# RUNNING KRUSKAL’S NONMETRIC MDS IN R: the isoMDS routine

# first, I created a text file that is a full matrix, a subset of the Wish nations data

> # (with the first five nations only), named "nation5.txt"

> # the off-diagonal entries are the sim ratings, the diagonal entries are just set =0

> nat.sim <- read.table("C:/Users/corter/Desktop/nation5.txt", header=TRUE)

> row.names(nat.sim) = c("Br", "Co", "Cu", "Eg", "Fr")

> nat.sim

Br Co Cu Eg Fr

Br 0.00 4.83 5.28 3.44 4.72

Co 4.83 0.00 4.56 5.00 4.00

Cu 5.28 4.56 0.00 5.17 4.11

Eg 3.44 5.00 5.17 0.00 4.78

Fr 4.72 4.00 4.11 4.78 0.00

> library(MASS)

>

> # this step converts to dissimilarities, also convert "data frame" to a matrix

> nat.dis = 6 - as.matrix(nat.sim)

> # make sure the diagonal entries = 0

> for (i in 1:5) { nat.dis[i,i]=0 }

> nat.dis

Br Co Cu Eg Fr

Br 0.00 1.17 0.72 2.56 1.28

Co 1.17 0.00 1.44 1.00 2.00

Cu 0.72 1.44 0.00 0.83 1.89

Eg 2.56 1.00 0.83 0.00 1.22

Fr 1.28 2.00 1.89 1.22 0.00

> # to evaluate stress as a function of dimensionality, you would need to set k=1,2,3,4

> # here is the 2-dim solution (k=2)

> nat.nmds <- isoMDS(nat.dis,k=2,trace=TRUE,p=2)

initial value 23.783470

iter 5 value 8.926071

iter 10 value 6.810314

final value 6.739962

converged

> nat.nmds

$points

[,1] [,2]

Br 1.9367528 -0.08541694

Co -0.4890883 -2.33520575

Cu 1.1504556 -0.05211280

Eg -2.3213092 0.10438759

Fr -0.2768109 2.36834791

$stress

[1] 6.739962

> plot(nat.nmds$points)

names = c("Br", "Co", "Cu", "Eg", "Fr")

text(nat.nmds$points,names)

