```
detailIDdr = {{AL, AK, AZ, AR, CA, CO, CT, DC, DE, FL, GA, HI, ID, IL,
    IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY,
    NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI, WY},
   {416468, 416471, 416484, 416491, 416498, 416505, 416508, 416623,
    416511, 417861, 416514, 416520, 416523, 416532, 416542, 416545, 416554,
    416557, 416560, 416569, 416584, 416593, 416599, 416602, 416612, 416619,
    416487, 416490, 416496, 416502, 416516, 416526, 416529, 416534, 416539,
    416548, 416551, 416590, 416595, 416605, 416608, 416611, 416617,
    416632, 416636, 416639, 416642, 416645, 416648, 416653, 416654},
   {416469, 416472, 416485, 416493, 416500, 416506, 416509, 416624, 416512,
    417866, 416515, 416521, 416524, 416537, 416543, 416546, 416555, 416558,
    416561, 416570, 416585, 416594, 416600, 416603, 416614, 416621, 416488,
    416492, 416497, 416503, 416518, 416527, 416530, 416535, 416540,
    416549, 416552, 416591, 416597, 416606, 416609, 416613, 416618,
    416634, 416637, 416640, 416643, 416646, 416649, 416651, 416655}};

Dimensions[detailIDdr]

{3, 51}

ev = Import["http://www.electoral-vote.com/evp2008/Pres/Excel/today.csv"];

ev[[1]]

{State, EV, D, R, I, Date, D>9, D5-9, D<5, Tie, R<5, R5-9, R>9, Pollster-len}

ev[[2 ;; -2, 1]]

{Alabama, Alaska, Arizona, Arkansas, California, Colorado, Connecticut, D.C.,
 Delaware, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas,
 Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota,
 Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey,
 New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon,
 Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas,
 Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming}

ev[[2 ;; -2, 2]]

{9, 3, 10, 6, 55, 9, 7, 3, 3, 27, 15, 4, 4, 21, 11, 7, 6, 8, 9, 4, 10, 12, 17, 10, 6, 11,
 3, 5, 5, 4, 15, 5, 31, 15, 3, 20, 7, 7, 21, 4, 8, 3, 11, 34, 5, 3, 13, 11, 5, 10, 3}

datad = Table[Drop[Import[
      "http://data.intrade.com/graphing/jsp/downloadClosingPrice.jsp?contractId="
       <> ToString[detailIDdr[[2, i]] ]], 1], {i, 51}];

datar = Table[Drop[Import[
      "http://data.intrade.com/graphing/jsp/downloadClosingPrice.jsp?contractId="
       <> ToString[detailIDdr[[3, i]] ]], 1], {i, 51}];

datad[[1, -1, 1]]

Oct 1, 2008

datad[[5, 662 ;; 666]]

{{Sep 9, 2008, 91.2, 91.2, 91.2, 91.2, 40},
 {Sep 10, 2008, 91.2, 91.2, 91.2, 91.2, 0}, {Sep 11, 2008, 91, 91, 91, 91, 0},
 {Sep 12, 2008, 92, 91, 92, 91, 34}, {Sep 13, 2008, 90.5, 90.5, 90.5, 90, 10}}
```

```
(*datad[[5,664,2;;-1]]=datad[[5,663,2;;-1]]
   data error: CA price on 9.11=3 instead of 91.2*)

(*another error Sep 15 R price in MI is 98*)
datar[[23, 655 ;; 660]]
```

```
{{Sep 13, 2008, 36.1, 36.1, 36.1, 38.9, 1}, {Sep 14, 2008, 38.5, 36.2, 40, 39.9, 35},
 {Sep 15, 2008, 98, 98, 98, 98, 0}, {Sep 16, 2008, 36.2, 36.2, 39.9, 36.2, 9},
 {Sep 17, 2008, 38, 35, 38, 35, 31}, {Sep 18, 2008, 35.1, 35.1, 35.1, 35, 11}}
```

```
datar[[23, 657, 2 ;; -1]] = datar[[23, 656, 2 ;; -1]]
```

```
{38.5, 36.2, 40, 39.9, 35}
```

```
closed = datad[[All, All, 5]];
closer = datar[[All, All, 5]];

window = 90; window1 = window + 1;

returnsd = Table[Log[closed[[i, j - 1]] / closed[[i, j]]], {i, 51}, {j, -window, -1}];

returnsr = Table[Log[closer[[i, j - 1]] / closer[[i, j]]], {i, 51}, {j, -window, -1}];

chanced = Table[closed[[i, -window1 ;; -1]] /
    (closed[[i, -window1 ;; -1]] + closer[[i, -window1 ;; -1]]), {i, 51}];

returnsc = Table[Log[chanced[[i, j - 1]] / chanced[[i, j]]], {i, 51}, {j, -window, -1}];

chanced[[All, -1]] // N
```

```
{0.0306122, 0.0603015, 0.05, 0.08, 0.944444, 0.679321, 0.943005, 0.97, 0.931373,
 0.521694, 0.118812, 0.977, 0.03, 0.96, 0.386139, 0.813039, 0.06, 0.0738189,
 0.0990099, 0.891758, 0.928641, 0.963, 0.797175, 0.830525, 0.0653266, 0.327112,
 0.158416, 0.0930233, 0.538614, 0.622153, 0.919403, 0.779363, 0.950397, 0.49545,
 0.107212, 0.534653, 0.049505, 0.91001, 0.797175, 0.95, 0.08867, 0.0970874,
 0.0990991, 0.0746269, 0.02, 0.925, 0.541833, 0.897044, 0.16983, 0.779512, 0.042}
```

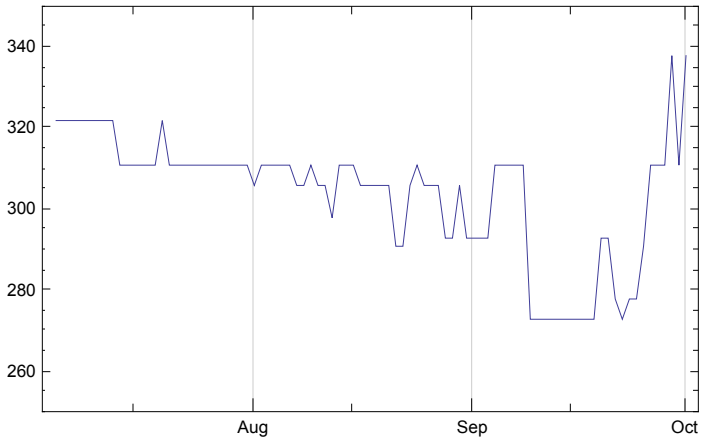
```
datad[[1, -window, 1]]
```

```
Jul 4, 2008
```

```
winning = Table[Total[
   Table[If[chanced[[i, -j]] > .5, ev[[2 ;; -2, 2]][[i]], 0], {i, 51}]], {j, window}]
```

```
{338, 311, 338, 311, 311, 311, 291, 278, 278, 273, 278, 293, 293, 273, 273,
 273, 273, 273, 273, 273, 273, 273, 311, 311, 311, 311, 311, 293, 293,
 293, 293, 306, 293, 293, 306, 306, 306, 311, 306, 291, 291, 306, 306, 306,
 306, 306, 311, 311, 311, 298, 306, 306, 311, 306, 306, 311, 311, 311, 311,
 311, 306, 311, 311, 311, 311, 311, 311, 311, 311, 311, 311, 311, 311, 322,
 311, 311, 311, 311, 311, 311, 322, 322, 322, 322, 322, 322, 322, 322, 322}
```

```
DateListPlot[Reverse[winning], {2008, 7, 4},
 Joined → True, PlotRange → {Automatic, {250, 350}}]
```




```
timeleft = DateDifference[DateList[][[1 ;; 3]], {2008, 11, 4}]
```

```
34
```

```
liquidityd = Table[Count[returnsd[[i, -window ;; -1]], n_ /; n != 0], {i, 51}]
```

```
{8, 28, 19, 11, 37, 46, 30, 1, 17, 51, 39, 53, 18, 17, 43, 42,
 33, 24, 42, 28, 27, 13, 38, 45, 28, 47, 36, 13, 52, 46, 38, 39, 30,
 36, 31, 49, 12, 38, 47, 13, 25, 32, 9, 35, 3, 30, 50, 21, 30, 44, 13}
```

```
liquidityr = Table[Count[returnsr[[i, -window ;; -1]], n_ /; n != 0], {i, 51}]
```

```
{11, 30, 15, 21, 43, 52, 35, 62, 13, 54, 33, 14, 9, 11, 40, 34,
 31, 12, 26, 34, 30, 22, 44, 51, 27, 47, 33, 12, 57, 47, 46, 40, 29,
 35, 27, 50, 15, 53, 50, 14, 21, 24, 14, 25, 5, 31, 51, 21, 25, 45, 4}
```

```
{Mean[liquidityd], Mean[liquidityr]} // N
```

```
{30.5294, 30.8824}
```

```
Needs["Histograms`"]
```

```
<< MultivariateStatistics`
```

```
cvard = Table[, {51}, {51}];
For[j = 1, j ≤ 51, j++,
 For[i = 1, i ≤ 51, i++, cvard[[j, i]] = Covariance[returnsd[[i]], returnsd[[j]] ]]]
```

```
cvarr = Table[, {51}, {51}];
For[j = 1, j ≤ 51, j++,
 For[i = 1, i ≤ 51, i++, cvarr[[j, i]] = Covariance[returnsr[[i]], returnsr[[j]] ]]]
```

```
closed = Table[closed[[i, -window ;; -1]], {i, 51}];
```

```
closer = Table[closer[[i, -window ;; -1]], {i, 51}];
```

```
simsdet = Table[
   ds = Exp[Transpose[
      RandomReal[MultinormalDistribution[Table[0, {51}], cvard], timeleft]]];
   rs = Exp[Transpose[RandomReal[MultinormalDistribution[
        Table[0, {51}], cvarr], timeleft]]];
   endd = closed[[All, -1]];
   endr = closer[[All, -1]];
   For[j = 1, j ≤ 51, j++, Do[endd[[j]] = endd[[j]] ds[[j, i]];
     endr[[j]] = endr[[j]] rs[[j, i]], {i, timeleft}]];
   chanced = endd / (endd + endr);
   Table[If[chanced[[i]] > .5, ev[[2 ;; -2, 2]][[i]], 0], {i, 51}], {5000}
  ];

sims = Map[Total, simsdet];

Count[sims, n_ /; n > 268] / Length[sims] // N
```

```
0.9848
```

```
{Mean[sims], StandardDeviation[sims]} // N
```

```
{323.104, 25.8744}
```

```
counts = Table[Count[sims, n_ /; n == i], {i, 538}];

counts[[269]] / 5000.
```

```
0.0064
```

```
mode = Position[counts, Max[counts]][[1, 1]]
```

```
353
```

```
chanced = Table[closed[[i, -window ;; -1]] /
    (closed[[i, -window ;; -1]] + closer[[i, -window ;; -1]]), {i, 51}];
today = Total[Table[If[chanced[[i, -1]] > .5, ev[[2 ;; -2, 2]][[i]], 0], {i, 51}]]
```

```
338
```

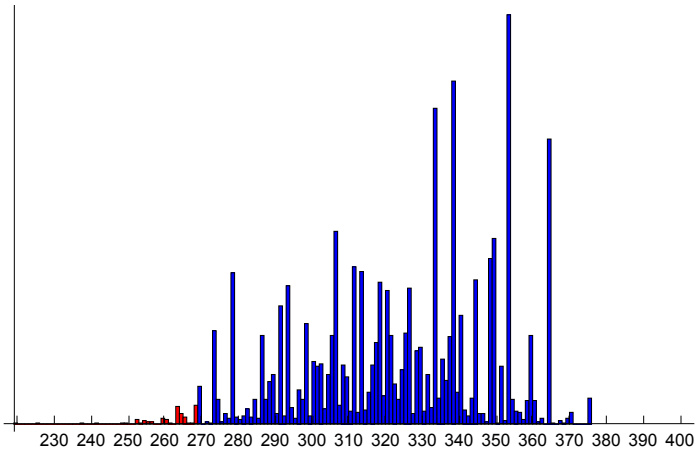
```
counts[[today]] == mode
 (*Everything breaking exactly like today is the mode of the distribution*)
```

```
False
```

```
hr = Histogram[Select[sims, # < 269 &], Ticks → {Table[10 x, {x, 21, 41}], None},
   HistogramCategories → Table[x, {x, 538}], BarStyle → Red];

hd = Histogram[Select[sims, # > 268 &], Ticks → {Table[10 x, {x, 21, 41}], None},
   HistogramCategories → Table[x, {x, 538}], BarStyle → Blue];
```

```
Show[hr, hd, PlotRange → {{220, 400}, {0, Max[counts]}}]
```




```
{Table[i, {i, 250, 310}],
   Table[Count[sims, n_ /; n == i], {i, 250, 310}]} // MatrixForm // N
```

250.	251.	252.	253.	254.	255.	256.	257.	258.	259.	260.	261.	262.	263.	264.	265
0.	0.	4.	1.	3.	2.	2.	0.	0.	5.	4.	1.	0.	15.	9.	6.

```
Table[Count[sims, n_ /; n > i] / Length[sims], {i, 229, 339, 10}] // N
```

```
{0.9996, 0.9994, 0.9988, 0.9954, 0.9784,
 0.9278, 0.8818, 0.803, 0.6926, 0.5756, 0.4522, 0.2844}
```

```
Table[Count[sims, n_ /; n - 10 < i < n] / Length[sims], {i, 229, 339, 10}] // N
```

```
{0.0002, 0.0004, 0.0024, 0.0106, 0.0494,
 0.0376, 0.0774, 0.1024, 0.1122, 0.1104, 0.1624, 0.083}
```

```
chanced = Table[closed[[i, -window ;; -1]] /
    (closed[[i, -window ;; -1]] + closer[[i, -window ;; -1]]), {i, 51}];
```

```
{Extract[chanced[[All, -1]], Position[chanced[[All, -1]], n_ /; .3 < n < .7]] // N,
  Extract[detailIDdr[[1]], Position[chanced[[All, -1]], n_ /; .3 < n < .7]],
  swingev = Extract[ev[[2 ;; -2, 2]],
    Position[chanced[[All, -1]], n_ /; .3 < n < .7]]} // MatrixForm
```

0.679321	0.521694	0.386139	0.327112	0.538614	0.622153	0.49545	0.534653	0.541833
CO	FL	IN	MO	NV	NH	NC	OH	VA
9	27	11	11	5	4	15	20	13

```
Total[swingev]
swingevD =
 Total[Extract[ev[[2 ;; -2, 2]], Position[chanced[[All, -1]], n_ /; .5 < n < .7]]]
swingevD / Total[swingev] // N
```

```
115
```

```
78
```

```
0.678261
```

```
detailIDdr[[1, {36, 39}]]
chanced[[{36, 39}, -1]] // N
ev[[2 ;; -2, 2]][[{36, 39}]]
```

```
{OH, PA}
```

```
{0.534653, 0.797175}
```

```
{20, 21}
```

```
Correlation[returnsc[[36]], returnsc[[39]]]
```

```
0.356071
```

```
ohpa = Table[Switch[Total[simsdet[[i, {36, 39}]]],
    0, "Neither", 20, "OH", 21, "PA", 41, "Both"], {i, 5000}];
```

```
Count[ohpa, "PA"] / 50.
100 chanced[[39, -1]] (1 - chanced[[36, -1]])
```

```
36.8
```

```
37.0962
```

```
Count[ohpa, "OH"] / 50.
100 chanced[[36, -1]] (1 - chanced[[39, -1]])
```

```
0
```

```
10.8441
```

```
Count[ohpa, "Both"] / 50.
100 chanced[[39, -1]] chanced[[36, -1]]
```

```
63.08
```

```
42.6212
```

```
Count[ohpa, "Neither"] / 50.
100 (1 - chanced[[39, -1]]) (1 - chanced[[36, -1]])
```

```
0.12
```

```
9.43841
```

```
(*Very little chance of winning Ohio but not Pennsylvania.  Probabilities
   very different from if OH & PA were independent*)
```

```
chanced = Table[closed[[i, -window ;; -1]] /
    (closed[[i, -window ;; -1]] + closer[[i, -window ;; -1]]), {i, 51}];
```

```
sbys = {Table[Count[simsdet[[All, i]], n_ /; n > 0] / Length[simsdet], {i, 51}] // N,
   detailIDdr[[1]], chanced[[All, -1]] // N} // MatrixForm
```

0.	0.0084	0.	0.	0.9992	0.9826	1.	1.	0.9968	0.606
AL	AK	AZ	AR	CA	CO	CT	DC	DE	FL
0.0306122	0.0603015	0.05	0.08	0.944444	0.679321	0.943005	0.97	0.931373	0.521694

```
Table[Extract[sbys[[1, i]], Position[sbys[[1, 1]], n_ /; .02 < n < .98]], {i, 3}] //
 MatrixForm
```

0.606	0.2468	0.9608	0.0444	0.6492	0.9086	0.4862	0.6308	0.6702
FL	IN	MN	MO	NV	NH	NC	OH	VA
0.521694	0.386139	0.830525	0.327112	0.538614	0.622153	0.49545	0.534653	0.541833