Appendix B

UCINET IV Datasets

The following pages describe the standard UCINET IV datasets provided with the program. Multirelational data are stored, when possible, in a single multirelational data file. Each relation within a multirelational set is labelled and information about the form of the data is described for each individual matrix.
DATASET
BFRAT

DESCRIPTION
Two 58x58 matrices:

BFRAB symmetric, valued.
BFRAC non-symmetric, valued (rankings).

BACKGROUND
Bernard & Killworth, later with the help of Sailer, collected five sets of data on human interactions in bounded groups and on the actors' ability to recall those interactions. In each study they obtained measures of social interaction among all actors, and ranking data based on the subjects' memory of those interactions. The names of all cognitive (recall) matrices end in C, those of the behavioral measures in B.

These data concern interactions among students living in a fraternity at a West Virginia college. All subjects had been residents in the fraternity from three months to three years. BFRAB records the number of times a pair of subjects were seen in conversation by an "unobtrusive" observer (who walked through the public areas of the building every fifteen minutes, 21 hours a day, for five days). BFRAC contains rankings made by the subjects of how frequently they interacted with other subjects in the observation week.

REFERENCES


**DATASET**  
BKHAM

**DESCRIPTION**  
Two 44×44 matrices.  

BKHAM symmetric, valued.  
BKHAMC non-symmetric, valued (rankings).

**BACKGROUND**  
Bernard & Killworth, later with the help of Sailer, collected five sets of data on human interactions in bounded groups and on the actors' ability to recall those interactions. In each study they obtained measures of social interaction among all actors, and ranking data based on the subjects' memory of those interactions. The names of all cognitive (recall) matrices end in C, those of the behavioral measures in B.

BKHAM records amateur HAM radio calls made over a one-month period, as monitored by a voice-activated recording device. BKHAMC contains rankings by the operators of how frequently they talked to other operators, judged retrospectively at the end of the one-month sampling period.

**REFERENCES**  
In addition to the references in the previous section, see:


DATASET

BIN

DESCRIPTION

Two $40 \times 40$ matrices.

BIN

BACKGROUND

Bernard & Killworth, later with the help of Sailer, collected five sets of data on human interactions in bounded groups and on the actors' ability to recall those interactions. In each study they obtained measures of social interaction among all actors, and ranking data based on the subjects' memory of those interactions. The names of all cognitive (recall) matrices end in C, those of the behavioral measures in B.

These data concern interactions in a small business office, again recorded by an "unobtrusive" observer. Observations were made as the observer patrolled a fixed route through the office every fifteen minutes during two four-day periods. BIN contains the observed frequency of interactions; BINF contains rankings of interaction frequency as recalled by the employees over the two-week period.

REFERENCES

See citations to the previous datasets.
### DATASET
BKTEC

### DESCRIPTION
Two $34 \times 34$ matrices.

- BKTECB symmetric, valued
- BKTECC non-symmetric, valued (rankings).

### BACKGROUND
Bernard & Killworth, later with the help of Sailer, collected five sets of data on human interactions in bounded groups and on the actors' ability to recall those interactions. In each study they obtained measures of social interaction among all actors, and ranking data based on the subjects' memory of those interactions. The names of all cognitive (recall) matrices end in C, those of the behavioral measures in B.

These data concern interactions in a technical research group at a West Virginia university. BKTECB contains a frequency record of interactions, made by an observer every half-hour during one five-day work week. BKTECC contains the personal rankings of the remembered frequency of interactions in the same period.

### REFERENCES
See citations to the previous datasets.
<table>
<thead>
<tr>
<th><strong>DATASET</strong></th>
<th>DAVIS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DESCRIPTION</strong></td>
<td>One 18×14 matrix, binary.</td>
</tr>
<tr>
<td><strong>BACKGROUND</strong></td>
<td>These data were collected by Davis et al in the 1930s. They represent observed attendance at 14 social events by 18 Southern women. The result is a person-by-event matrix: cell (i,j) is 1 if person i attended social event j, and 0 otherwise.</td>
</tr>
</tbody>
</table>
DATASET  PRISON

DESCRIPTION  One $67 \times 67$ matrix, non-symmetric, binary.

BACKGROUND  In the 1950s John Gagnon collected sociometric choice data from 67 prison inmates. All were asked, "What fellows on the tier are you closest friends with?" Each was free to choose as few or as many "friends" as he desired. The data were analyzed by MacRae and characterized by him as "less clear cut" in their internal structure than similar data from schools or residential populations.

DATASET KAPMINE

DESCRIPTION Two 15×15 matrices

KAPFMM symmetric, binary.
KAPFMU symmetric, binary.

BACKGROUND Bruce Kapferer (1969) collected data on men working on the surface in a mining operation in Zambia (then Northern Rhodesia). He wanted to account for the development and resolution of a conflict among the workers. The conflict centered on two men, Abraham and Donald; most workers ended up supporting Abraham.

Kapferer observed and recorded several types of interactions among the workers, including conversation, joking, job assistance, cash assistance and personal assistance. Unfortunately, he did not publish these data. Instead, the matrices indicate the workers joined only by uniplex ties (based on one relationship only, KAPFMU) or those joined by multiple-relation or multiplex ties (KAPFMM).


DATASET  KAPTAIL

DESCRIPTION  Four 39×39 matrices

  KAPFTS1 symmetric, binary
  KAPFTS2 symmetric, binary
  KAPFTI1 non-symmetric, binary
  KAPFTI2 non-symmetric, binary

BACKGROUND  Bruce Kapferer (1972) observed interactions in a tailor shop in Zambia (then Northern Rhodesia) over a period of ten months. His focus was the changing patterns of alliance among workers during extended negotiations for higher wages.

  The matrices represent two different types of interaction, recorded at two different times (seven months apart) over a period of one month. TI1 and TI2 record the "instrumental" (work- and assistance-related) interactions at the two times; TS1 and TS2 the "sociational" (friendship, socioemotional) interactions.

  The data are particularly interesting since an abortive strike occurred after the first set of observations, and a successful strike took place after the second.

<table>
<thead>
<tr>
<th><strong>DATASET</strong></th>
<th>KNOKBUR</th>
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</thead>
<tbody>
<tr>
<td><strong>DESCRIPTION</strong></td>
<td>Two 10×10 matrices.</td>
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<tr>
<td></td>
<td>KNOKM non-symmetric, binary.</td>
</tr>
<tr>
<td></td>
<td>KNOKI non-symmetric, binary.</td>
</tr>
<tr>
<td><strong>BACKGROUND</strong></td>
<td>In 1978, Knoke &amp; Wood collected data from workers at 95 organizations in Indianapolis. Respondents indicated with which other organizations their own organization had any of 13 different types of relationships.</td>
</tr>
<tr>
<td></td>
<td>Knoke and Kuklinski (1982) selected a subset of 10 organizations and two relationships. Money exchange is recorded in KNOKM, information exchange in KNOKI. See Knoke &amp; Kuklinski (1982) for details.</td>
</tr>
</tbody>
</table>
DATASET
KRACKAD non-symmetric, binary.
KRACKFR symmetric, binary.

DESCRIPTION
Each file contains twenty-one 21×21 matrices. Matrix n gives actor n's perception of the whole network.

BACKGROUND
David Krackhardt collected cognitive social structure data from 21 management personnel in a high-tech, machine manufacturing firm to assess the effects of a recent management intervention program. The relation queried was "Who does X go to for advice and help with work?" (KRACKAD) and "Who is a friend of X?" (KRACKFR). Each person indicated not only his or her own advice and friendship relationships, but also the relations he or she perceived among all other managers, generating a full 21×21 matrix of adjacency ratings from each person in the group.

REFERENCE
DATASET
NEWFRAT

DESCRIPTION
Fifteen 17x17 matrices.

NEWC0 - NEWC15 (except NEWC9) non-symmetric, valued (rankings).

BACKGROUND
These 15 matrices record weekly sociometric preference rankings from 17 men attending the University of Michigan in the fall of 1956; data from week 9 are missing. A "1" indicates first preference, and no ties were allowed.

The men were recruited to live in off-campus (fraternity) housing, rented for them as part of the Michigan Group Study Project supervised by Theodore Newcomb from 1953 to 1956. All were incoming transfer students with no prior acquaintance of one another.

REFERENCES


DATASET | PADGETT and PADGW

DESCRIPTION | PADGETT

Two 16×16 matrices:

PADGB symmetric binary
PADGM symmetric binary

PADGW

One 16×3 matrix, valued.

BACKGROUND | Breiger & Pattison (1986), in their discussion of local role analysis, use a subset of data on the social relations among Renaissance Florentine families (person aggregates) collected by John Padgett from historical documents. The two relations are business ties (PADGB - specifically, recorded financial ties such as loans, credits and joint partnerships) and marriage alliances (PADGM).

As Breiger & Pattison point out, the original data are symmetrically coded. This is acceptable perhaps for marital ties, but is unfortunate for the financial ties (which are almost certainly directed). To remedy this, the financial ties can be recoded as directed relations using some external measure of power - for instance, a measure of wealth. PADGW provides information on (1) each family's net wealth in 1427 (in thousands of lira); (2) the number of priorates (seats on the civic council) held between 1282-1344; and (3) the total number of business or marriage ties in the total dataset of 116 families (see Breiger & Pattison (1986), p 239).

Substantively, the data include families who were locked in a struggle for political control of the city of Florence in around 1430. Two factions were dominant in this struggle: one revolved around the infamous Medicis (9), the other around the powerful Strozzi (15).


**DATASET**  
GAMA

**DESCRIPTION**  
Two 16×16 matrices
- GAMAPOS symmetric, binary
- GAMANEG symmetric, binary.

**BACKGROUND**  
Hage & Harary (1983) use the Gahuku-Gama system of the Eastern Central Highlands of New Guinea, described by Read (1954), to illustrate a clusterable signed graph. Read's ethnography portrayed an alliance structure among three tribal groups containing balance as a special case; among Gahuku-Gama the enemy of an enemy can be either a friend or an enemy.

The signed graph has been split into two matrices: GAMAPOS for alliance ("rova") relations, GAMANEG for antagonistic ("hina") relations. To reconstruct the signed graph, multiply GAMANEG by -1, and add the two matrices.

**REFERENCES**  

DATASET  WIRING

DESCRIPTION  Six $14 \times 14$ matrices

   RDGAM symmetric, binary
   RDCON symmetric, binary
   RDPOS symmetric, binary
   RDNEG symmetric, binary
   RDHLP non-symmetric, binary
   RDJOB non-symmetric, valued.

BACKGROUND  These are the observational data on 14 Western Electric (Hawthorne Plant) employees from the bank wiring room first presented in Roethlisberger & Dickson (1939). The data are better known through a scrutiny made of the interactions in Homans (1950), and the CONCOR analyses presented in Breiger et al (1975).

The employees worked in a single room and include two inspectors (I1 and I3), three solderers (S1, S2 and S3), and nine wiremen or assemblers (W1 to W9). The interaction categories include: RDGAM, participation in horseplay; RDCON, participation in arguments about open windows; RDPOS, friendship; RDNEG, antagonistic (negative) behavior; RDHLP, helping others with work; and RDJOB, the number of times workers traded job assignments.


SAMPSON MONASTERY

DATASET

SAMPSON

DESCRIPTION
Ten 18×18 matrices

- SAMPLK1 non-symmetric, valued (rankings)
- SAMPLK2 non-symmetric, valued (rankings)
- SAMPLK3 non-symmetric, valued (rankings)
- SAMPDLK non-symmetric, valued (rankings)
- SAMPES non-symmetric, valued (rankings)
- SAMPDES non-symmetric, valued (rankings)
- SAMPIN non-symmetric, valued (rankings)
- SAMPDES non-symmetric, valued (rankings)
- SAMPPR non-symmetric, valued (rankings)
- SAMPNPR non-symmetric, valued (rankings)

BACKGROUND

Sampson recorded the social interactions among a group of monks while resident as an experimenter on vision, and collected numerous sociometric rankings. During his stay, a political "crisis in the cloister" resulted in the expulsion of four monks (Nos. 2, 3, 17, and 18) and the voluntary departure of several others - most immediately, Nos. 1, 7, 14, 15, and 16. (In the end, only 5, 6, 9, and 11 remained).

Most of the present data are retrospective, collected after the breakup occurred. They concern a period during which a new cohort entered the monastery near the end of the study but before the major conflict began. The exceptions are "liking" data gathered at three times: SAMPLK1 to SAMPLK3 - that reflect changes in group sentiment over time (SAMPLK3 was collected in the same wave as the data described below). Information about the senior monks was not included.

Four relations are coded, with separate matrices for positive and negative ties on the relation. Each member ranked only his top three choices on that tie. The relations are esteem (SAMPES) and disesteem (SAMPDES), liking (SAMPLK) and disliking (SAMPDLK), positive influence (SAMPIN) and negative influence (SAMPNIN), praise (SAMPPR) and blame (SAMPNPR). In all rankings 3 indicates the highest or first choice and 1 the last choice. (Some subjects offered tied ranks for their top four choices).

REFERENCES


SCHWIMMER TARO EXCHANGE

DATASET  TARO

DESCRIPTION  One 22×22 matrix, symmetric, binary.

BACKGROUND  These data represent the relation of gift-giving (taro exchange) among 22 households in a Papuan village. Hage & Harary (1983) used them to illustrate a graph hamiltonian cycle. Schwimmer points out how these ties function to define the appropriate persons to mediate the act of asking for or receiving assistance among group members.


DATASET
SZCID, SZCIG

DESCRIPTION
SZCID: One 16×16 matrix, symmetric, binary.

SZCIG: One 15×15 matrix, symmetric, binary.

BACKGROUND
These data come from a six-year research project, concluded in 1976, on corporate power in nine European countries and the United States. Each matrix represents corporate interlocks among the major business entities of two countries - the Netherlands (SZCID) and West Germany (SZCIG).

The volume describing this study, referenced below, includes six chapters on network theoretical and analytical issues related to data of this type.

REFERENCES

<table>
<thead>
<tr>
<th>DATASET</th>
<th>THUROFF</th>
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</thead>
<tbody>
<tr>
<td>DESCRIPTION</td>
<td>Two 15×15 matrices</td>
</tr>
<tr>
<td></td>
<td>THURA non-symmetric, binary</td>
</tr>
<tr>
<td></td>
<td>THURM symmetric, binary</td>
</tr>
<tr>
<td>BACKGROUND</td>
<td>Thurman spent 16 months observing the interactions among employees in the overseas office of a large international corporation. During this time, two major disputes erupted in a subgroup of fifteen people. Thurman analyzed the outcome of these disputes in terms of the network of formal and informal associations among those involved.</td>
</tr>
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<td></td>
<td>THURA shows the formal organizational chart of the employees and THURM the actors linked by multiplex ties.</td>
</tr>
<tr>
<td>REFERENCE</td>
<td>Thurman B. (1979). In the office: Networks and coalitions. Social Networks, 2, 47-63.</td>
</tr>
</tbody>
</table>
**DATASET**  WOLF, WOLFI

**DESCRIPTION**  WOLF: Two 20×20 matrices

- WOLFK non-symmetric, binary
- WOLFN symmetric, valued.

WOLFI: One 20×4 matrix, valued.

**BACKGROUND**  These data represent 3 months of interactions among a troop of monkeys, observed in the wild by Linda Wolfe as they sported by a river in Ocala, Florida. Joint presence at the river was coded as an interaction and these were summed within all pairs (WOLFN).

WOLFK indicates the putative kin relationships among the animals: 18 may be the granddaughter of 19. WOLFI contains four columns of information about the individual animals: (1) ID number of the animal; (2) age in years; (3) sex; (4) rank in the troop.
DATASET: ZACHARY

DESCRIPTION: Two 34x34 matrices.
- ZACHE symmetric, binary.
- ZACHC symmetric, valued.

BACKGROUND: These are data collected from the members of a university karate club by Wayne Zachary. The ZACHE matrix represents the presence or absence of ties among the members of the club; the ZACHC matrix indicates the relative strength of the associations (number of situations in and outside the club in which interactions occurred).

Zachary (1977) used these data and an information flow model of network conflict resolution to explain the split-up of this group following disputes among the members.