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SOCIOMATRICES:

Each relation (kind of tie) is represented in a sociomatrix. The basic matrix has n rows and n columns, where n is the number of "actors" (households or villages for example). Thus the basic sociomatrix is square. When ties go outside the set (for example from a household to another household outside the village) we can have additional rectangular matrices: household by village, household by district, household by province, village by district, or village by province to code the ties from households to other kinds of units.

For the basic sociomatrix x_{ij} is the entry in row i column j of the matrix and codes the value of the tie from row actor (i) to column actor (j). For ties that are either present or absent, x_{ij} is dichotomous (0 or 1). For ties that have values, x_{ij} is the value (count, number, frequency) of the tie.

Note: If storage space is a problem information about ties can also be coded in a "linked list" format. In this format there is a record for each "actor" (household for example) and each line (record) records the other "actors" to whom the actor has ties by listing their id numbers. This format contains exactly the same information as the sociomatrix but uses much less storage space. However, this format it is not as useful as the sociomatrix for computations and is clumsy for valued relations.

The output should be a sociomatrix preceded by the data description for UCINET. The UCINET data instructions are described below.

Here is a hypothetical example. (Note, blanks would be 9998. I have omitted these for clarity.)

village id	Q10.11 0	Q10.11 1	Q112.1	Q112.2	Q112.3	Q112.4	Q112.5	Q112.6	Q112.7
0001	1	1	0005	0007	0008				
0003	1	2							
0005	2	8							
0007	1	1	0008	0019					
0008	2	8							
0019	2	8							

First, villages (also household, districts, provinces) should be in sequential order:

```
0001 1
0003 2
0005 3
0007 4
0008 5
0019 6
```

The sociomatrix for this example is:

```
1 0 1 1 1 0
0 1 0 0 0 0
0 0 0 0 0 0
0 0 0 1 1 1
0 0 0 0 0 0
0 0 0 0 0 0
```

The UCINET data file for this example is:

```
dl n=6
labels:
0001,0003,0005,0007,0008,0019
data:
1 0 1 1 1 0
0 1 0 0 0 0
0 0 0 0 0 0
0 0 0 1 1 1
0 0 0 0 0 0
0 0 0 0 0 0
```

UCINET data format:

UCINET uses its own data format but reads ascii files as described below. Each sociomatrix is preceded by a few lines of information about the size of the matrix and the row and column labels (if these are included). Information in the header lines, the labels, and the data values are delimited by a space, comma, or carriage return. The "dl" (data language) format is described on pages 17-27 of the UCINET IV User's Guide.

The few lines of data description are:

The first line has the letters "dl" in columns 1 and 2. The size of the matrix (number of rows and columns for a square matrix) is specified by "n=<number of rows/columns>". The "labels:" key word indicates that labels for rows/columns follow. The list of labels (n of them) continues on as many lines as necessary with labels separated by space, comma, or carriage return. Labels may be up to 9 characters and should not contain embedded spaces. The "data:" key word indicates that the data matrix follows. This is followed by the sociomatrix. Entries in the sociomatrix may continue on additional lines, so long as data values are separated by space, comma, or carriage return.

EXAMPLE:

This is an example of a UCINET file with a single relation for six actors.

```
dl n=6
labels:
ONE,TWO,THREE,FOUR,FIVE,SIX
data:
1 0 1 1 0 1
0 1 1 1 0 0
1 1 1 0 0 1
1 1 1 0 0 0
0 0 0 0 0 0
1 0 0 0 0 0
```

UCINET data format for rectangular matrices

Each sociomatrix is preceded by a few lines that give information about the data. Information in the header lines, the labels, and the data values are delimited by a space, comma, or carriage return. The “dl” (data language) format is described on pages 17-27 of the UCINET IV User’s Guide.

The few lines of data description are:

The first line has the letters “dl” in columns 1 and 2. The number of rows in the matrix is specified by “nr=<number of rows>”. The number of columns is specified by “nc=<number of columns>”. The row labels are indicated by the “row labels:” key word indicating that labels for rows follow. The list of row labels (n of them) continues on as many lines as necessary with labels separated by space, comma, or carriage return. The column labels are indicated by the “col labels:” key word indicating that labels for column follow. The list of column labels (m of them) continues on as many lines as necessary with labels separated by space, comma, or carriage return. Labels may be up to 9 characters and should not contain embedded spaces. The “data:” key word indicates that the data matrix follows. This is followed by the sociomatrix. Entries in the sociomatrix may continue on additional lines, so long as data values are separated by space, comma, or carriage return.

EXAMPLE:

This is an example of a rectangular matrix with 6 rows and 3 columns

```
dl nr=6 nc=3
row labels:
ONE,TWO,THREE,FOUR,FIVE,SIX
col labels:
C1, C2, C3
data:
1 0 1
0 1 0
0 0 0
0 1 0
0 0 1
1 0 0
```