Voting power in the 27-EU

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```
<<DiscreteMath`Combinatorica`
```

```
<<Graphics`Graphics`
```

```
<<Graphics`Graphics3D`
```

Banzhaf index

The function banzhafG computes the generating function given a list of integer weights. The function banzhafIndexPlus computes the total Banzhaf power index of player i by summing the appropiate coefficients in this generating function. Dividing each player`s index by the sum of all the indices gives the Banzhaf power distribution.

```
banzhafG[weights_List]:=Times @@ (1+x^weights)
```

```
banzhafIndexPlus[i_,weights_List,q_]:=
Module[{delw,sw,g,coefi},
delw=Delete[weights,i];
sw=Apply[Plus,delw]+1;
g=banzhafG[delw];
coefi=CoefficientList[g,x];
Apply[Plus,coefi[[
Range[Max[1,q-weights[[i]]+1],Min[q,sw]]]]]
]
```

```
banzhafPowerPlus[weights_List,q_]:=
#/(Plus @@ #)& @ Table[banzhafIndexPlus[i,weights,q],
{i,Length[weights]}]
```

```
critical[weights_List,q_]:=
Table[banzhafIndexPlus[i,weights,q],{i,Length[weights]}]
```

Shapley-Shubik index

The number of coalitions of weight k and size j is the coefficient of x^k z^j in the generating function g(x,y) for the Shapley-Shubik index. The function ssG gives the polynomial g(x,y). The function ssPowerPlus computes the Shapley-Shubik power distribution. We supose that the simple game is superadittive, that is, winning disjoint coaltions are not possible.

```
ssG[weights_List]:=Times @@ (1+z x^weights)
```

```
ssPowerPlus[weights_List,q_Integer]:=
Module[{n=Length[weights],delw,sw,g,coefi,gg},
Table[delw=Delete[weights,i];
sw=Apply[Plus,delw]+1;
g=ssG[delw];
coefi=CoefficientList[g,x];
gg=Apply[Plus,coefi[[
Range[Max[1,q-weights[[i]]+1],Min[q,sw]]]]];
Sum[Coefficient[gg,z^j] j! (n-j-1)!,{j,n-1}],
{i,n}]/n!]
```

Weighting of votes in the 27 EU with the Nice rule

```
countries27EU={"Germany","United Kingdom","France",
"Italy","Spain","Poland","Romania",
"Netherlands","Greece","Czech Republic",
"Belgium","Hungary","Portugal","Sweeden",
"Bulgaria","Austria","Slovak Republic",
"Denmark","Finland","Ireland","Lithuania",
"Latvia","Slovenia","Estonia","Cyprus",
"Luxembourg","Malta"};
```

```
pop27EU={82.038,59.247,58.966,57.612,39.394,
38.667,22.489,15.760,10.533,10.290,10.213,
10.092,9.980,8.854,8.230,8.082,5.393,5.313,5.160,
3.744,3.701,2.439,1.978,1.446,0.752,0.429,0.379};
indexpop27EU=SetPrecision[(%/Plus @@ %),3]
```

```
{0.170, 0.123, 0.123, 0.120, 0.0819, 0.0804, 0.0467, 0.0328,
   0.0219, 0.0214, 0.0212, 0.0210, 0.0207, 0.0184, 0.0171, 0.0168,
   0.0112, 0.0110, 0.0107, 0.00778, 0.00769, 0.00507, 0.00411,
   0.00301, 0.00156, 0.000892, 0.000788}
```

```
propor27EU = Round[(pop27EU/Plus @@ pop27EU) 345.2]
```

```
{59, 43, 42, 41, 28, 28, 16, 11, 8, 7, 7, 7, 7, 6, 6, 6, 4, 4, 4,
   3, 3, 2, 1, 1, 1, 0, 0}
```

```
Plus @@ %
```

```
345
```

```
propor27data=Transpose[{pop27EU,propor27EU}]
```

{{82.038, 59}, {59.247, 43}, {58.966, 42}, {57.612, 41},
  {39.394, 28}, {38.667, 28}, {22.489, 16}, {15.76, 11},
  {10.533, 8}, {10.29, 7}, {10.213, 7}, {10.092, 7}, {9.98, 7},
  {8.854, 6}, {8.23, 6}, {8.082, 6}, {5.393, 4}, {5.313, 4},
  {5.16, 4}, {3.744, 3}, {3.701, 3}, {2.439, 2}, {1.978, 1},
  {1.446, 1}, {0.752, 1}, {0.429, 0}, {0.379, 0}}

```
votesEU27={29,29,29,29,27,27,14,13,12,12,12,12,12,
10,10,10,7,7,7,7,7,4,4,4,4,4,3};
votes27Index=SetPrecision[(%/Plus @@ %),3]
```

{0.0841, 0.0841, 0.0841, 0.0841, 0.0783, 0.0783, 0.0406, 0.0377,
  0.0348, 0.0348, 0.0348, 0.0348, 0.0348, 0.0290, 0.0290, 0.0290,
  0.0203, 0.0203, 0.0203, 0.0203, 0.0203, 0.0116, 0.0116, 0.0116,
  0.0116, 0.0116, 0.00870}

```
Plus @@ votesEU27
```

345

```
EU27nicedata=Transpose[{pop27EU,votesEU27}]
```

{{82.038, 29}, {59.247, 29}, {58.966, 29}, {57.612, 29},
  {39.394, 27}, {38.667, 27}, {22.489, 14}, {15.76, 13},
  {10.533, 12}, {10.29, 12}, {10.213, 12}, {10.092, 12},
  {9.98, 12}, {8.854, 10}, {8.23, 10}, {8.082, 10}, {5.393, 7},
  {5.313, 7}, {5.16, 7}, {3.744, 7}, {3.701, 7}, {2.439, 4},
  {1.978, 4}, {1.446, 4}, {0.752, 4}, {0.429, 4}, {0.379, 3}}

```
DisplayTogether[ListPlot[EU27nicedata,Frame->True,
FrameLabel->{"Population","Votes",
"POPULATION INDICES and NICE VOTES",""},
FrameTicks->{{1,5,10,15,25,40,60,82},
            {4,7,10,12,14,16,27,29,40,58}},
PlotStyle->{Hue[0.05],PointSize[0.009]}],
ListPlot[propor27data,PlotStyle->{Hue[0.6],PointSize[0.009]}],
ListPlot[propor27data,PlotJoined->True,PlotStyle->RGBColor[0,0,1]],
ListPlot[EU27nicedata,PlotJoined->True,PlotStyle->RGBColor[1,0,0]]];
```
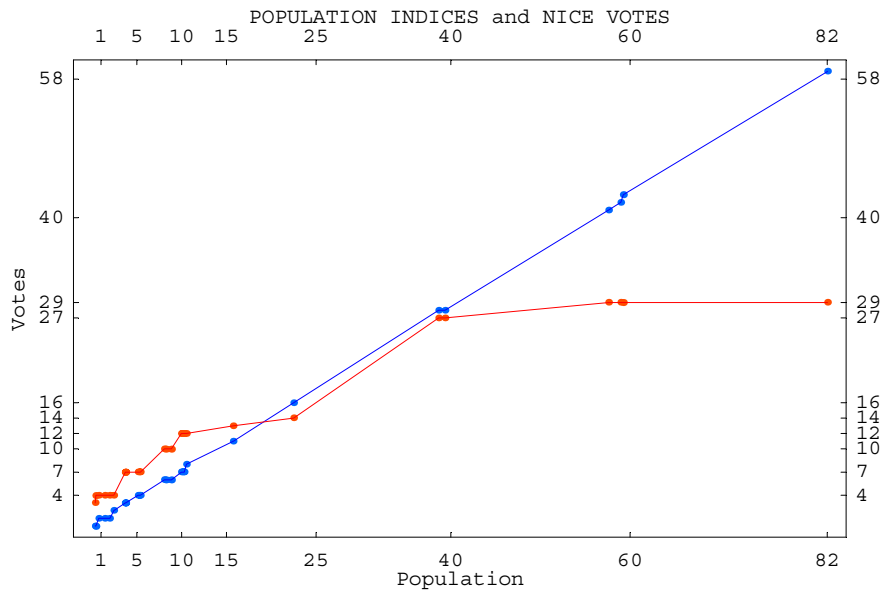
Banzhaf index for the meet of two games

```
banzhafTwoG[weights_List,pop_List]:=
Times @@ (1+x^weights y^pop)
```

```
banzhafTwoG[{4,6,8},{2,3,4}]
```

$$(1 + x^4 y^2) \ (1 + x^6 y^3) \ (1 + x^8 y^4)$$

```
banzhafTwoIndex[i_,weights_List,pop_List,q_,p_]:=
Module[{g,coefi,n,m,s1,s2},
g=banzhafTwoG[Delete[weights,i],Delete[pop,i]];
n=Exponent[g,x]+1; m=Exponent[g,y]+1;
coefi=CoefficientList[g,{x,y}]/.{}->Table[0,{m}];
s1=Apply[Plus,Flatten[coefi[[
Range[Max[1,q-weights[[i]]+1],n],
Range[Max[1,p-pop[[i]]+1],m]]]]];
s2=If[((q+1)>n) || ((p+1)>m),0,
Apply[Plus,Flatten[coefi
[[Range[q+1,n],Range[p+1,m]]]]]];
s1-s2]
```

```
criticalTwo[weights_List,pop_List,q_,p_]:=
Table[banzhafTwoIndex[i,weights,pop,q,p],{i,Length[weights]}]
```

```
banzhafTwoPower[weights_List,pop_List,q_,p_]:=
#/(Plus @@ #)& @ Table[
banzhafTwoIndex[i,weights,pop,q,p],
{i,Length[weights]}]
```

Shapley-Shubik index for the meet of two games

```
ssTwoG[weights_List,pop_List]:=Times @@ (1+x^weights y^pop z)
```

```
ssTwoPower[weights_List,pop_List,q_,p_]:=
Module[{n=Length[weights],g,dw,dp,s1,s2,gg,coefi},
Table[g=ssTwoG[Delete[weights,i],Delete[pop,i]];
dw=Exponent[g,x]+1; dp=Exponent[g,y]+1;
coefi=CoefficientList[g,{x,y}]/.{}->Table[0,{dp}];
s1=Apply[Plus,Flatten[coefi[[
Range[Max[1,q-weights[[i]]+1],dw],
Range[Max[1,p-pop[[i]]+1],dp]]]]];
s2=If[((q+1)>dw) || ((p+1)>dp),0,
Apply[Plus,Flatten[coefi[[
Range[q+1,dw],Range[p+1,dp]]]]]];
gg=s1-s2;
Sum[Coefficient[gg,z,j] j! (n-j-1)!,{j,n-1}]/n!,
{i,n}]]
```

Banzhaf and Shapley indices for the meet of three games

```
banzhafThreeG[weights_List,pop_List,members_List] :=
Times @@ (1 + x^weights*y^pop*z^members)

banzhaf3Index[i_,weights_List,pop_List,members_List,q_,p_,m_] :=
Module[{n = Length[weights],g,dw,dp,dm,s1,s2,gg,coefi,delwe,delpo,delm},
delwe = Delete[weights,i]; delpo = Delete[pop,i]; delm = Delete[members,i];
g = banzhafThreeG[delwe, delpo, delm];
dw = Plus @@ delwe + 1; dp = Plus @@ delpo + 1; dm = Plus @@ delm + 1;
coefi = CoefficientList[g, {x, y, z}] /. {} -> Table[0, {dp}, {dw}];
s1 = Plus @@ Flatten[coefi[[Range[Max[1, q - weights[[i]] + 1], dw],
     Range[Max[1, p - pop[[i]] + 1], dp],
     Range[Max[1, m - members[[i]] + 1], dm]]]];
s2 = If[q + 1 > dw || p + 1 > dp || m + 1 > dm, 0,
     Plus @@ Flatten[coefi[[Range[q + 1, dw],Range[p + 1, dp],
     Range[m + 1, dm]]]]]; gg = s1 - s2]

banzhaf3swings[weights_List,pop_List,members_List,q_,p_,m_] :=
  Table[banzhaf3Index[i,weights,pop,members,q,p,m],
   {i, Length[weights]}]

banzhaf3Power[weights_List,pop_List,members_List,q_,p_,m_] :=
(#1/Plus @@ #1 & )[Table[banzhaf3Index[i,weights,pop,members,q,p,m],
   {i, Length[weights]}]]

Shapley3G[weights_List,pop_List,members_List] :=
  Times @@ (1 + x^weights*y^pop*z^members*t)

Shapley3Index[weights_List,pop_List,members_List,q_,p_,m_]:=
Module[{n=Length[weights],g,dw,dp,dm,s1,s2,gg,coefi,delwe,delpo,delm},
Table[delwe=Delete[weights,i];delpo=Delete[pop,i];delm=Delete[members,i];
g=Shapley3G[delwe,delpo,delm];
dw = Plus @@ delwe+1; dp = Plus @@ delpo+1; dm = Plus @@ delm+1;
coefi = CoefficientList[g, {x, y, z}] /. {} -> Table[0, {dp}, {dw}];
s1 = Plus @@ Flatten[coefi[[Range[Max[1, q-weights[[i]]+1], dw],
     Range[Max[1,p-pop[[i]]+1],dp],Range[Max[1,m-members[[i]]+1],dm]]]];
s2 = If[q + 1 > dw || p + 1 > dp || m + 1 > dm, 0,
     Plus @@ Flatten[coefi[[Range[q+1,dw],Range[p+1,dp],Range[m+1,dm]]]]];
gg = s1 - s2; Sum[Coefficient[gg,t,j] j! (n-j-1)!,{j,0,n-1}]/n!,{i,n}]]
```

Nice swings in the 27 EU

The total number of coalitions in the 27 European Union is 134 217 728. We calculate the number of winning coalitions to which the country i is critical, that is, his defection implies that the coalition to become losing.

```
members27=Table[1,{27}];
```

```
swings1=critical[votesEU27,255]
```

{2193664, 2193664, 2193664, 2193664, 2091380, 2091380, 1200504,
  1120138, 1038492, 1038492, 1038492, 1038492, 1038492, 871654,
  871654, 871654, 614702, 614702, 614702, 614702, 614702, 352374,
  352374, 352374, 352374, 352374, 265568}

```
ban1EU27=SetPrecision[% / Plus @@ % ,3]
```

{0.0778, 0.0778, 0.0778, 0.0778, 0.0742, 0.0742, 0.0426, 0.0397,
  0.0368, 0.0368, 0.0368, 0.0368, 0.0368, 0.0309, 0.0309, 0.0309,
  0.0218, 0.0218, 0.0218, 0.0218, 0.0218, 0.0125, 0.0125, 0.0125,
  0.0125, 0.0125, 0.00942}

```
Plus @@ swings1
```

28186428

```
swingsTwo1=criticalTwo[votesEU27,members27,255,14]
```

{2193648, 2193648, 2193648, 2193648, 2091364, 2091364, 1200488,
  1120122, 1038482, 1038482, 1038482, 1038482, 1038482, 871660,
  871660, 871660, 614718, 614718, 614718, 614718, 614718, 352390,
  352390, 352390, 352390, 352390, 265584}

```
ban2aEU27=SetPrecision[% / Plus @@ % ,3]
```

{0.0778, 0.0778, 0.0778, 0.0778, 0.0742, 0.0742, 0.0426, 0.0397,
  0.0368, 0.0368, 0.0368, 0.0368, 0.0368, 0.0309, 0.0309, 0.0309,
  0.0218, 0.0218, 0.0218, 0.0218, 0.0218, 0.0125, 0.0125, 0.0125,
  0.0125, 0.0125, 0.00942}

```
Plus @@ swingsTwo1
```

28186444

```
swingsTwo2=criticalTwo[votesEU27,members27,255,18]
```

{1628747, 1628747, 1628747, 1628747, 1547305, 1547305, 996561,
  946969, 897313, 897313, 897313, 897313, 897313, 796493, 796493,
  796493, 643339, 643339, 643339, 643339, 643339, 484411, 484411,
  484411, 484411, 484411, 434737}

ban2bEU27=SetPrecision[% / Plus @@ % ,3]

{0.0665, 0.0665, 0.0665, 0.0665, 0.0631, 0.0631, 0.0407, 0.0386,
  0.0366, 0.0366, 0.0366, 0.0366, 0.0366, 0.0325, 0.0325, 0.0325,
  0.0263, 0.0263, 0.0263, 0.0263, 0.0263, 0.0198, 0.0198, 0.0198,
  0.0198, 0.0198, 0.0177}

Plus @@ swingsTwo2

24502659

weigth27EU=Round[(pop27EU/Plus @@ pop27EU) 999.6]

{170, 123, 122, 120, 82, 80, 47, 33, 22, 21, 21, 21, 21, 18, 17,
  17, 11, 11, 11, 8, 8, 5, 4, 3, 2, 1, 1}

Plus @@ %

1000

swings255a=banzhaf3swings[votesEU27,weigth27EU,members27,255,620,14]

{2193654, 2193650, 2193650, 2193650, 2091358, 2091358, 1200482,
  1120116, 1038476, 1038476, 1038476, 1038476, 1038476, 871654,
  871654, 871654, 614712, 614712, 614712, 614712, 614712, 352384,
  352384, 352384, 352384, 352384, 265584}

ban3aEU27=SetPrecision[swings255a / Plus @@ swings255a ,3]

{0.0778, 0.0778, 0.0778, 0.0778, 0.0742, 0.0742, 0.0426, 0.0397,
  0.0368, 0.0368, 0.0368, 0.0368, 0.0368, 0.0309, 0.0309, 0.0309,
  0.0218, 0.0218, 0.0218, 0.0218, 0.0218, 0.0125, 0.0125, 0.0125,
  0.0125, 0.0125, 0.00942}

Plus @@ swings255a

28186324

swings255b=banzhaf3swings[votesEU27,weigth27EU,members27,255,620,18]

{1628753, 1628749, 1628749, 1628749, 1547299, 1547299, 996555,
  946963, 897307, 897307, 897307, 897307, 897307, 796487, 796487,
  796487, 643333, 643333, 643333, 643333, 643333, 484405, 484405,
  484405, 484405, 484405, 434737}

ban3bEU27=SetPrecision[swings255b / Plus @@ swings255b ,3]

{0.0665, 0.0665, 0.0665, 0.0665, 0.0631, 0.0631, 0.0407, 0.0386,
  0.0366, 0.0366, 0.0366, 0.0366, 0.0366, 0.0325, 0.0325, 0.0325,
  0.0263, 0.0263, 0.0263, 0.0263, 0.0263, 0.0198, 0.0198, 0.0198,
  0.0198, 0.0198, 0.0177}

Plus @@ swings255b

24502539

The total number of winning coalitions to wich a country is critical, under the votes Nice rule, is 28 186 428.
The total number of winning coalitions to wich a country is critical, under the majority Nice rule, is 28 186 324.
The total number of winning coalitions to wich a country is critical, under the 2/3 Nice rule, is T = 24 502 539.

```
TableForm[Transpose[{swings1,swingsTwo1,swings255a,swings255a-swings1}],
TableHeadings->{countries27EU,
{"Swings V","Swings V+M","Swings V+M+P","Difference"}}]
```

	Swings V	Swings V+M	Swings V+M+P	Difference
Germany	2193664	2193648	2193654	-10
United Kingdom	2193664	2193648	2193650	-14
France	2193664	2193648	2193650	-14
Italy	2193664	2193648	2193650	-14
Spain	2091380	2091364	2091358	-22
Poland	2091380	2091364	2091358	-22
Romania	1200504	1200488	1200482	-22
Netherlands	1120138	1120122	1120116	-22
Greece	1038492	1038482	1038476	-16
Czech Republic	1038492	1038482	1038476	-16
Belgium	1038492	1038482	1038476	-16
Hungary	1038492	1038482	1038476	-16
Portugal	1038492	1038482	1038476	-16
Sweden	871654	871660	871654	0
Bulgaria	871654	871660	871654	0
Austria	871654	871660	871654	0
Slovak Republic	614702	614718	614712	10
Denmark	614702	614718	614712	10
Finland	614702	614718	614712	10
Ireland	614702	614718	614712	10
Lithuania	614702	614718	614712	10
Latvia	352374	352390	352384	10
Slovenia	352374	352390	352384	10
Estonia	352374	352390	352384	10
Cyprus	352374	352390	352384	10
Luxembourg	352374	352390	352384	10
Malta	265568	265584	265584	16

```
TableForm[Transpose[{swings1,swingsTwo2,swings255b,swings255b-swings1}],
TableHeadings->{countries27EU,
{"Sw V","Sw V+(2/3)","Sw V+(2/3)+P","Difference"}}]
```

|	Sw V	Sw V+(2/3)	Sw V+(2/3)+P	Difference
Germany	2193664	1628747	1628753	-564911
United Kingdom	2193664	1628747	1628749	-564915
France	2193664	1628747	1628749	-564915
Italy	2193664	1628747	1628749	-564915
Spain	2091380	1547305	1547299	-544081
Poland	2091380	1547305	1547299	-544081
Romania	1200504	996561	996555	-203949
Netherlands	1120138	946969	946963	-173175
Greece	1038492	897313	897307	-141185
Czech Republic	1038492	897313	897307	-141185
Belgium	1038492	897313	897307	-141185
Hungary	1038492	897313	897307	-141185
Portugal	1038492	897313	897307	-141185
Sweden	871654	796493	796487	-75167
Bulgaria	871654	796493	796487	-75167
Austria	871654	796493	796487	-75167
Slovak Republic	614702	643339	643333	28631
Denmark	614702	643339	643333	28631
Finland	614702	643339	643333	28631
Ireland	614702	643339	643333	28631
Lithuania	614702	643339	643333	28631
Latvia	352374	484411	484405	132031
Slovenia	352374	484411	484405	132031
Estonia	352374	484411	484405	132031
Cyprus	352374	484411	484405	132031
Luxembourg	352374	484411	484405	132031
Malta	265568	434737	434737	169169

Power with the votes, majority and people Nice rules

```
TableForm[Transpose[{indexpop27EU,ban1EU27,ban2aEU27,ban3aEU27}],
TableHeadings->{countries27EU,{"People","Banzhaf V",
"Banzhaf V+M","Banzhaf V+M+P"}}]
```

	People	Banzhaf V	Banzhaf V+M	Banzhaf V+M+P
Germany	0.170	0.0778	0.0778	0.0778
United Kingdom	0.123	0.0778	0.0778	0.0778
France	0.123	0.0778	0.0778	0.0778
Italy	0.120	0.0778	0.0778	0.0778
Spain	0.0819	0.0742	0.0742	0.0742
Poland	0.0804	0.0742	0.0742	0.0742
Romania	0.0467	0.0426	0.0426	0.0426
Netherlands	0.0328	0.0397	0.0397	0.0397
Greece	0.0219	0.0368	0.0368	0.0368
Czech Republic	0.0214	0.0368	0.0368	0.0368
Belgium	0.0212	0.0368	0.0368	0.0368
Hungary	0.0210	0.0368	0.0368	0.0368
Portugal	0.0207	0.0368	0.0368	0.0368
Sweeden	0.0184	0.0309	0.0309	0.0309
Bulgaria	0.0171	0.0309	0.0309	0.0309
Austria	0.0168	0.0309	0.0309	0.0309
Slovak Republic	0.0112	0.0218	0.0218	0.0218
Denmark	0.0110	0.0218	0.0218	0.0218
Finland	0.0107	0.0218	0.0218	0.0218
Ireland	0.00778	0.0218	0.0218	0.0218
Lithuania	0.00769	0.0218	0.0218	0.0218
Latvia	0.00507	0.0125	0.0125	0.0125
Slovenia	0.00411	0.0125	0.0125	0.0125
Estonia	0.00301	0.0125	0.0125	0.0125
Cyprus	0.00156	0.0125	0.0125	0.0125
Luxembourg	0.000892	0.0125	0.0125	0.0125
Malta	0.000788	0.00942	0.00942	0.00942

```
banzhafEU27=BarChart3D[
{Reverse[indexpop27EU],Reverse[ban1EU27],
Reverse[ban2aEU27],Reverse[ban3aEU27]},
Boxed -> True,  BoxRatios -> {0.5,1,0.5},
ViewPoint->{0.4,-2.2,0.5},Ticks ->{{1,"POPULATION"},
{2,"BANZHAF (V)"},{3,"BANZHAF (V+M)"},{4,"BANZHAF (V+M+P)"}},
{{1,"Malta"},{2,"Luxembourg"},{3,"Cyprus"},
{4,"Estonia"},{5,"Slovenia"},{6,"Latvia"},
{7,"Lithuania"},{8,"Ireland"},{9,"Finland"},
{10,"Denmark"},{11,"Slovak Republic"},
{12,"Austria"},{13,"Bulgaria"},{14,"Sweeden"},
{15,"Portugal"},{16,"Hungary"},{17,"Belgium"},
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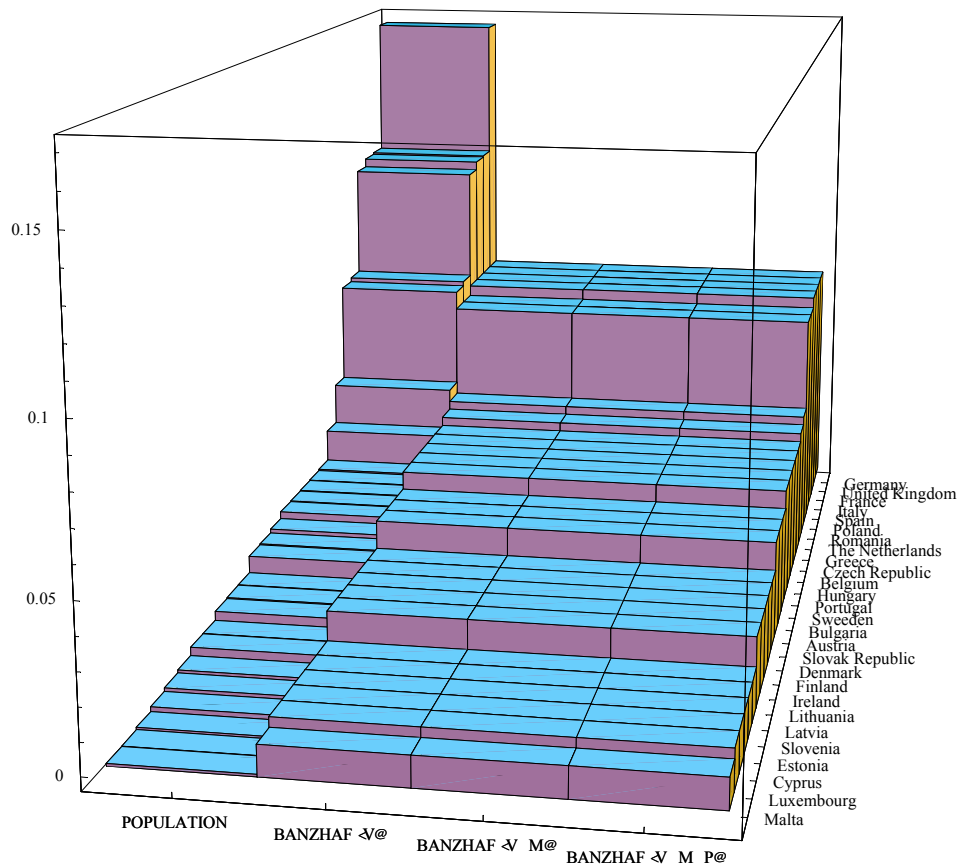

Power with the votes, two thirds and people Nice rules

```
TableForm[Transpose[{indexpop27EU,ban1EU27,ban2bEU27,ban3bEU27}],
 TableHeadings->{countries27EU,{"People","Ban V",
 "Ban V+(2/3)M","Ban V+(2/3)M+P"}}]
```

	People	Ban V	Ban V+(2/3)M	Ban V+(2/3)M+P
Germany	0.170	0.0778	0.0665	0.0665
United Kingdom	0.123	0.0778	0.0665	0.0665
France	0.123	0.0778	0.0665	0.0665
Italy	0.120	0.0778	0.0665	0.0665
Spain	0.0819	0.0742	0.0631	0.0631
Poland	0.0804	0.0742	0.0631	0.0631
Romania	0.0467	0.0426	0.0407	0.0407
Netherlands	0.0328	0.0397	0.0386	0.0386
Greece	0.0219	0.0368	0.0366	0.0366
Czech Republic	0.0214	0.0368	0.0366	0.0366
Belgium	0.0212	0.0368	0.0366	0.0366
Hungary	0.0210	0.0368	0.0366	0.0366
Portugal	0.0207	0.0368	0.0366	0.0366
Sweden	0.0184	0.0309	0.0325	0.0325
Bulgaria	0.0171	0.0309	0.0325	0.0325
Austria	0.0168	0.0309	0.0325	0.0325
Slovak Republic	0.0112	0.0218	0.0263	0.0263
Denmark	0.0110	0.0218	0.0263	0.0263
Finland	0.0107	0.0218	0.0263	0.0263
Ireland	0.00778	0.0218	0.0263	0.0263
Lithuania	0.00769	0.0218	0.0263	0.0263
Latvia	0.00507	0.0125	0.0198	0.0198
Slovenia	0.00411	0.0125	0.0198	0.0198
Estonia	0.00301	0.0125	0.0198	0.0198
Cyprus	0.00156	0.0125	0.0198	0.0198
Luxembourg	0.000892	0.0125	0.0198	0.0198
Malta	0.000788	0.00942	0.0177	0.0177

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banzhafEU27=BarChart3D[
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Reverse[ban2bEU27],Reverse[ban3bEU27]},
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{18,"Czech Republic"},{19,"Greece"},
{20,"The Netherlands"},{21,"Romania"},
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