

Example of how to use the MDScosa package

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Load the data and the package:

```
##   country year_election type_cs partys_all direction_agg_all issue_agg_all
## 1      4      2017      1      40002      1      10
## 2      4      2017      1      40001     -1      10
## 3      4      2017      1      40002      1      10
## 4      4      2017      1      40002      1      10
## 5      4      2017      1      40001      1      10
## 6      4      2017      1      40002      1      10
```

STEP 1: Create distances and weight matrices:

```
MGM <- pd_mdsmat(data=election_GM,
                  party_var="partys_all",
                  issue_var="issue_agg_all",
                  proximity_var = "direction_agg_all",
                  year_var="year_election",
                  cell=TRUE,
                  min=20,
                  imin=3)
```

```
## 2 parties were deleted as they had less than 20 observations.
## The parties that were deleted are 40010 40011
## 7 issues were deleted as they had less than 3 % observations.
## The issues that were deleted are 22 30 31 33 34 42 51
```

You can change the following options:

years - If more than one election, the years can be included as a character vector;

noweight - If TRUE, the matrix of weights is not computed;

row - If TRUE specifies that weights are computed separately for each party (and within each year if the option year is specified)

cell - If TRUE weights are computed separately for each election (100% =one election)

min - Minimum number of observations for a party in an election

imin - Minimum % of observations for an issue to be included

STEP 2: Create distances and coordinates:

```
DI_CO <- pd_pscale(mdsmat = MGM,  
                  ndim = 2)
```

Stress for 2 dimensions is: 0.217773824131788

mdsmat - the object created in Step 1;

ndim - the number of dimensions. Default is 2, but can be changed for testing the stress;

Keep in mind though that the following steps (plotting, etc.) work only for the case of ndim = 2;

Step 3: Rescale coordinates:

```
RS_COORD <- pd_rescale(mdsmat = MGM,  
                      distmat = DI_CO,  
                      n_issues = 11,  
                      n_years = 1)
```

mdsmat - object created in Step 1;

distmat - object created in Step 2;

n_issues - number of issues left after deletion;

n_years - number of years included;

Step 4: Rotate coordinates:

```
RS_COORD_r <- pd_mdsrot(rescalemat = RS_COORD,  
                      WF = "10",  
                      EL = "21")
```

rescalemat - the rescaled coordinates produced in Step 3;

WF - the label of the welfare issue, in this case "10"

EL - the label of the ecolib issue, in this case "21"

Step 5: Plotting:

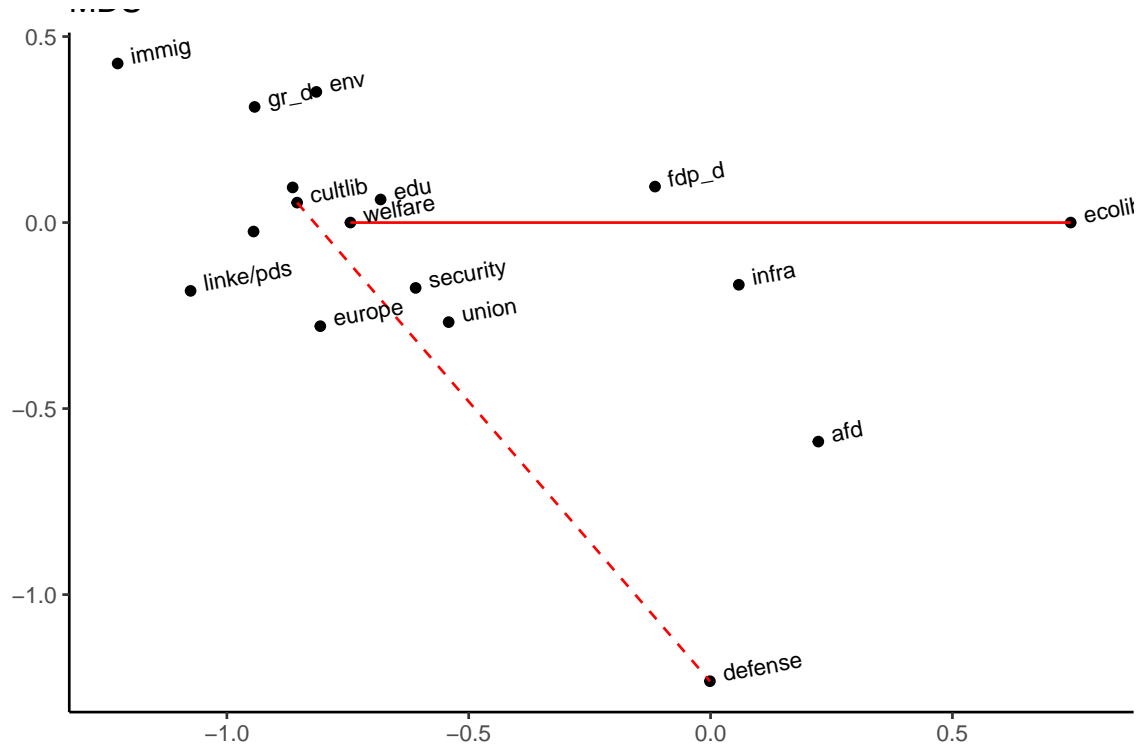
Optional:

We can modify the labels as these are listed as attributes for the party and issue vars:

```
my_labs <- pd_labelattr(data = election_GM,  
                      party_var="partys_all",  
                      issue_var="issue_agg_all",  
                      coordmat = RS_COORD_r)
```

And we can plot:

```
pd_mdspplot(coordmat = RS_COORD_r,  
            labels = my_labs,  
            WF = "10",  
            EL = "21",  
            CL = "50",  
            DF = "80")
```



coordmat - the rotated coordinates produced in Step 4;

labels - vector containing any new labels in the same order as in coordmat, if NULL labels are taken directly from coordmat

point_col - colour of the dots;

point_size - size of the dots;

text_col - colour of labels;

text_size - size of labels;

line_col - colour of lines between issues;

title - title for the entire plot;

WF - the label of the welfare issue in coordmat

EL - the label of the ecolib issue in coordmat

CL - the label of the cultlib issue in coordmat

DF - the label of the defense issue in coordmat

How to cite:

To cite package MDScosa in publications use:

Ioana-Elena Oana. 2020. MDScosa: Multidimensional Scaling (MDS) for COSA data. R package version 1.0. <https://github.com/nenaoana/MDScosa>