272	1.890	2.073
##	[6409]	2.273	1.974	2.106	2.008	2.112	1.976	1.907	2.188	1.548	2.206	1.983	1.815
##	[6421]	1.882	1.910	2.137	2.151	2.115	2.001	1.956	2.106	2.251	2.039	2.321	1.744
##	[6433]	2.302	2.365	2.117	2.346	2.088	1.589	2.065	1.920	2.042	1.816	1.035	1.884
##	[6445]	2.149	2.281	1.525	1.812	2.092	1.196	2.236	1.580	2.194	2.353	2.405	1.791
##	[6457]	2.162	2.373	2.238	2.156	2.101	1.900	1.881	1.625	1.781	1.943	2.014	1.858
##	[6469]	1.991	1.947	1.935	1.726	1.617	1.785	1.535	2.104	2.006	1.923	1.830	2.005
##	[6481]	2.284	2.036	1.988	2.170	2.068	2.038	1.687	2.176	1.842	2.007	1.763	1.796
##	[6493]	2.078	2.080	2.093	2.459	2.440	2.058	2.323	2.218	2.023	1.714	2.205	2.172
##	[6505]	2.276	2.136	2.027	1.826	2.171	2.160	2.373	2.064	1.934	1.641	1.790	1.793
##	[6517]	1.929	1.673	1.524	1.805	1.775	2.138	2.191	2.108	2.043	1.672	1.792	1.899

##	[6529]	1.683	1.937	1.995	1.619	2.109	2.174	2.074	1.832	1.446	2.074	2.143	1.885
##	[6541]	2.222	1.922	1.637	1.808	1.714	1.697	1.904	1.857	2.257	2.086	2.364	2.157
##	[6553]	2.400	2.145	1.134	2.274	2.244	2.255	2.051	2.088	2.325	2.093	1.299	1.171
##	[6565]	2.050	1.658	1.505	1.935	1.958	1.299	1.406	1.787	1.702	1.790	1.935	2.078
##	[6577]	2.082	2.051	2.093	1.922	1.641	2.017	2.038	2.244	1.852	2.088	1.937	2.097
##	[6589]	1.604	1.983	1.752	1.347	2.103	2.271	1.574	1.998	1.531	2.227	2.106	1.950
##	[6601]	2.202	2.105	1.733	1.696	2.001	1.996	1.797	1.945	2.054	2.003	1.536	1.571
##	[6613]	1.679	1.942	1.845	1.535	1.949	2.084	2.117	2.030	1.767	2.095	2.038	2.052
##	[6625]	1.943	1.998	1.790	1.335	2.400	1.902	1.794	2.097	2.088	2.099	2.103	2.157
##	[6637]	2.128	2.149	2.107	1.537	1.773	2.222	2.073	2.040	1.394	1.160	2.105	2.116
##	[6649]	1.937	2.046	2.216	1.427	2.261	1.932	2.086	2.282	2.112	2.086	2.237	2.044
##	[6661]	1.838	1.839	2.088	2.304	1.806	2.037	2.223	1.993	2.251	1.936	2.056	2.308
##	[6673]	2.454	1.870	2.540	2.430	1.726	1.266	1.957	2.207	2.164	1.372	2.552	2.257
##	[6685]	1.862	1.951	2.206	2.260	2.152	2.175	2.357	2.504	2.180	2.294	2.337	2.201
##	[6697]	2.124	2.284	1.860	1.059	2.432	2.332	2.049	2.045	2.527	2.300	2.191	1.602
##	[6709]	2.100	2.057	2.229	2.044	1.955	1.935	1.532	2.044	2.108	1.858	1.962	1.737
##	[6721]	1.524	2.037	2.130	2.098	1.712	2.156	2.145	2.132	2.376	1.799	2.300	2.079
##	[6733]	2.078	1.935	1.869	2.371	2.030	1.885	1.885	1.628	1.275	1.631	2.140	1.690
##	[6745]	1.825	1.831	2.042	2.020	1.939	1.943	1.823	1.908	1.874	1.937	2.244	2.087
##	[6757]	2.168	2.054	2.110	2.244	1.819	1.772	1.138	1.901	1.997	2.098	1.686	1.785
##	[6769]	1.859	1.916	1.968	2.018	2.095	1.843	1.929	2.044	1.823	1.788	1.743	2.127
##	[6781]	2.054	1.699	1.901	1.868	2.305	2.271	2.030	1.960	1.713	1.727	2.004	2.163
##	[6793]	2.107	1.797	1.472	1.922	2.066	1.882	2.052	1.456	2.176	1.908	2.111	2.408
##	[6805]	1.669	2.079	2.134	2.000	1.995	1.027	1.569	2.073	1.714	2.009	1.628	2.246
##	[6817]	2.202	1.470	1.568	1.797	2.144	2.303	2.444	1.505	2.173	1.276	2.121	1.990
##	[6829]	2.361	2.033	1.914	2.152	2.184	2.328	2.161	2.243	2.036	1.927	2.081	2.063
##	[6841]	1.905	1.595	2.388	2.571	2.111	1.860	2.234	1.469	1.984	2.328	1.747	2.099
##	[6853]	2.287	2.220	2.141	2.054	2.070	2.318	2.517	2.320	2.068	2.097	2.169	2.354
##	[6865]	2.284	1.503	1.940	1.106	1.670	1.914	2.214	2.074	2.004	2.039	2.170	2.187
##	[6877]	2.317	2.013	1.644	2.046	2.063	2.152	2.327	1.833	1.513	2.229	1.743	1.850
##	[6889]	1.990	1.850	2.377	2.221	2.309	2.097	2.163	2.005	2.341	2.433	2.195	2.004
##	[6901]	1.804	2.089	1.901	1.722	1.556	2.142	1.845	1.725	1.881	1.880	1.889	1.929
##	[6913]	1.924	1.572	2.016	2.051	1.826	2.322	2.098	1.597	1.382	2.074	1.776	1.433
##	[6925]	1.162	1.881	1.902	1.875	1.935	1.791	1.589	1.819	1.507	1.922	1.972	1.866
##	[6937]	2.029	2.246	1.620	1.904	2.063	2.313	1.967	1.945	1.618	1.978	2.003	2.097
##	[6949]	2.006	2.047	2.176	2.232	1.976	2.001	1.981	1.671	2.015	1.057	2.105	2.089
##	[6961]	2.122	1.212	2.334	2.169	2.172	2.202	2.351	1.472	2.066	1.556	2.334	1.869
##	[6973]	1.752	2.129	2.210	1.943	1.990	2.269	2.025	1.116	1.588	1.261	2.148	1.692
##	[6985]	1.597	1.813	1.562	2.138	2.082	2.138	2.148	2.154	2.242	2.430	2.000	1.085
##	[6997]	2.078	2.062	1.985	2.138	2.258	1.838	2.140	2.177	2.171	1.496	1.926	2.431
##	[7009]	2.001	2.146	1.967	2.125	1.879	1.811	1.605	1.993	2.256	2.082	2.117	1.910
##	[7021]	2.313	1.971	1.818	2.254	2.115	1.813	1.875	1.976	2.015	1.982	2.209	2.173
##	[7033]	2.127	1.824	2.178	1.868	2.018	2.058	2.078	1.914	2.141	2.257	2.280	1.659
##	[7045]	1.895	2.081	2.074	2.209	1.394	1.682	2.311	2.145	2.342	1.678	2.047	1.637
##	[7057]	1.885	2.041	1.883	1.399	1.915	2.256	1.711	1.793	2.052	2.114	1.883	1.625
##	[7069]	1.844	1.874	1.545	1.752	1.686	1.641	1.566	1.881	1.834	1.919	1.535	2.057
##	[7081]	2.067	2.053	2.234	1.854	2.191	2.152	2.263	2.282	2.118	1.957	2.150	2.105
##	[7093]	2.187	1.213	2.163	2.016	2.023	2.111	1.286	2.220	2.238	1.946	1.930	1.203
##	[7105]	2.221	2.261	2.121	2.157	2.167	2.331	2.282	2.092	2.332	1.996	1.746	2.331
##	[7117]	2.166	2.128	1.970	2.121	2.194	2.026	2.251	2.144	2.131	2.564	1.735	1.530
##	[7129]	2.181	2.004	2.028	2.066	1.774	1.025	1.672	1.730	1.847	2.033	2.024	1.888
##	[7141]	1.933	2.071	1.802	2.153	2.141	1.956	1.786	1.691	1.663	1.904	1.733	1.231
##	[7153]	2.103	1.959	1.968	2.111	2.228	1.848	2.051	2.104	1.954	2.013	1.527	2.092
##	[7165]	1.884	2.242	2.101	2.039	1.575	2.358	1.937	1.895	1.613	2.041	2.004	1.460

##	[7177]	1.962	1.837	2.132	2.075	1.863	2.124	2.016	2.167	1.972	1.943	1.656	1.904
##	[7189]	1.873	1.904	2.134	2.023	2.123	2.133	1.779	2.289	1.400	1.757	1.857	1.672
##	[7201]	1.963	2.036	1.978	2.054	2.217	2.000	1.578	2.002	1.724	1.975	2.265	2.303
##	[7213]	2.160	2.124	2.158	1.647	2.214	1.397	1.172	2.275	2.329	1.909	2.280	2.204
##	[7225]	1.934	1.799	2.156	1.132	2.160	2.349	2.135	2.089	2.338	2.021	2.013	2.063
##	[7237]	1.489	2.011	2.183	1.884	2.136	2.252	2.128	1.960	1.892	2.110	1.819	2.020
##	[7249]	2.157	2.363	2.138	2.040	1.976	1.963	1.127	1.878	1.731	2.057	1.381	2.108
##	[7261]	2.213	2.149	2.188	1.955	1.205	2.016	2.183	2.299	2.182	1.578	2.066	2.065
##	[7273]	2.142	1.077	2.125	2.234	1.752	1.673	2.104	2.215	2.337	2.007	1.951	2.116
##	[7285]	1.934	1.148	2.008	2.182	1.525	1.789	1.937	1.992	1.590	1.780	1.906	1.670
##	[7297]	1.563	1.877	1.721	1.707	1.877	1.964	1.980	1.918	1.959	1.845	1.955	1.480
##	[7309]	1.781	1.538	1.886	1.895	1.704	2.146	2.222	1.843	1.810	1.914	1.900	1.705
##	[7321]	1.977	1.971	1.882	1.659	1.791	1.885	1.981	2.076	1.787	1.598	2.473	2.181
##	[7333]	1.915	2.063	1.948	1.849	1.686	2.234	1.416	1.890	1.933	2.227	2.121	2.158
##	[7345]	2.145	2.278	2.333	2.310	2.241	2.046	2.255	1.488	2.499	2.367	1.806	2.099
##	[7357]	2.397	2.342	1.908	2.178	2.123	1.646	1.499	1.834	1.782	1.375	1.844	1.827
##	[7369]	1.966	1.732	2.037	1.727	2.026	1.958	2.144	1.817	1.968	1.288	2.039	1.300
##	[7381]	2.117	1.966	1.913	2.138	2.071	2.174	2.175	1.798	2.086	2.108	1.377	1.906
##	[7393]	2.020	2.199	2.088	2.075	1.890	1.924	2.003	2.009	2.082	2.065	2.304	2.244
##	[7405]	2.188	2.185	2.398	1.856	2.095	2.184	1.940	2.165	1.929	1.879	1.923	2.058
##	[7417]	1.969	2.257	2.320	2.024	2.479	2.113	2.293	2.262	2.425	2.120	1.862	2.144
##	[7429]	2.483	2.176	2.416	2.031	2.063	2.091	1.852	2.212	2.315	1.994	1.795	2.174
##	[7441]	2.278	2.150	1.598	2.210	2.160	2.084	1.856	2.215	1.714	2.060	1.587	2.154
##	[7453]	1.894	2.087	2.105	2.054	1.576	1.451	1.992	2.044	2.115	1.887	1.929	2.348
##	[7465]	2.266	1.972	2.082	2.328	1.756	2.185	2.323	2.100	2.148	1.903	1.864	1.728
##	[7477]	1.711	2.183	2.144	1.585	1.998	2.228	1.958	2.104	2.593	2.202	2.403	2.740
##	[7489]	2.139	2.428	2.549	2.250	1.472	2.148	2.467	2.105	1.872	1.077	1.942	1.950
##	[7501]	1.216	2.132	2.366	2.055	1.862	1.745	1.832	2.017	1.863	2.036	2.329	2.086
##	[7513]	1.855	1.792	2.180	1.573	2.167	2.218	1.992	1.899	2.226	1.599	1.761	1.456
##	[7525]	2.089	1.992	2.099	2.048	1.702	1.709	1.952	1.906	1.881	1.685	2.059	2.120
##	[7537]	2.073	2.103	1.976	2.307	2.220	1.505	1.434	1.899	1.590	1.636	1.882	1.784
##	[7549]	1.644	1.930	2.081	2.120	2.124	2.369	2.102	2.119	2.328	2.175	1.971	2.057
##	[7561]	2.250	2.400	2.267	2.356	2.377	2.337	1.942	2.325	2.345	2.101	2.302	1.242
##	[7573]	2.181	2.059	2.078	1.914	1.539	1.985	1.746	1.375	1.112	2.195	2.116	2.215
##	[7585]	2.187	1.602	2.054	2.157	2.008	2.316	1.363	2.135	1.507	1.985	2.320	2.035
##	[7597]	2.104	1.998	2.172	2.193	1.373	2.071	2.020	2.059	2.307	2.288	2.138	1.998
##	[7609]	2.214	2.316	2.273	2.182	1.768	1.670	2.022	2.371	2.456	2.608	2.346	2.128
##	[7621]	2.302	2.128	2.075	2.320	1.860	2.466	1.670	2.155	2.325	2.012	2.148	1.817
##	[7633]	1.704	2.139	2.280	2.214	2.264	2.056	1.914	2.349	2.313	1.984	1.732	2.333
##	[7645]	2.129	2.207	2.090	1.792	2.268	2.509	2.067	2.351	1.659	1.906	1.670	1.386
##	[7657]	1.782	2.000	1.818	1.942	1.939	2.118	2.033	1.922	1.998	1.688	2.031	2.061
##	[7669]	1.292	1.739	1.262	1.998	1.893	1.866	1.955	1.673	1.774	1.870	1.974	2.060
##	[7681]	2.204	1.732	2.248	2.186	1.451	1.876	1.390	1.922	2.020	1.877	1.670	1.966
##	[7693]	1.943	2.023	2.073	2.160	2.049	2.110	1.992	1.647	2.332	1.876	2.100	1.661
##	[7705]	1.925	2.129	2.223	1.580	1.702	2.055	2.237	2.033	2.199	1.960	2.088	2.068
##	[7717]	2.044	2.234	2.364	2.391	2.527	2.548	2.044	2.075	2.192	2.450	2.620	2.653
##	[7729]	2.610	1.898	2.432	2.024	2.278	1.774	2.190	1.360	2.127	1.628	1.773	1.730
##	[7741]	2.004	2.415	2.127	2.442	2.398	2.067	2.432	2.502	1.969	2.092	2.292	2.354
##	[7753]	1.884	1.501	1.936	1.957	1.863	1.768	2.147	1.550	2.345	1.820	2.348	1.644
##	[7765]	2.016	1.884	1.964	2.117	2.170	2.340	2.388	2.412	2.154	2.407	2.212	2.039
##	[7777]	2.090	1.312	2.034	2.075	2.055	1.902	1.181	1.630	2.009	2.140	1.990	2.039
##	[7789]	2.207	1.891	2.142	2.242	2.230	2.003	2.028	1.274	2.168	2.342	2.194	2.366
##	[7801]	2.268	2.248	2.468	2.304	2.436	2.055	2.019	2.063	2.153	2.178	2.189	2.261
##	[7813]	1.653	1.376	2.109	2.002	1.978	2.371	2.417	2.132	1.961	2.366	1.885	1.750

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## [7825] 1.626 2.189 2.137 2.298 2.348 1.400 2.193 2.252 2.002 2.384 1.888 1.854
## [7837] 1.481 1.799 2.232 2.255 2.413 2.096 1.873 1.964 1.644 1.519 2.178 1.896
## [7849] 2.108 2.147 2.193 1.942 2.300 2.355 2.406 2.424 1.339 1.494 1.766 1.770
## [7861] 2.075 1.946 2.327 1.787 2.093 1.834 2.044 2.224 2.249 2.270 2.203 2.293
## [7873] 2.398 1.912 2.155 2.017 1.993 1.804 2.028 1.729 1.927 1.859 2.021 1.921
## [7885] 1.807 2.084 2.129 2.210 2.229 2.039 2.122 2.249 2.156 2.021 1.869 2.166
## [7897] 1.622 2.048 2.132 1.234 2.030 2.274 2.006 2.083 1.882 2.409 2.113 2.274
## [7909] 2.356 2.474 2.019 2.318 2.087 2.294 2.365 2.282 2.087 2.194 2.106 2.270
## [7921] 2.148 2.504 2.449 1.513 1.983 1.783 2.190 1.908 1.878 1.247 2.107 1.956
## [7933] 2.015 1.789 1.318 2.010 1.802 2.133 2.076 1.966 2.119 1.840 1.942 1.721
## [7945] 1.884 1.913 2.136 1.985 1.656 1.799 1.394 2.176 1.963 1.997 1.799 1.729
## [7957] 1.858 1.979 2.070 2.066 1.273 1.863 1.975 2.204 1.790 1.991 1.857 2.017
## [7969] 1.897 2.239 1.446 1.960 1.597 2.229 2.031 2.027 2.173 2.471 2.444 2.160

```

```
treering + Y
```

```

## Time Series:
## Start = -6000
## End = 1979
## Frequency = 1
## [1] 2.345 2.077 2.545 2.319 2.413 2.069 1.489 2.171 1.887 1.493 1.346 1.846
## [13] 1.837 1.079 1.829 1.919 1.776 1.081 1.876 1.254 2.092 1.659 1.900 1.732
## [25] 1.703 1.690 1.581 1.834 1.838 1.600 1.611 1.704 1.517 1.525 2.086 1.849
## [37] 1.183 1.823 1.433 1.849 2.021 1.813 1.675 1.479 1.824 1.473 2.010 2.297
## [49] 1.917 1.457 1.866 2.121 2.301 2.017 1.676 1.816 2.365 1.759 1.791 2.016
## [61] 1.959 1.966 2.355 1.966 1.771 1.561 2.712 2.514 1.677 1.613 2.265 1.342
## [73] 1.918 2.346 1.786 1.557 2.444 2.516 2.329 2.071 2.105 2.211 2.491 2.105
## [85] 2.285 2.202 2.587 1.663 2.139 2.073 1.659 1.821 2.080 2.149 1.863 1.889
## [97] 2.175 1.938 2.007 2.180 2.230 2.249 2.435 1.418 1.590 1.576 2.001 1.138
## [109] 2.356 1.914 1.637 2.170 1.841 1.880 1.894 1.889 1.482 1.170 2.148 1.905
## [121] 1.642 1.717 1.107 1.686 1.254 1.961 1.789 2.121 2.362 2.047 2.082 1.239
## [133] 1.621 1.471 1.744 1.450 2.167 2.130 2.039 1.329 2.351 2.150 1.998 2.052
## [145] 2.283 2.245 2.395 2.223 1.593 2.325 1.741 2.533 2.480 2.311 1.970 1.924
## [157] 2.219 2.337 1.671 2.195 1.999 2.299 2.317 2.785 1.711 2.196 2.144 2.036
## [169] 2.285 2.070 2.076 1.758 1.348 1.826 1.923 2.108 2.294 2.320 2.061 1.418
## [181] 2.205 1.212 2.315 2.186 1.995 1.914 1.728 2.068 1.896 1.881 1.483 1.490
## [193] 2.095 2.379 1.832 2.101 1.876 1.992 2.013 1.873 2.065 1.621 2.041 2.108
## [205] 2.114 2.082 1.851 2.085 2.390 2.406 2.163 2.387 2.357 1.463 1.547 2.277
## [217] 2.108 1.996 2.085 2.391 2.075 1.913 2.299 2.259 2.320 2.122 2.491 2.298
## [229] 2.112 2.305 2.133 2.180 2.284 2.276 2.099 1.881 2.000 2.173 2.130 2.084
## [241] 1.999 2.235 2.119 2.049 2.089 2.233 2.304 2.280 2.208 1.874 1.962 2.372
## [253] 2.224 2.117 2.121 2.480 2.675 2.298 1.996 2.306 2.027 1.823 2.424 2.041
## [265] 1.463 2.130 1.909 2.369 1.982 2.080 2.419 2.286 2.581 1.875 1.359 1.319
## [277] 1.874 2.145 1.807 1.964 1.892 1.442 1.948 2.013 1.897 2.153 2.145 1.628
## [289] 1.325 2.325 2.047 1.911 2.376 1.975 2.099 1.632 1.934 2.175 1.810 1.855
## [301] 2.407 2.126 2.148 1.787 1.835 2.101 1.761 1.907 2.149 1.865 1.785 2.250
## [313] 1.646 1.937 1.925 1.792 2.212 1.987 1.409 2.062 1.634 2.006 2.210 2.315
## [325] 1.960 1.470 2.010 1.729 2.212 1.851 2.114 2.016 1.954 1.380 2.178 2.251
## [337] 2.194 2.103 2.258 1.836 2.136 1.884 1.498 1.084 2.286 1.490 2.037 1.986
## [349] 2.073 1.381 2.001 1.878 2.136 1.783 1.917 1.802 1.866 1.728 2.264 2.203
## [361] 2.402 2.347 2.234 2.069 2.356 2.526 2.345 1.790 2.500 1.752 1.940 2.121
## [373] 2.186 2.065 2.164 2.469 1.817 1.185 2.433 2.555 2.201 2.317 1.955 2.005
## [385] 1.901 1.821 1.479 1.750 1.182 1.936 2.058 2.074 1.934 1.903 1.309 1.786
## [397] 1.585 1.811 1.969 2.089 1.581 1.990 1.900 1.800 1.771 1.919 1.800 1.658

```


##	[409]	1.328	1.698	1.929	1.677	1.401	2.109	1.274	1.668	1.960	1.221	2.025	2.083
##	[421]	1.593	1.994	1.861	1.588	1.923	2.107	1.693	1.882	1.591	1.660	2.075	2.146
##	[433]	1.965	1.795	2.061	1.946	1.705	1.744	2.063	2.182	2.136	2.229	1.653	1.892
##	[445]	1.696	1.465	1.962	2.170	1.911	2.293	2.088	1.853	2.146	1.578	1.900	1.975
##	[457]	2.191	1.481	1.155	2.455	2.233	1.930	2.131	2.304	2.393	2.128	1.801	2.619
##	[469]	2.423	2.606	2.395	2.291	2.456	2.674	2.256	2.135	2.190	2.167	2.065	2.292
##	[481]	1.575	2.505	2.239	1.993	1.925	1.988	2.171	2.133	2.412	2.070	2.272	1.790
##	[493]	2.082	2.179	2.109	2.588	2.053	2.123	2.246	2.361	1.860	1.146	2.252	2.350
##	[505]	1.907	2.464	2.067	1.827	1.769	1.875	1.668	1.999	2.252	2.439	2.206	1.797
##	[517]	1.724	1.867	2.333	2.306	2.058	2.440	2.239	2.611	2.403	1.754	1.129	2.075
##	[529]	1.841	1.752	2.446	2.010	2.034	2.016	1.396	2.101	1.645	2.342	2.146	1.943
##	[541]	1.755	2.406	1.860	1.890	2.010	1.850	1.444	1.573	1.190	1.985	1.873	2.209
##	[553]	1.689	1.604	2.035	2.120	2.138	1.935	1.268	2.051	1.935	1.679	1.909	1.819
##	[565]	2.106	2.024	2.352	1.796	2.122	2.472	2.342	2.404	1.978	1.612	2.077	2.020
##	[577]	2.311	2.279	1.648	2.193	1.761	2.070	1.716	1.804	2.326	2.551	1.858	1.406
##	[589]	1.851	2.007	1.955	1.612	2.029	1.619	2.024	2.256	2.022	2.063	1.631	1.788
##	[601]	2.154	2.336	2.206	1.955	1.992	1.680	2.042	2.225	2.762	2.018	1.684	1.097
##	[613]	2.079	1.888	2.080	2.205	1.927	1.926	2.320	2.407	2.014	1.812	2.152	2.351
##	[625]	2.013	1.183	1.362	2.059	2.280	1.002	1.938	2.009	1.830	2.300	2.058	1.691
##	[637]	1.809	1.217	1.157	1.588	1.748	2.109	2.096	1.626	1.907	1.767	2.178	1.887
##	[649]	1.599	1.930	2.149	2.052	2.187	2.309	1.973	1.908	2.330	1.624	2.660	1.967
##	[661]	2.397	2.289	2.587	2.517	2.254	2.077	2.147	2.234	2.646	2.657	2.844	2.288
##	[673]	1.875	2.053	2.229	2.051	2.665	1.298	2.272	2.277	2.458	2.139	1.613	1.091
##	[685]	1.803	1.251	1.877	1.875	1.909	1.371	2.433	2.517	2.119	2.316	2.265	2.187
##	[697]	2.225	2.064	1.793	2.148	1.761	2.264	1.681	2.103	1.339	1.930	2.182	2.540
##	[709]	2.397	2.429	1.573	2.658	2.243	2.339	2.433	2.484	1.652	2.185	2.416	2.365
##	[721]	1.959	2.065	2.047	2.396	1.215	2.383	1.943	2.474	2.136	2.134	2.339	2.633
##	[733]	1.853	2.684	2.172	2.730	2.850	2.555	2.422	1.894	1.578	2.081	1.738	2.175
##	[745]	2.247	1.306	2.275	1.752	2.071	1.632	1.702	2.505	1.729	1.918	1.410	1.373
##	[757]	1.601	2.158	1.571	2.324	1.267	2.039	1.803	1.886	1.511	1.723	2.045	2.121
##	[769]	1.959	2.006	1.829	1.970	2.360	2.048	2.179	1.542	2.229	1.630	1.360	1.790
##	[781]	2.051	1.660	2.181	2.512	2.302	2.403	2.289	1.914	2.020	1.916	1.026	1.749
##	[793]	1.837	1.357	1.591	1.555	1.560	1.791	1.691	1.585	1.741	1.967	1.906	1.865
##	[805]	2.161	1.563	2.045	1.691	1.957	2.117	2.269	1.638	2.119	1.810	2.272	1.007
##	[817]	1.801	2.149	1.423	2.400	1.954	1.905	2.349	2.342	1.496	1.615	1.463	1.857
##	[829]	2.263	2.022	1.952	1.807	2.007	2.069	2.425	1.377	1.661	1.896	2.373	2.205
##	[841]	2.387	2.514	1.719	2.183	1.726	2.178	2.102	2.185	2.497	1.687	2.377	2.438
##	[853]	2.564	2.224	1.617	2.647	2.640	1.849	1.870	2.004	1.769	1.650	1.962	1.433
##	[865]	2.129	2.427	1.702	1.964	2.326	2.012	1.754	1.791	1.559	2.027	1.420	2.436
##	[877]	1.729	1.964	2.282	2.053	1.943	1.427	1.161	1.839	2.160	1.908	2.477	2.292
##	[889]	2.344	2.354	1.546	2.412	1.451	2.158	2.526	2.626	2.221	1.861	2.027	1.584
##	[901]	1.133	1.834	2.111	2.212	2.366	2.586	2.153	1.523	1.712	2.042	2.082	2.675
##	[913]	2.236	2.125	1.328	2.316	2.116	1.929	2.077	2.003	2.263	1.752	2.231	1.491
##	[925]	2.139	2.417	2.472	2.156	2.080	2.619	2.004	2.077	1.425	1.914	2.041	2.242
##	[937]	2.356	1.737	1.927	1.853	2.294	2.307	2.197	1.847	1.733	1.400	2.038	1.944
##	[949]	2.237	2.299	2.126	1.534	2.394	2.323	2.007	2.642	2.043	2.045	1.971	2.219
##	[961]	2.091	1.482	1.927	2.104	2.194	2.445	2.442	2.300	1.800	1.206	2.321	2.233
##	[973]	1.986	1.521	2.177	1.191	1.896	1.666	1.880	2.023	2.592	1.764	1.851	1.783
##	[985]	1.869	1.606	2.160	1.946	1.628	1.897	2.067	2.046	2.368	2.624	2.719	2.029
##	[997]	1.912	1.974	2.620	2.558	2.549	1.554	1.699	1.431	1.605	2.335	2.215	2.162
##	[1009]	2.040	2.029	2.209	1.653	2.060	1.285	1.925	2.084	1.681	1.266	1.692	1.893
##	[1021]	2.338	2.196	1.938	1.233	1.904	2.346	1.372	2.672	2.675	1.796	2.005	1.937
##	[1033]	1.129	1.939	1.837	1.883	2.102	1.421	1.869	1.670	2.141	2.287	1.650	1.117
##	[1045]	1.990	1.753	2.269	2.262	2.124	2.107	2.515	2.245	2.144	1.851	2.381	2.197

```

## [1057] 2.169 1.218 1.227 2.584 1.927 1.975 1.811 1.742 1.827 2.348 2.688 2.399
## [1069] 1.757 1.801 2.362 1.964 1.242 2.094 1.847 2.203 2.089 2.233 2.173 2.115
## [1081] 2.189 1.884 1.779 1.784 2.266 2.225 1.677 2.137 1.919 2.691 2.123 2.457
## [1093] 2.223 2.119 1.565 1.907 1.945 1.942 2.509 2.486 1.945 1.582 2.075 1.969
## [1105] 1.672 1.816 1.928 1.814 1.945 1.439 1.896 2.434 2.211 2.519 2.068 1.677
## [1117] 2.323 1.794 2.124 2.057 1.933 2.222 2.039 1.958 1.357 1.562 2.055 1.706
## [1129] 1.850 1.875 2.245 1.692 2.063 2.026 1.928 1.395 2.012 1.453 2.262 1.926
## [1141] 2.532 1.952 1.456 2.187 2.856 2.436 2.586 1.963 2.075 2.220 1.989 2.340
## [1153] 2.705 2.242 2.252 1.615 2.384 2.052 1.994 1.624 2.091 1.771 1.854 1.787
## [1165] 1.111 1.369 1.786 2.350 1.980 1.720 1.998 2.266 2.205 2.572 1.918 1.744
## [1177] 1.651 2.007 2.345 2.436 1.809 1.721 1.723 2.121 2.028 1.599 2.407 1.562
## [1189] 1.712 2.020 2.217 2.498 1.539 1.836 1.894 1.924 1.749 1.961 2.164 2.413
## [1201] 2.062 1.481 1.721 2.160 1.682 1.653 2.496 2.116 1.929 1.668 2.334 1.775
## [1213] 1.896 1.972 2.374 1.952 1.929 1.757 1.816 2.167 2.010 1.166 1.402 1.143
## [1225] 2.050 1.878 1.783 1.912 1.998 1.211 1.738 2.341 1.994 2.280 2.575 1.886
## [1237] 2.323 2.248 1.492 1.944 1.612 1.889 1.616 1.933 1.916 1.838 2.028 2.000
## [1249] 2.290 1.737 1.618 2.056 2.130 2.490 2.242 1.786 1.549 1.709 1.419 2.435
## [1261] 2.363 1.823 2.239 2.573 2.080 1.666 1.604 2.452 1.652 1.741 1.687 1.804
## [1273] 1.789 2.152 2.143 2.107 2.183 2.021 2.570 2.615 2.464 2.061 1.598 2.076
## [1285] 2.625 2.497 2.633 2.820 2.221 1.296 2.391 1.691 2.265 2.202 2.245 1.829
## [1297] 1.470 2.614 1.287 1.776 2.077 1.696 1.968 1.562 1.793 2.206 1.586 2.332
## [1309] 2.300 2.109 1.918 1.877 1.994 1.910 2.163 2.146 1.914 1.774 1.784 1.468
## [1321] 2.116 2.118 2.232 2.015 1.874 1.988 1.809 1.221 2.374 2.405 2.243 2.091
## [1333] 1.568 1.775 2.386 2.308 2.711 2.459 2.218 1.923 1.828 2.469 1.838 2.219
## [1345] 2.239 2.750 2.124 1.872 1.963 1.965 2.068 2.169 2.132 2.129 2.011 1.680
## [1357] 2.098 1.945 2.429 2.006 1.838 1.509 1.747 2.231 2.468 2.320 2.088 2.221
## [1369] 1.327 2.043 2.003 1.013 1.360 1.091 2.565 2.170 2.365 1.919 1.916 2.005
## [1381] 2.364 1.166 1.873 2.271 2.059 1.694 1.399 2.466 1.873 1.852 1.837 2.110
## [1393] 1.564 2.153 1.000 2.252 2.013 1.508 1.834 2.121 1.991 2.207 2.518 2.027
## [1405] 1.314 1.456 1.902 2.146 2.175 2.131 2.525 2.683 2.011 2.189 1.903 2.022
## [1417] 2.568 2.170 2.214 2.274 2.040 2.143 2.365 1.866 2.121 1.618 2.271 2.549
## [1429] 2.262 1.982 2.228 1.054 2.483 2.577 2.038 1.972 1.603 1.802 2.201 2.340
## [1441] 2.029 1.634 1.842 2.178 2.428 1.954 1.902 1.876 2.200 2.234 2.416 2.195
## [1453] 1.798 1.709 2.109 2.071 2.124 2.130 1.693 1.833 2.259 1.985 2.232 2.383
## [1465] 1.910 2.480 2.561 2.697 2.067 2.496 2.884 1.943 1.982 2.570 2.125 2.516
## [1477] 2.326 1.874 2.374 2.039 2.192 1.771 1.312 1.825 1.981 1.569 1.565 2.011
## [1489] 2.025 1.901 2.261 2.092 2.027 2.021 2.125 1.817 2.107 2.077 2.387 2.026
## [1501] 2.101 1.917 1.630 2.035 2.033 2.051 2.062 1.928 2.042 1.744 1.471 2.108
## [1513] 1.976 1.221 1.786 1.918 1.915 1.946 1.629 2.123 2.025 1.854 2.187 1.572
## [1525] 1.798 2.482 1.874 1.394 2.397 1.707 2.475 2.587 2.027 1.569 2.190 1.666
## [1537] 2.338 1.991 2.498 2.020 2.248 2.158 1.960 2.194 2.216 1.883 2.262 2.673
## [1549] 2.076 2.227 2.036 2.028 2.510 2.493 2.137 1.669 2.175 1.789 2.423 2.334
## [1561] 1.819 1.894 1.943 2.017 2.176 2.329 2.155 1.962 2.207 1.384 1.345 1.898
## [1573] 1.486 1.891 2.200 2.339 1.850 1.829 2.453 2.276 1.744 2.403 1.788 1.663
## [1585] 1.773 1.933 1.904 1.916 2.038 2.288 1.867 1.051 1.506 2.107 2.215 2.105
## [1597] 2.411 2.573 2.730 2.252 2.779 2.525 2.604 2.416 2.330 2.452 2.200 2.328
## [1609] 2.229 2.184 2.327 2.394 2.051 2.295 1.404 2.184 2.312 1.818 2.203 1.426
## [1621] 1.946 1.798 1.991 1.997 1.303 1.873 1.612 2.269 2.059 2.160 2.002 1.992
## [1633] 2.406 1.269 1.648 1.823 1.652 2.053 1.976 2.404 1.692 2.001 2.050 2.372
## [1645] 1.935 1.206 1.411 2.019 2.271 1.982 2.307 1.947 1.841 2.217 2.162 1.656
## [1657] 2.089 1.569 2.129 2.441 2.176 2.229 2.340 2.100 2.071 1.217 1.917 1.952
## [1669] 2.192 2.128 2.322 2.418 2.406 1.430 2.253 1.751 2.343 1.944 1.936 2.095
## [1681] 1.885 2.074 1.910 1.972 2.222 1.805 2.042 2.109 1.881 1.682 1.912 1.676
## [1693] 1.718 2.399 1.690 1.772 2.047 1.852 2.075 1.725 1.646 1.823 2.163 1.844

```

##	[1705]	2.132	2.082	2.651	2.445	2.176	1.976	1.845	1.257	1.800	2.165	2.159	2.143
##	[1717]	2.110	2.135	1.779	1.599	2.028	2.080	2.210	2.131	2.156	2.117	2.239	1.786
##	[1729]	1.978	1.892	2.129	2.074	1.878	2.043	2.019	1.898	1.309	2.083	2.386	2.414
##	[1741]	2.315	2.199	1.146	1.988	1.614	1.858	2.063	1.885	2.047	2.085	1.873	1.768
##	[1753]	2.129	1.676	1.743	1.514	1.795	1.923	2.028	2.383	2.081	2.036	2.454	1.970
##	[1765]	1.758	2.082	1.741	1.570	2.041	2.093	2.381	2.325	1.811	2.012	1.854	1.595
##	[1777]	2.015	1.890	1.807	1.719	2.119	1.980	2.281	2.172	1.832	2.033	2.161	1.948
##	[1789]	2.029	2.317	2.248	1.984	2.400	1.775	1.685	1.818	1.823	1.656	1.855	1.259
##	[1801]	1.134	1.873	1.607	1.647	1.978	1.894	1.580	1.476	1.693	2.075	1.930	2.122
##	[1813]	2.148	1.807	2.242	1.978	2.005	2.257	2.471	2.345	2.206	2.502	1.634	1.879
##	[1825]	1.799	1.963	2.114	2.344	2.052	1.988	1.340	2.037	1.346	1.528	2.197	2.323
##	[1837]	2.503	2.136	2.146	2.258	1.419	2.017	2.140	2.175	1.724	1.978	1.671	1.617
##	[1849]	1.792	2.124	2.027	2.011	2.121	1.926	2.018	1.968	1.913	2.202	2.355	2.196
##	[1861]	2.152	2.170	2.072	1.440	1.773	2.165	2.157	2.336	2.510	1.883	1.849	1.446
##	[1873]	1.862	1.968	1.909	2.071	2.241	1.936	1.550	2.143	2.177	1.906	2.084	1.984
##	[1885]	2.075	1.918	1.783	1.872	2.354	2.069	1.869	1.895	2.063	1.965	2.189	2.002
##	[1897]	2.012	1.119	2.202	2.121	1.724	1.840	2.211	1.687	1.728	1.992	2.243	2.364
##	[1909]	1.816	1.828	1.843	1.865	1.660	1.718	1.404	2.114	1.593	1.632	1.707	1.883
##	[1921]	1.764	1.827	1.765	1.789	2.055	1.859	2.078	1.300	1.839	2.052	2.280	2.423
##	[1933]	2.515	1.996	1.876	1.885	2.049	1.201	2.138	1.704	1.685	1.770	1.148	1.918
##	[1945]	1.469	1.984	1.850	1.534	1.696	1.852	1.648	1.542	1.869	2.204	2.361	2.195
##	[1957]	2.084	1.494	1.925	1.955	1.896	1.682	2.084	2.246	2.135	2.307	1.919	1.985
##	[1969]	1.903	2.004	1.532	1.865	1.944	2.017	1.780	1.644	1.901	2.144	1.928	1.705
##	[1981]	2.085	2.127	1.939	2.035	1.937	2.124	2.272	2.601	2.394	1.886	1.809	2.289
##	[1993]	1.932	1.781	1.834	2.445	2.374	2.090	1.837	2.643	2.410	1.995	2.041	2.389
##	[2005]	2.587	2.227	1.966	1.893	1.096	2.164	1.835	1.334	1.876	1.838	1.532	1.770
##	[2017]	2.079	2.204	2.135	1.405	1.986	2.115	2.159	2.227	2.506	2.070	2.292	2.326
##	[2029]	1.689	2.024	2.407	1.594	2.057	2.177	2.524	2.206	2.074	2.042	1.925	1.669
##	[2041]	1.776	1.822	1.998	1.883	2.176	1.825	1.533	1.594	2.022	1.567	1.047	1.708
##	[2053]	1.900	1.882	1.738	1.712	1.783	2.079	1.995	1.783	1.853	2.016	1.942	1.929
##	[2065]	1.852	1.569	2.157	1.841	2.250	1.910	1.651	1.725	1.682	2.195	1.485	1.612
##	[2077]	1.963	2.286	2.293	2.158	1.967	2.238	1.031	2.241	2.019	2.013	1.949	1.519
##	[2089]	1.842	1.664	1.925	1.633	2.162	1.935	2.226	2.249	2.096	1.882	2.084	1.499
##	[2101]	1.883	1.851	2.204	2.174	2.226	1.769	2.023	1.516	2.108	1.748	1.939	1.706
##	[2113]	2.148	2.216	2.197	1.890	2.015	2.228	1.870	2.036	2.410	2.440	1.074	1.719
##	[2125]	2.081	1.699	2.311	2.208	2.217	1.633	2.279	2.112	2.031	2.151	1.699	1.939
##	[2137]	2.200	2.184	2.168	2.179	1.906	1.557	1.621	2.061	2.141	2.045	2.395	2.373
##	[2149]	2.121	1.736	2.072	1.996	2.198	2.235	2.383	1.593	1.991	1.778	2.081	2.453
##	[2161]	2.063	1.720	2.028	1.661	2.065	1.195	1.944	2.098	2.068	2.134	2.460	1.322
##	[2173]	1.736	1.876	1.980	1.555	1.817	1.940	2.338	1.499	2.562	2.205	2.431	2.509
##	[2185]	2.908	1.403	2.237	2.032	2.106	1.183	2.310	2.399	2.293	2.128	2.225	2.104
##	[2197]	1.209	1.850	1.434	1.703	2.148	1.462	2.204	2.166	1.636	2.254	2.089	2.330
##	[2209]	2.128	2.221	2.313	2.041	1.910	1.938	1.856	1.827	2.010	1.932	2.075	1.919
##	[2221]	1.221	1.820	1.644	1.596	1.771	1.680	1.813	1.116	2.011	2.063	1.743	2.019
##	[2233]	2.170	1.773	1.462	1.866	2.123	2.184	2.047	2.245	2.351	2.179	2.204	1.829
##	[2245]	1.847	1.985	1.464	2.124	2.104	2.167	1.914	1.339	2.205	2.154	1.844	1.987
##	[2257]	1.840	2.083	2.183	1.496	1.930	2.074	2.028	1.984	2.136	1.662	2.073	2.170
##	[2269]	2.184	2.361	2.049	1.967	1.888	1.900	2.158	1.841	1.633	1.892	1.558	1.051
##	[2281]	2.091	2.156	2.179	2.096	2.213	2.446	2.574	2.107	2.179	2.060	1.731	2.215
##	[2293]	2.356	2.026	1.942	2.176	1.932	2.287	2.242	2.490	2.373	1.643	1.304	1.959
##	[2305]	1.605	2.103	2.319	2.157	1.786	1.817	1.537	2.489	2.378	1.972	2.164	2.030
##	[2317]	2.158	2.304	2.270	1.945	2.137	1.092	2.229	2.267	2.182	2.104	2.654	2.251
##	[2329]	2.051	2.224	2.024	1.805	1.297	1.937	1.997	2.032	1.893	2.273	2.431	1.932
##	[2341]	1.184	2.210	2.257	2.303	2.073	2.497	2.178	2.046	1.999	1.772	2.227	1.636

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##	[5593]	1.972	2.213	2.199	1.773	1.771	2.251	2.165	2.027	2.033	2.067	1.761	1.623
##	[5605]	1.982	1.690	1.767	1.752	1.299	2.038	1.984	2.021	1.945	1.971	2.057	1.682
##	[5617]	1.740	1.945	1.940	1.947	2.253	1.953	1.484	1.722	1.997	2.152	2.086	2.233
##	[5629]	2.024	2.132	2.328	2.187	1.536	2.052	1.888	2.061	1.494	1.721	1.981	1.935
##	[5641]	2.093	1.564	1.800	1.889	1.935	1.767	2.059	1.999	1.950	1.961	2.009	2.045
##	[5653]	2.031	1.782	1.486	1.178	1.989	1.805	1.600	1.961	2.195	2.215	2.344	2.099
##	[5665]	1.367	2.008	2.073	2.116	2.116	2.070	2.220	2.170	2.007	1.415	1.841	1.967
##	[5677]	1.471	1.457	1.964	2.158	2.254	2.293	2.109	1.987	1.406	2.052	2.022	1.493
##	[5689]	2.133	2.283	2.055	2.033	1.944	1.698	1.355	2.158	1.984	1.926	1.789	1.568
##	[5701]	1.958	1.471	2.089	1.941	1.789	1.894	2.064	1.947	2.101	1.837	1.998	1.945
##	[5713]	1.784	2.043	2.385	2.349	2.020	1.898	1.930	1.686	1.966	1.886	1.488	2.000
##	[5725]	2.091	1.957	2.173	2.014	2.066	1.746	1.709	2.011	2.086	2.014	1.165	2.282
##	[5737]	2.139	2.006	2.116	2.142	2.331	1.899	2.052	2.213	2.263	2.069	1.920	2.346
##	[5749]	2.318	2.204	2.219	1.769	2.127	2.042	2.225	2.435	1.852	2.208	2.148	2.570
##	[5761]	2.246	2.406	1.528	1.979	1.996	2.070	2.152	2.294	2.180	2.118	2.117	1.884
##	[5773]	2.003	1.938	2.148	2.209	2.110	1.698	2.002	2.046	1.939	1.503	2.066	1.971
##	[5785]	1.662	2.093	2.134	1.855	2.112	2.115	2.016	1.666	2.037	2.385	2.116	2.146
##	[5797]	1.934	2.208	1.555	1.366	2.073	2.049	2.092	2.010	1.778	1.370	1.840	1.944
##	[5809]	1.777	2.197	2.155	2.164	2.232	2.179	2.180	1.875	2.223	2.183	1.920	1.969
##	[5821]	1.810	2.116	2.330	2.212	2.150	2.236	2.116	2.191	2.259	2.035	2.027	1.911
##	[5833]	2.255	2.212	2.436	2.290	2.430	1.835	2.295	2.720	2.360	1.352	1.724	2.319
##	[5845]	2.315	2.591	2.503	2.122	2.552	2.454	2.231	1.590	1.995	2.467	2.295	2.197
##	[5857]	1.844	2.324	1.999	2.076	1.824	1.949	2.081	1.937	1.529	2.021	1.957	2.092
##	[5869]	1.596	1.735	1.598	1.891	2.178	2.249	2.211	2.008	2.090	2.407	2.294	2.423
##	[5881]	2.313	2.341	2.423	2.397	2.379	2.219	2.234	1.822	1.847	2.097	2.344	2.388
##	[5893]	2.001	2.025	2.181	1.620	2.047	2.112	1.957	2.034	2.284	2.276	2.313	2.102
##	[5905]	2.106	2.132	2.249	2.154	2.340	1.741	2.184	1.908	2.244	2.344	2.328	1.725
##	[5917]	2.126	1.831	1.774	1.882	1.071	2.091	2.101	2.075	2.088	2.119	2.158	2.011
##	[5929]	2.016	2.129	1.664	1.849	2.063	2.171	2.304	2.108	2.258	2.367	1.386	2.130
##	[5941]	2.048	2.229	2.238	2.350	2.423	2.168	2.117	2.177	2.247	1.944	2.161	1.272
##	[5953]	2.212	1.920	1.733	2.035	2.109	2.066	2.102	1.919	2.090	2.152	1.920	2.040
##	[5965]	2.186	1.580	1.232	1.463	2.225	2.113	2.192	2.207	2.012	1.736	1.922	2.028
##	[5977]	1.392	2.026	2.393	2.157	2.031	1.884	2.153	2.107	1.794	2.105	2.293	2.481
##	[5989]	2.296	1.986	2.206	1.398	1.976	1.968	1.669	1.578	2.004	2.067	2.175	2.336
##	[6001]	2.265	2.131	2.201	2.460	2.448	2.120	2.256	1.539	2.069	2.204	2.182	2.186
##	[6013]	2.122	2.156	1.477	1.107	1.291	1.706	2.147	2.059	1.480	1.978	1.998	1.899
##	[6025]	2.200	2.248	2.445	2.524	2.268	1.629	2.350	1.390	2.210	2.293	2.358	2.550
##	[6037]	2.675	1.314	2.403	2.460	2.298	2.447	1.612	2.232	1.801	2.088	1.814	2.145
##	[6049]	2.096	2.246	2.297	2.371	2.236	1.643	2.134	2.086	1.534	2.106	2.136	2.026
##	[6061]	2.094	2.158	2.018	1.751	1.886	1.551	2.119	1.432	2.150	1.741	1.975	1.438
##	[6073]	2.171	1.951	2.171	1.805	2.189	2.210	2.214	2.235	2.275	2.396	2.006	1.514
##	[6085]	1.952	1.760	1.766	1.438	2.190	2.431	2.322	2.279	2.333	2.101	2.012	1.943
##	[6097]	2.412	2.185	1.959	2.050	1.375	1.746	2.246	2.125	2.152	2.224	2.022	2.017
##	[6109]	2.039	1.098	2.354	2.318	2.011	2.218	2.204	2.182	2.190	2.045	1.663	2.094
##	[6121]	2.199	2.293	2.082	1.741	2.380	2.263	2.209	2.148	2.343	2.295	2.264	1.840
##	[6133]	2.330	2.076	2.266	2.220	2.157	2.044	2.371	2.146	2.194	2.335	2.218	1.772
##	[6145]	2.085	1.672	2.013	1.495	2.434	2.424	1.626	1.424	1.721	2.018	2.227	2.092
##	[6157]	2.495	2.585	2.209	2.272	2.118	2.198	1.812	2.367	1.969	1.930	2.158	2.150
##	[6169]	1.718	1.899	2.011	2.055	1.651	2.048	1.685	1.972	1.690	2.109	1.612	1.945
##	[6181]	2.294	2.117	2.477	2.275	2.365	2.432	2.481	2.577	2.234	2.026	2.005	2.542
##	[6193]	2.342	2.658	2.305	2.157	2.023	1.547	2.149	2.464	2.048	2.065	1.995	2.319
##	[6205]	2.507	2.268	2.535	1.900	1.754	2.033	1.954	1.992	2.293	2.165	1.769	1.863
##	[6217]	2.332	2.210	2.223	2.051	2.032	2.080	2.124	1.873	2.126	1.995	1.759	2.151
##	[6229]	2.312	2.153	2.000	2.001	2.343	1.849	1.908	1.388	1.077	2.313	2.051	1.957

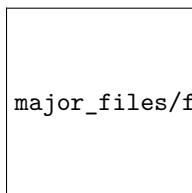
##	[6241]	2.313	2.226	1.920	1.924	1.847	1.965	1.953	2.156	1.923	2.128	2.012	1.843
##	[6253]	2.101	2.228	2.216	1.341	2.140	1.989	1.941	2.066	2.356	1.728	1.796	2.065
##	[6265]	2.171	2.116	2.315	2.338	2.349	2.220	1.750	2.153	2.219	2.344	1.601	2.209
##	[6277]	2.459	2.235	1.822	1.802	2.343	2.594	2.255	2.356	2.249	2.134	2.504	2.254
##	[6289]	2.597	2.277	2.324	2.040	1.856	1.888	1.046	2.409	2.260	2.252	2.226	2.509
##	[6301]	2.392	2.281	2.225	2.233	2.308	1.161	1.554	1.771	1.565	1.948	2.164	2.252
##	[6313]	1.892	2.038	2.159	2.080	2.026	2.178	2.184	2.109	1.854	1.295	2.264	1.554
##	[6325]	1.806	1.981	2.010	2.175	2.271	2.292	2.555	2.349	2.190	1.681	1.828	2.289
##	[6337]	1.973	2.083	2.419	2.068	2.031	2.037	2.178	2.475	1.704	2.363	2.273	2.151
##	[6349]	2.077	2.237	2.378	2.318	2.166	1.919	2.211	2.273	1.981	2.178	2.220	2.073
##	[6361]	2.258	1.127	2.042	1.892	2.031	2.210	2.184	2.162	2.327	1.119	1.601	1.797
##	[6373]	2.079	2.034	2.075	2.164	1.567	1.650	1.754	2.108	2.041	2.227	1.974	2.057
##	[6385]	2.063	1.749	1.249	1.979	1.968	1.923	1.937	1.936	1.913	2.322	2.071	2.245
##	[6397]	2.197	2.069	2.264	2.057	1.887	1.973	1.776	1.848	1.790	2.272	1.890	2.073
##	[6409]	2.273	1.974	2.106	2.008	2.112	1.976	1.907	2.188	1.548	2.206	1.983	1.815
##	[6421]	1.882	1.910	2.137	2.151	2.115	2.001	1.956	2.106	2.251	2.039	2.321	1.744
##	[6433]	2.302	2.365	2.117	2.346	2.088	1.589	2.065	1.920	2.042	1.816	1.035	1.884
##	[6445]	2.149	2.281	1.525	1.812	2.092	1.196	2.236	1.580	2.194	2.353	2.405	1.791
##	[6457]	2.162	2.373	2.238	2.156	2.101	1.900	1.881	1.625	1.781	1.943	2.014	1.858
##	[6469]	1.991	1.947	1.935	1.726	1.617	1.785	1.535	2.104	2.006	1.923	1.830	2.005
##	[6481]	2.284	2.036	1.988	2.170	2.068	2.038	1.687	2.176	1.842	2.007	1.763	1.796
##	[6493]	2.078	2.080	2.093	2.459	2.440	2.058	2.323	2.218	2.023	1.714	2.205	2.172
##	[6505]	2.276	2.136	2.027	1.826	2.171	2.160	2.373	2.064	1.934	1.641	1.790	1.793
##	[6517]	1.929	1.673	1.524	1.805	1.775	2.138	2.191	2.108	2.043	1.672	1.792	1.899
##	[6529]	1.683	1.937	1.995	1.619	2.109	2.174	2.074	1.832	1.446	2.074	2.143	1.885
##	[6541]	2.222	1.922	1.637	1.808	1.714	1.697	1.904	1.857	2.257	2.086	2.364	2.157
##	[6553]	2.400	2.145	1.134	2.274	2.244	2.255	2.051	2.088	2.325	2.093	1.299	1.171
##	[6565]	2.050	1.658	1.505	1.935	1.958	1.299	1.406	1.787	1.702	1.790	1.935	2.078
##	[6577]	2.082	2.051	2.093	1.922	1.641	2.017	2.038	2.244	1.852	2.088	1.937	2.097
##	[6589]	1.604	1.983	1.752	1.347	2.103	2.271	1.574	1.998	1.531	2.227	2.106	1.950
##	[6601]	2.202	2.105	1.733	1.696	2.001	1.996	1.797	1.945	2.054	2.003	1.536	1.571
##	[6613]	1.679	1.942	1.845	1.535	1.949	2.084	2.117	2.030	1.767	2.095	2.038	2.052
##	[6625]	1.943	1.998	1.790	1.335	2.400	1.902	1.794	2.097	2.088	2.099	2.103	2.157
##	[6637]	2.128	2.149	2.107	1.537	1.773	2.222	2.073	2.040	1.394	1.160	2.105	2.116
##	[6649]	1.937	2.046	2.216	1.427	2.261	1.932	2.086	2.282	2.112	2.086	2.237	2.044
##	[6661]	1.838	1.839	2.088	2.304	1.806	2.037	2.223	1.993	2.251	1.936	2.056	2.308
##	[6673]	2.454	1.870	2.540	2.430	1.726	1.266	1.957	2.207	2.164	1.372	2.552	2.257
##	[6685]	1.862	1.951	2.206	2.260	2.152	2.175	2.357	2.504	2.180	2.294	2.337	2.201
##	[6697]	2.124	2.284	1.860	1.059	2.432	2.332	2.049	2.045	2.527	2.300	2.191	1.602
##	[6709]	2.100	2.057	2.229	2.044	1.955	1.935	1.532	2.044	2.108	1.858	1.962	1.737
##	[6721]	1.524	2.037	2.130	2.098	1.712	2.156	2.145	2.132	2.376	1.799	2.300	2.079
##	[6733]	2.078	1.935	1.869	2.371	2.030	1.885	1.885	1.628	1.275	1.631	2.140	1.690
##	[6745]	1.825	1.831	2.042	2.020	1.939	1.943	1.823	1.908	1.874	1.937	2.244	2.087
##	[6757]	2.168	2.054	2.110	2.244	1.819	1.772	1.138	1.901	1.997	2.098	1.686	1.785
##	[6769]	1.859	1.916	1.968	2.018	2.095	1.843	1.929	2.044	1.823	1.788	1.743	2.127
##	[6781]	2.054	1.699	1.901	1.868	2.305	2.271	2.030	1.960	1.713	1.727	2.004	2.163
##	[6793]	2.107	1.797	1.472	1.922	2.066	1.882	2.052	1.456	2.176	1.908	2.111	2.408
##	[6805]	1.669	2.079	2.134	2.000	1.995	1.027	1.569	2.073	1.714	2.009	1.628	2.246
##	[6817]	2.202	1.470	1.568	1.797	2.144	2.303	2.444	1.505	2.173	1.276	2.121	1.990
##	[6829]	2.361	2.033	1.914	2.152	2.184	2.328	2.161	2.243	2.036	1.927	2.081	2.063
##	[6841]	1.905	1.595	2.388	2.571	2.111	1.860	2.234	1.469	1.984	2.328	1.747	2.099
##	[6853]	2.287	2.220	2.141	2.054	2.070	2.318	2.517	2.320	2.068	2.097	2.169	2.354
##	[6865]	2.284	1.503	1.940	1.106	1.670	1.914	2.214	2.074	2.004	2.039	2.170	2.187
##	[6877]	2.317	2.013	1.644	2.046	2.063	2.152	2.327	1.833	1.513	2.229	1.743	1.850

##	[6889]	1.990	1.850	2.377	2.221	2.309	2.097	2.163	2.005	2.341	2.433	2.195	2.004
##	[6901]	1.804	2.089	1.901	1.722	1.556	2.142	1.845	1.725	1.881	1.880	1.889	1.929
##	[6913]	1.924	1.572	2.016	2.051	1.826	2.322	2.098	1.597	1.382	2.074	1.776	1.433
##	[6925]	1.162	1.881	1.902	1.875	1.935	1.791	1.589	1.819	1.507	1.922	1.972	1.866
##	[6937]	2.029	2.246	1.620	1.904	2.063	2.313	1.967	1.945	1.618	1.978	2.003	2.097
##	[6949]	2.006	2.047	2.176	2.232	1.976	2.001	1.981	1.671	2.015	1.057	2.105	2.089
##	[6961]	2.122	1.212	2.334	2.169	2.172	2.202	2.351	1.472	2.066	1.556	2.334	1.869
##	[6973]	1.752	2.129	2.210	1.943	1.990	2.269	2.025	1.116	1.588	1.261	2.148	1.692
##	[6985]	1.597	1.813	1.562	2.138	2.082	2.138	2.148	2.154	2.242	2.430	2.000	1.085
##	[6997]	2.078	2.062	1.985	2.138	2.258	1.838	2.140	2.177	2.171	1.496	1.926	2.431
##	[7009]	2.001	2.146	1.967	2.125	1.879	1.811	1.605	1.993	2.256	2.082	2.117	1.910
##	[7021]	2.313	1.971	1.818	2.254	2.115	1.813	1.875	1.976	2.015	1.982	2.209	2.173
##	[7033]	2.127	1.824	2.178	1.868	2.018	2.058	2.078	1.914	2.141	2.257	2.280	1.659
##	[7045]	1.895	2.081	2.074	2.209	1.394	1.682	2.311	2.145	2.342	1.678	2.047	1.637
##	[7057]	1.885	2.041	1.883	1.399	1.915	2.256	1.711	1.793	2.052	2.114	1.883	1.625
##	[7069]	1.844	1.874	1.545	1.752	1.686	1.641	1.566	1.881	1.834	1.919	1.535	2.057
##	[7081]	2.067	2.053	2.234	1.854	2.191	2.152	2.263	2.282	2.118	1.957	2.150	2.105
##	[7093]	2.187	1.213	2.163	2.016	2.023	2.111	1.286	2.220	2.238	1.946	1.930	1.203
##	[7105]	2.221	2.261	2.121	2.157	2.167	2.331	2.282	2.092	2.332	1.996	1.746	2.331
##	[7117]	2.166	2.128	1.970	2.121	2.194	2.026	2.251	2.144	2.131	2.564	1.735	1.530
##	[7129]	2.181	2.004	2.028	2.066	1.774	1.025	1.672	1.730	1.847	2.033	2.024	1.888
##	[7141]	1.933	2.071	1.802	2.153	2.141	1.956	1.786	1.691	1.663	1.904	1.733	1.231
##	[7153]	2.103	1.959	1.968	2.111	2.228	1.848	2.051	2.104	1.954	2.013	1.527	2.092
##	[7165]	1.884	2.242	2.101	2.039	1.575	2.358	1.937	1.895	1.613	2.041	2.004	1.460
##	[7177]	1.962	1.837	2.132	2.075	1.863	2.124	2.016	2.167	1.972	1.943	1.656	1.904
##	[7189]	1.873	1.904	2.134	2.023	2.123	2.133	1.779	2.289	1.400	1.757	1.857	1.672
##	[7201]	1.963	2.036	1.978	2.054	2.217	2.000	1.578	2.002	1.724	1.975	2.265	2.303
##	[7213]	2.160	2.124	2.158	1.647	2.214	1.397	1.172	2.275	2.329	1.909	2.280	2.204
##	[7225]	1.934	1.799	2.156	1.132	2.160	2.349	2.135	2.089	2.338	2.021	2.013	2.063
##	[7237]	1.489	2.011	2.183	1.884	2.136	2.252	2.128	1.960	1.892	2.110	1.819	2.020
##	[7249]	2.157	2.363	2.138	2.040	1.976	1.963	1.127	1.878	1.731	2.057	1.381	2.108
##	[7261]	2.213	2.149	2.188	1.955	1.205	2.016	2.183	2.299	2.182	1.578	2.066	2.065
##	[7273]	2.142	1.077	2.125	2.234	1.752	1.673	2.104	2.215	2.337	2.007	1.951	2.116
##	[7285]	1.934	1.148	2.008	2.182	1.525	1.789	1.937	1.992	1.590	1.780	1.906	1.670
##	[7297]	1.563	1.877	1.721	1.707	1.877	1.964	1.980	1.918	1.959	1.845	1.955	1.480
##	[7309]	1.781	1.538	1.886	1.895	1.704	2.146	2.222	1.843	1.810	1.914	1.900	1.705
##	[7321]	1.977	1.971	1.882	1.659	1.791	1.885	1.981	2.076	1.787	1.598	2.473	2.181
##	[7333]	1.915	2.063	1.948	1.849	1.686	2.234	1.416	1.890	1.933	2.227	2.121	2.158
##	[7345]	2.145	2.278	2.333	2.310	2.241	2.046	2.255	1.488	2.499	2.367	1.806	2.099
##	[7357]	2.397	2.342	1.908	2.178	2.123	1.646	1.499	1.834	1.782	1.375	1.844	1.827
##	[7369]	1.966	1.732	2.037	1.727	2.026	1.958	2.144	1.817	1.968	1.288	2.039	1.300
##	[7381]	2.117	1.966	1.913	2.138	2.071	2.174	2.175	1.798	2.086	2.108	1.377	1.906
##	[7393]	2.020	2.199	2.088	2.075	1.890	1.924	2.003	2.009	2.082	2.065	2.304	2.244
##	[7405]	2.188	2.185	2.398	1.856	2.095	2.184	1.940	2.165	1.929	1.879	1.923	2.058
##	[7417]	1.969	2.257	2.320	2.024	2.479	2.113	2.293	2.262	2.425	2.120	1.862	2.144
##	[7429]	2.483	2.176	2.416	2.031	2.063	2.091	1.852	2.212	2.315	1.994	1.795	2.174
##	[7441]	2.278	2.150	1.598	2.210	2.160	2.084	1.856	2.215	1.714	2.060	1.587	2.154
##	[7453]	1.894	2.087	2.105	2.054	1.576	1.451	1.992	2.044	2.115	1.887	1.929	2.348
##	[7465]	2.266	1.972	2.082	2.328	1.756	2.185	2.323	2.100	2.148	1.903	1.864	1.728
##	[7477]	1.711	2.183	2.144	1.585	1.998	2.228	1.958	2.104	2.593	2.202	2.403	2.740
##	[7489]	2.139	2.428	2.549	2.250	1.472	2.148	2.467	2.105	1.872	1.077	1.942	1.950
##	[7501]	1.216	2.132	2.366	2.055	1.862	1.745	1.832	2.017	1.863	2.036	2.329	2.086
##	[7513]	1.855	1.792	2.180	1.573	2.167	2.218	1.992	1.899	2.226	1.599	1.761	1.456
##	[7525]	2.089	1.992	2.099	2.048	1.702	1.709	1.952	1.906	1.881	1.685	2.059	2.120

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## [7681] 2.204 1.732 2.248 2.186 1.451 1.876 1.390 1.922 2.020 1.877 1.670 1.966
## [7693] 1.943 2.023 2.073 2.160 2.049 2.110 1.992 1.647 2.332 1.876 2.100 1.661
## [7705] 1.925 2.129 2.223 1.580 1.702 2.055 2.237 2.033 2.199 1.960 2.088 2.068
## [7717] 2.044 2.234 2.364 2.391 2.527 2.548 2.044 2.075 2.192 2.450 2.620 2.653
## [7729] 2.610 1.898 2.432 2.024 2.278 1.774 2.190 1.360 2.127 1.628 1.773 1.730
## [7741] 2.004 2.415 2.127 2.442 2.398 2.067 2.432 2.502 1.969 2.092 2.292 2.354
## [7753] 1.884 1.501 1.936 1.957 1.863 1.768 2.147 1.550 2.345 1.820 2.348 1.644
## [7765] 2.016 1.884 1.964 2.117 2.170 2.340 2.388 2.412 2.154 2.407 2.212 2.039
## [7777] 2.090 1.312 2.034 2.075 2.055 1.902 1.181 1.630 2.009 2.140 1.990 2.039
## [7789] 2.207 1.891 2.142 2.242 2.230 2.003 2.028 1.274 2.168 2.342 2.194 2.366
## [7801] 2.268 2.248 2.468 2.304 2.436 2.055 2.019 2.063 2.153 2.178 2.189 2.261
## [7813] 1.653 1.376 2.109 2.002 1.978 2.371 2.417 2.132 1.961 2.366 1.885 1.750
## [7825] 1.626 2.189 2.137 2.298 2.348 1.400 2.193 2.252 2.002 2.384 1.888 1.854
## [7837] 1.481 1.799 2.232 2.255 2.413 2.096 1.873 1.964 1.644 1.519 2.178 1.896
## [7849] 2.108 2.147 2.193 1.942 2.300 2.355 2.406 2.424 1.339 1.494 1.766 1.770
## [7861] 2.075 1.946 2.327 1.787 2.093 1.834 2.044 2.224 2.249 2.270 2.203 2.293
## [7873] 2.398 1.912 2.155 2.017 1.993 1.804 2.028 1.729 1.927 1.859 2.021 1.921
## [7885] 1.807 2.084 2.129 2.210 2.229 2.039 2.122 2.249 2.156 2.021 1.869 2.166
## [7897] 1.622 2.048 2.132 1.234 2.030 2.274 2.006 2.083 1.882 2.409 2.113 2.274
## [7909] 2.356 2.474 2.019 2.318 2.087 2.294 2.365 2.282 2.087 2.194 2.106 2.270
## [7921] 2.148 2.504 2.449 1.513 1.983 1.783 2.190 1.908 1.878 1.247 2.107 1.956
## [7933] 2.015 1.789 1.318 2.010 1.802 2.133 2.076 1.966 2.119 1.840 1.942 1.721
## [7945] 1.884 1.913 2.136 1.985 1.656 1.799 1.394 2.176 1.963 1.997 1.799 1.729
## [7957] 1.858 1.979 2.070 2.066 1.273 1.863 1.975 2.204 1.790 1.991 1.857 2.017
## [7969] 1.897 2.239 1.446 1.960 1.597 2.229 2.031 2.027 2.173 2.471 2.444 2.160
```

```
# One of the most important uses of matrices is as a transformation of a vec-
# tor by vector/matrix multiplication. Such transformations are linear (a term
# that we define later). Although one can occasionally profitably distinguish ma-
# trices from linear transformations on vectors, for our present purposes there
# is no advantage in doing so. We will often treat matrices and linear transfor-
# mations as equivalent.
```

```
lattice::histogram(X)
```



major_files/figure-latex/unnamed-chunk-1-1.pdf

```
# Many of the properties of vectors and matrices we discuss hold for an
# infinite number of elements, but we will assume throughout this book that
# the number is finite.
Inf + X
```

```
## [1] Inf
```

```
Inf + Y
```

```
## [1] Inf
```

```
# Subvectors and Submatrices
# We sometimes find it useful to work with only some of the elements of a
# vector or matrix. We refer to the respective arrays as "subvectors" or "sub-
# matrices". We also allow the rearrangement of the elements by row or column
# permutations and still consider the resulting object as a subvector or subma-
# trix. In Chapter 3, we will consider special forms of submatrices formed by
# "partitions" of given matrices.
```

```
# 1.4 Representation of Data
# Before we can do any serious analysis of data, the data must be represented
# in some structure that is amenable to the operations of the analysis. In sim-
# pole cases, the data are represented by a list of scalar values. The ordering
# in
# the list may be unimportant, and the analysis may just consist of compute-
# son of simple summary statistics. In other cases, the list represents a time
# series of observations, and the relationships of observations to each other
# as
# a function of their distance apart in the list are of interest. Often, the
# data
# can be represented meaningfully in two lists that are related to each other
# by
# the positions in the lists. The generalization of this representation is a
# two-
# dimensional array in which each column corresponds to a particular type of
# data.
```

```
# A major consideration, of course, is the nature of the individual items of
# data. The observational data may be in various forms: quantitative measures,
# colors, text strings, and so on. Prior to most analyses of data, they must be
# represented as real numbers. In some cases, they can be represented easily
# as real numbers, although there may be restrictions on the mapping into the
# reals. (For example, do the data naturally assume only integral values, or
# could any real number be mapped back to a possible observation?)
major <- RUnit::checkTrue(expr = TRUE, msg = "cured TRUE message real numbers")
major
```

```
## [1] TRUE
```