# Manual for the

# PETRA

# Computer Program

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1. Introduction.

PETRA, Personal Elicitation Technique for Raising Awareness, is an interactive program written for the PET computer based on a technique known as the repertory grid which in turn comes from 'The Psychology of Personal Constructs' G.A. Kelly, 1955 Norton.

PETRA is used to enable an individual to find out how he thinks and feels about a particular topic, if he has any dogma or prejudice about it, and how rational or irrational he is being. The PET provides real-time processing of the personal data which is entered by the user, and therefore gives him immediate feedback on the links and cross-references in his system of thinking. He is then able to use this information to adapt and extend his ways of thinking and to differentiate more fully between them, thereby enabling him to predict more accurately his own ways of acting in different circumstances.

2. The Elements.

The elements are the things which are used to define the area of the topic. They may be physical objects, people, events, or abstract entities (such as careers). Initially the user is asked to name six elements, which must span the topic as fully as possible. Before doing this he must think carefully about the area of the topic and relate the elements to his purpose. They should be of the same type and level of complexity. For example, if one were thinking about reading materials it would be unsuitable to have as elements: the Sun, the Times, the Telegraph, the Mirror, the Mail, books; as 'books' is a more general category than any of the others and hence may lead to ambiguities. Some sets of elements related to specific problems are given as examples:

(i) the investigation of relationships in the family--mother, father, brother, self, grandfather, grandmother;

(ii) the choice of a future career--farmer, mineworker, railway engineer, army, bank, post office;

(iii) exploring difficulties in learning--reading,writing, thinking, understanding, talking, listening;

(iv) opinions of television programs--News at Ten, Starsky and Hutch, Sweeney, Coronation Street, Tom and Jerry, Mastermind;

(v) reading for a train journey--Womans Own, The Virgin Soldiers, The Plague Dogs, Holocaust, The Wildest Heart, Thoughts of a Late Night Knitter;

(vi) roles in my life--husband, father, boss, subordinate, football supporter, car driver;

(vii) to help me in deciding to diet--hips, legs, bust, waist, face, arms;

(viii) investigating foods for healthy living--honey, milk, natural bran, free-range eggs, yogurt, fruit;
(ix) my position at work--my boss, my boss's boss, successful colleague, unsuccessful colleague, liked subordinate, disliked subordinate;
(x) to decide which pieces of music accompany different activities--Cockaigne Overture, Capriccio Espagnol, The Great Gate of Kiev, Sabre Dance, Melody in F, Arrival of the Queen of Sheba.

3. The Constructs.

The constructs are the terms in which the elements are similar or different from each other. Each construct therefore has two poles, each of which has a meaning with respect to its opposite. The elements are presented in triads and a construct is elicited by saying in what way two are alike and why the other differs. For instance, thinking of three school subjects--Mathematics, English Literature, and Art, in what way are two of these similar and thereby different from the third?

> Jane says:"Mathematics and English Literature are alike because they are about a body of knowledge and Art is about self-expression";
> Philip says:"English Literature and Art are alike because they are about life and Mathematics is abstract";
> Peter says:"Mathematics and Art are alike because they are about communication by symbols and forms and English Literature is about communication by words";
> Mary says:"Mathematics and English Literature are alike because they are useful in life and Art is a waste of time";
> Lynn says:"Mathematics and Art are fun and easy, but English Literature is about writing essays which I don't like."

Clearly each person has a different opinion and a different value system. Each of these dimensions is a personal construct because it is expressed in personally meaningful terms, and is significant to the person who used it.

As each construct is elicited all the elements are assigned to one pole or the other. In the above example Jane's construct became:

| | Mathematics | English Literature | Art | Music | Science | History | Drama | |
|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 2 |
| Body of knowledge | 1 | 1 | 2 | 2 | 1 | 1 | 2 | Self expression |

You may disagree with Jane's opinion, but you begin to be aware of how she is thinking. For a greater differentiation a rating scale (for example from 1 to 5 or 1 to 7) may be used.

4. Adding Elements.

As the second and subsequent constructs are elicited, the new construct is matched with all the preceding constructs. If one is found which is very similar, then a comment is made on this and the user is invited to add an element to distinguish between the two similar constructs. Sometimes a construct may be reversed to exibit a greater match, by changing round the pole names and all the ratings. For example, the following constructs are not similar:

| | 1 | 2 | 3 | 4 | 5 | 6 | |
|---|---|---|---|---|---|---|---|
| Friendly | 2 | 1 | 1 | 2 | 2 | 1 | Unfriendly |
| Anti-social | 1 | 2 | 2 | 1 | 2 | 2 | Social |

but with a reversal:

| | 1 | 2 | 3 | 4 | 5 | 6 | |
|---|---|---|---|---|---|---|---|
| Friendly | 2 | 1 | 1 | 2 | 2 | 1 | Unfriendly |
| Social | 2 | 1 | 1 | 2 | 1 | 1 | Anti-social |

these now differ on only one element. One may deduce that most people who are 'friendly' are also 'social'. However, these two constructs are not identical since element 5 is social but unfriendly. To further distinguish these two constructs an element may be added. He is asked:

> Can you think of a new element
> which is either friendly
> and anti-social or alternatively
> social and unfriendly?

If he can think of such a person, the addition of this element expands the scope of the grid, and demonstrates that the link is not necessarily a widely applicable one. If however he cannot think of such a person, it may be that he usually thinks people who are friendly are also social.

Hence he may be made more aware of the associations he makes in his head.

5. The End.

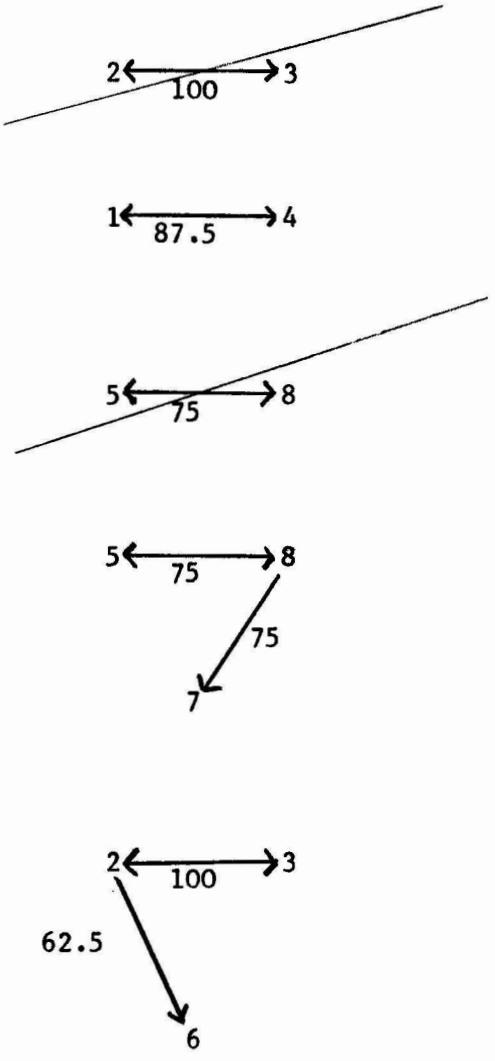
Constructs may be added up to ten in number, and similarly there is space for ten elements. The user may choose to finish at any stage after the elicitation of four constructs. Previously a hierarchical cluster analysis has been used to analyse the grid fully, but PETRA just gives a typal cluster analysis of the elements. ('Elementary linkage analysis for isolating orthogonal and oblique types and typal relevancies' L.L. McQuitty 1957,

Educ. and Psych. Meas. 17, pp207-229.) The pairs of elements are listed from the two most similar, until all possible pairs have been considered. This list gives the sequence of links between the elements, and from it a set of clusters may be drawn. An example is given from the sample run shown in section 7.

Element Clusters

| No. | New link | % match |
|---|---|---|
| 1* | 2 with 3 | 100 |
| 2* | 1 with 4 | 87.5 |
| 3* | 5 with 8 | 75 |
| 4* | 7 with 8 | 75 |
| 5* | 2 with 6 | 62.5 |
| 6 | 3 with 6 | 62.5 |
| 7 | 1 with 7 | 62.5 |
| 8 | 1 with 8 | 62.5 |
| 9 | 5 with 6 | 50 |
| 10 | 4 with 7 | 50 |
| 11 | 5 with 7 | 50 |
| 12 | 6 with 7 | 50 |
| 13 | 4 with 8 | 50 |
| 14 | 6 with 8 | 50 |
| 15 | 2 with 4 | 37.5 |
| 16 | 3 with 4 | 37.5 |
| 17 | 1 with 5 | 37.5 |
| 18 | 2 with 5 | 37.5 |
| 19 | 3 with 5 | 37.5 |
| 20 | 1 with 6 | 37.5 |
| 21 | 2 with 7 | 37.5 |
| 22 | 3 with 7 | 37.5 |
| 23 | 1 with 2 | 25 |
| 24 | 1 with 3 | 25 |
| 25 | 4 with 5 | 25 |
| 26 | 4 with 6 | 25 |
| 27 | 2 with 8 | 12.5 |
| 28 | 3 with 8 | 12.5 |

The first occurence on the list of each element is marked with an asterisk, in this case 1 to 8. Draw in all the links where an element is marked until all the starred links have been drawn. Each stage is shown below, those which are replaced at each stage have been crossed through. In practice, one would just add in the new links as they appeared.




So the final clusters are:

1 and 4 , mother and self;

5,7 and 8 , teacher, granny P, and the cat;

2, 3 and 6 , father, brother and granny M.

Since the total list is printed, it can also be used to see what relationship one particular element has to each of the others. For instance consider element 4 'self':

'self' relates to 'mother' at 87.5% (link 2),
'self' relates to 'cat' at 50% (link 10),
'self' relates to 'granny P' at 50% (link 13),
'self' relates to 'father' at 37.5% (link 15),
'self' relates to 'brother' at 37.5% (link 16),
'self' relates to 'teacher' at 25% (link 25),
'self' relates to 'granny M' at 25% (link 26).

It can be seen that these are in descending order starting with the most significant relationship.

6. Conclusion.

By comparing his own results with those of other people the individual can see to what extent he can understand others by entering into their personal worlds, and how much he agrees with their views of reality.

Much of the work using the techniques of elicitation and analysis of repertory grids is described in 'On Becoming A Personal Scientist-Interactive Computer Elicitation Of Personal Models Of The World' M.L.G. Shaw 1979, Academic Press. The techniques have been applied in areas such as inspection and quality control, staff appraisal, management selection and development, learning skills, social skills, psychiatry, evaluation of courses, and self-assessment.

The personal computer is now making these techniques generally available for use in the home and the office, in industry and training, to enable the children to become proficient learners, and to help with personal and family problems.

7. A Sample Run.

The following grid was elicited from a teenage boy who was having problems in forming relationships and realizing his own potential. It gives an indication of the sort of interaction which might occur.

```
                PETPA
                *******


SIMPLIFIED VERSION OF PEGASUS 1976, FOR PET COMPUTER
WRITTEN BY MILDRED L.G. SHAW
MIDDLESEX POLYTECHNIC (LONDON,U.K.)


ELICITATION OF ELEMENTS (SEE MANUAL)
SIX REQUIRED INITIALLY
ELEMENT   1   ?MOTHER
ELEMENT   2   ?FATHER
ELEMENT   3   ?BROTHER
ELEMENT   4   ?SELF
ELEMENT   5   ?TEACHER
ELEMENT   6   ?GRANNY N


ELICITATION OF CONSTRUCT 1
CONSIDER THE TRIAD
  2 FATHER
  5 TEACHER
  6 GRANNY N


DECIDE WHICH TWO ARE MORE ALIKE AND
THEREFORE DIFFERENT FROM THE THIRD.
WHAT IS THE NUMBER OF THE ODD ONE ??
IN ONE OR TWO WORDS SAY WHY
GRANNY N AND TEACHER
ARE MORE ALIKE
  ?MATURE
NOW WHAT IS THE OPPOSITE OF
MATURE
WHICH MAKES FATHER DIFFERENT
  ?IMMATURE

NOW EACH OF YOUR ELEMENTS MUST
BE ASSIGNED A PLACE ALONG THIS
SCALE FROM 1 FOR THOSE MOST
MATURE
TO 5 FOR THOSE MOST
IMMATURE


  6 GRANNY N      1
  5 TEACHER       1
  2 FATHER        5
  1 MOTHER        ?1
  3 BROTHER       ??
  4 SELF          ??

DO YOU WANT TO CHANGE ANY OF THESE ?NO
```

```
ELICITATION OF CONSTRUCT 3
CONSIDER THE TRIAD
  3 BROTHER
  5 TEACHER
  2 FATHER


DECIDE WHICH TWO ARE MORE ALIKE AND
THEREFORE DIFFERENT FROM THE THIRD.
WHAT IS THE NUMBER OF THE ODD ONE ?5
IN ONE OF TWO WORDS SAY WHY
BROTHER AND FATHER
ARE MORE ALIKE
  ?FRIENDLY
NOW WHAT IS THE OPPOSITE OF
FRIENDLY
WHICH NAMES TEACHER DIFFERENT
  ?UNFRIENDLY

NOW EACH OF YOUR ELEMENTS MUST
BE ASSIGNED A PLACE ALONG THIS
SCALE FROM 1 FOR THOSE MOST
FRIENDLY
TO 6 FOR THOSE MOST
UNFRIENDLY


  3 BROTHER       1
  2 FATHER        1
  5 TEACHER       2
  1 MOTHER        ?1
  4 SELF          ?1
  6 GRANNY M      ??


DO YOU WANT TO CHANGE ANY OF THESE ?YES
  1 MOTHER        ??
  2 FATHER        ?1
  3 BROTHER       ?1
  4 SELF          ??
  5 TEACHER       ??
  6 GRANNY M      ?1


DO YOU WANT TO CHANGE ANY OF THESE ?NO


ELICITATION OF CONSTRUCT 3
CONSIDER THE TRIAD
  1 MOTHER
  5 TEACHER
  4 SELF
```

```
DECIDE WHICH TWO ARE MORE ALIKE AND
THEREFORE DIFFERENT FROM THE THIRD.
WHAT IS THE NUMBER OF THE ODD ONE ?5
IN ONE OR TWO WORDS SAY WHY
MOTHER AND SELF
ARE MORE ALIKE
  ?ANTI-SOCIAL
NOW WHAT IS THE OPPOSITE OF
ANTI-SOCIAL
WHICH MAKES TEACHER DIFFERENT
  ?SOCIAL

NOW EACH OF YOUR ELEMENTS MUST
BE ASSIGNED A PLACE ALONG THIS
SCALE FROM 1 FOR THOSE MOST
ANTI-SOCIAL
TO 2 FOR THOSE MOST
SOCIAL


  1 MOTHER        1
  4 SELF          1
  5 TEACHER       2
  2 FATHER        ?2
  3 BROTHER       ?2
  6 GRANNY M      ?2


DO YOU WANT TO CHANGE ANY OF THESE ?NO

THE TWO CONSTRUCTS
  2 FRIENDLY--UNFRIENDLY
  3 SOCIAL--ANTI-SOCIAL
ARE MATCHED AT 66 %
SO THAT WHEN YOU ARE SAYING
FRIENDLY YOU ARE ALSO SAYING
SOCIAL
AND WHEN YOU ARE SAYING
UNFRIENDLY YOU ARE ALSO SAYING
ANTI-SOCIAL


CAN YOU THINK OF A NEW ELEMENT
WHICH IS EITHER FRIENDLY
AND ANTI-SOCIAL OR ALTERNATIVELY
SOCIAL AND UNFRIENDLY

IF YOU CANNOT, TYPE *
NAME YOUR ELEMENT
ELEMENT 7   ?*


ELICITATION OF CONSTRUCT 4
CONSIDER THE TRIAD
  6 GRANNY M
  5 TEACHER
  4 SELF
```

```
DECIDE WHICH TWO ARE MORE ALIKE AND
THEREFORE DIFFERENT FROM THE THIRD.
WHAT IS THE NUMBER OF THE ODD ONE  ?5
IN ONE OF TWO WORDS SAY WHY
GRANNY M AND SELF
ARE MORE ALIKE
  ?INERT
NOW WHAT IS THE OPPOSITE OF
INERT
WHICH MAKES TEACHER DIFFERENT
  ?ACTIVE

NOW EACH OF YOUR ELEMENTS MUST
BE ASSIGNED A PLACE ALONG THIS
SCALE FROM 1 FOR THOSE MOST
INERT
TO 2 FOR THOSE MOST
ACTIVE


  6 GRANNY M      1
  4 SELF          1
  5 TEACHER       2
  1 MOTHER        ?1
  2 FATHER        ?2
  3 BROTHER       ?2


DO YOU WANT TO CHANGE ANY OF THESE ?N

THE TWO CONSTRUCTS
  3 SOCIAL--ANTI-SOCIAL
  4 ACTIVE--INERT
ARE MATCHED AT 66 %
SO THAT WHEN YOU ARE SAYING
SOCIAL YOU ARE ALSO SAYING
ACTIVE
AND WHEN YOU ARE SAYING
ANTI-SOCIAL YOU ARE ALSO SAYING
INERT


CAN YOU THINK OF A NEW ELEMENT
WHICH IS EITHER SOCIAL
AND INERT OR ALTERNATIVELY
ACTIVE AND ANTI-SOCIAL

IF YOU CANNOT, TYPE *
NAME YOUR ELEMENT
ELEMENT 7    ?*


DO YOU WANT TO FINISH  ?NO
ELICITATION OF CONSTRUCT 5
CONSIDER THE TRIAD
  5 TEACHER
  6 GRANNY M
  4 SELF
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DECIDE WHICH TWO ARE MORE ALIKE AND
THEREFORE DIFFERENT FROM THE THIRD.
WHAT IS THE NUMBER OF THE ODD ONE ?4
IN ONE OR TWO WORDS SAY WHY
TEACHER AND GRANNY M
ARE MORE ALIKE
  ?SERIOUS
NOW WHAT IS THE OPPOSITE OF
SERIOUS
WHICH MAKES SELF DIFFERENT
  ?FRIVOLOUS

NOW EACH OF YOUR ELEMENTS MUST
BE ASSIGNED A PLACE ALONG THIS
SCALE FROM 1 FOR THOSE MOST
SERIOUS
TO 2 FOR THOSE MOST
FRIVOLOUS


  5 TEACHER       1
  6 GRANNY M      1
  4 SELF          ?
  1 MOTHER        ?2
  2 FATHER        ?3
  2 FATHER        ??
  3 BROTHER       ?2


DO YOU WANT TO CHANGE ANY OF THESE ?NO

THE TWO CONSTRUCTS
  1 MATURE--IMMATURE
  5 SERIOUS--FRIVOLOUS
ARE MATCHED AT 66 %
SO THAT WHEN YOU ARE SAYING
MATURE YOU ARE ALSO SAYING
SERIOUS
AND WHEN YOU ARE SAYING
IMMATURE YOU ARE ALSO SAYING
FRIVOLOUS


CAN YOU THINK OF A NEW ELEMENT
WHICH IS EITHER MATURE
AND FRIVOLOUS OR ALTERNATIVELY
SERIOUS AND IMMATURE

IF YOU CANNOT, TYPE *
NAME YOUR ELEMENT
ELEMENT 7   ?CAT
PLEASE RATE CAT ON ALL YOUR
CONSTRUCTS BY TYPING IN A RATING
FROM 1 IF SIMILAR TO THE LEFT POLE
TO 2 IF MORE LIKE THE RIGHT POLE
```

```
MATURE--IMMATURE ?1
FRIENDLY--UNFRIENDLY ??
SOCIAL--ANTI-SOCIAL ??
ACTIVE--INERT ??
SERIOUS--FRIVOLOUS ??
DO YOU WANT TO CHANGE ANY OF THESE ?Y
MATURE--IMMATURE ?1
FRIENDLY--UNFRIENDLY ?1
SOCIAL--ANTI-SOCIAL ??
ACTIVE--INERT ??
SERIOUS--FRIVOLOUS ?2
DO YOU WANT TO CHANGE ANY OF THESE ?NO


DO YOU WANT TO FINISH ?N
ELICITATION OF CONSTRUCT 6
CONSIDER THE TRIAD
 3 BROTHER
 6 GRANNY M
 5 TEACHER


DECIDE WHICH TWO ARE MORE ALIKE AND
THEREFORE DIFFERENT FROM THE THIRD.
WHAT IS THE NUMBER OF THE ODD ONE ?5
IN ONE OF TWO WORDS SAY WHY
BROTHER AND GRANNY M
ARE MORE ALIKE
 ?TALKATIVE
NOW WHAT IS THE OPPOSITE OF
TALKATIVE
WHICH MAKES TEACHER DIFFERENT
 ?QUIET

NOW EACH OF YOUR ELEMENTS MUST
BE ASSIGNED A PLACE ALONG THIS
SCALE FROM 1 FOR THOSE MOST
TALKATIVE
TO 2 FOR THOSE MOST
QUIET


 3 BROTHER      1
 6 GRANNY M     1
 5 TEACHER      2
 1 MOTHER       ??
 2 FATHER       ?1
 4 SELF         ??
 7 CAT          ??


DO YOU WANT TO CHANGE ANY OF THESE ?N
```

THE TWO CONSTRUCTS
 2 FRIENDLY--UNFRIENDLY
 6 TALKATIVE--QUIET
ARE MATCHED AT 71 %
SO THAT WHEN YOU ARE SAYING
FRIENDLY YOU ARE ALSO SAYING
TALKATIVE
AND WHEN YOU ARE SAYING
UNFRIENDLY YOU ARE ALSO SAYING
QUIET

CAN YOU THINK OF A NEW ELEMENT
WHICH IS EITHER FRIENDLY
AND QUIET OR ALTERNATIVELY
TALKATIVE AND UNFRIENDLY

IF YOU CANNOT, TYPE *
NAME YOUR ELEMENT
ELEMENT 8  ?*

DO YOU WANT TO FINISH ?NOT YET
ELICITATION OF CONSTRUCT 7
CONSIDER THE TRIAD
 2 FATHER
 5 TEACHER
 7 CAT

DECIDE WHICH TWO ARE MORE ALIKE AND
THEREFORE DIFFERENT FROM THE THIRD.
WHAT IS THE NUMBER OF THE ODD ONE ??
IN ONE OF TWO WORDS SAY WHY
CAT AND TEACHER
ARE MORE ALIKE
 ?LIKE I'D LIKE TO BE
NOW WHAT IS THE OPPOSITE OF
LIKE I'D LIKE TO BE
WHICH MAKES FATHER DIFFERENT
 ?NOT LIKE I'D LIKE TO BE

NOW EACH OF YOUR ELEMENTS MUST
BE ASSIGNED A PLACE ALONG THIS
SCALE FROM 1 FOR THOSE MOST
LIKE I'D LIKE TO BE
TO 8 FOR THOSE MOST
NOT LIKE I'D LIKE TO BE

 7 CAT  1
 5 TEACHER  1
 2 FATHER  2
 1 MOTHER  ??
 3 BROTHER  ??
 4 SELF  ??
 6 GRANNY M  ??

DO YOU WANT TO CHANGE ANY OF THESE ?NO

DO YOU WANT TO FINISH ?NO
ELICITATION OF CONSTRUCT 8
CONSIDER THE TRIAD
 2 FATHER
 4 SELF
 7 CAT

DECIDE WHICH TWO ARE MORE ALIKE AND
THEREFORE DIFFERENT FROM THE THIRD.
WHAT IS THE NUMBER OF THE ODD ONE ?4
IN ONE OR TWO WORDS SAY WHY
FATHER AND CAT
ARE MORE ALIKE
 ?NOT LIKE ME
NOW WHAT IS THE OPPOSITE OF
NOT LIKE ME
WHICH MAKES SELF DIFFERENT
 ?LIKE ME

NOW EACH OF YOUR ELEMENTS MUST
BE ASSIGNED A PLACE ALONG THIS
SCALE FROM 1 FOR THOSE MOST
NOT LIKE ME
TO 2 FOR THOSE MOST
LIKE ME

 2 FATHER 1
 7 CAT 1
 4 SELF 2
 1 MOTHER ?2
 3 BROTHER ?1
 5 TEACHER ?1
 6 GRANNY M ?1

DO YOU WANT TO CHANGE ANY OF THESE ?NO

THE TWO CONSTRUCTS
 2 FRIENDLY--UNFRIENDLY
 8 NOT LIKE ME--LIKE ME
ARE MATCHED AT 71 %
SO THAT WHEN YOU ARE SAYING
FRIENDLY YOU ARE ALSO SAYING
NOT LIKE ME
AND WHEN YOU ARE SAYING
UNFRIENDLY YOU ARE ALSO SAYING
LIKE ME

```
CAN YOU THINK OF A NEW ELEMENT
WHICH IS EITHER FRIENDLY
AND LIKE ME OR ALTERNATIVELY
NOT LIKE ME AND UNFRIENDLY

IF YOU CANNOT, TYPE *
NAME YOUR ELEMENT
ELEMENT 8   ?GRANNY F
PLEASE RATE GRANNY F ON ALL YOUR
CONSTRUCTS BY TYPING IN A RATING
FROM 1 IF SIMILAR TO THE LEFT POLE
TO 2 IF MORE LIKE THE RIGHT POLE
MATURE--IMMATURE ?1
FRIENDLY--UNFRIENDLY ?2
SOCIAL--ANTI-SOCIAL ?2
ACTIVE--INERT ?2
SERIOUS--FRIVOLOUS ?1
TALKATIVE--QUIET ?2
LIKE I'D LIKE TO BE--NOT LIKE I'D LIKE TO BE ?1
NOT LIKE ME--LIKE ME ?1
DO YOU WANT TO CHANGE ANY OF THESE ?NO


DO YOU WANT T/ FINISH ?YES

YOU NOW HAVE 8 ELEMENTS
AND 8 CONSTRUCTS


ELEMENTS
********

 1 MOTHER
 2 FATHER
 3 BROTHER
 4 SELF
 5 TEACHER
 6 GRANNY M
 7 CAT
 8 GRANNY F


CONSTRUCTS
**********

 1 MATURE--IMMATURE
 2 FRIENDLY--UNFRIENDLY
 3 SOCIAL--ANTI-SOCIAL
 4 ACTIVE--INERT
 5 SERIOUS--FRIVOLOUS
 6 TALKATIVE--QUIET
 7 LIKE I'D LIKE TO BE--NOT LIKE I'D LIKE TO BE
 8 NOT LIKE ME--LIKE ME
```

THE GRID
********

| | * | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | * | 1 | 2 | 2 | 2 | 1 | 1 | 1 | 1 |
| 2 | * | 2 | 1 | 1 | 2 | 2 | 1 | 1 | 2 |
| 3 | * | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 2 |
| 4 | * | 2 | 1 | 1 | 2 | 1 | 2 | 2 | 2 |
| 5 | * | 2 | 2 | 2 | 2 | 1 | 1 | 2 | 1 |
| 6 | * | 2 | 1 | 1 | 2 | 2 | 1 | 2 | 2 |
| 7 | * | 2 | 2 | 2 | 2 | 1 | 2 | 1 | 1 |
| 8 | * | 2 | 1 | 1 | 2 | 1 | 1 | 1 | 1 |

ELEMENT CLUSTERS (SEE MANUAL)

| NO. | | NEW LINK | % MATCH |
|---|---|---|---|
| 1 | * | 8 WITH 3 | 100 |
| 2 | * | 1 WITH 4 | 87.5 |
| 3 | * | 5 WITH 8 | 75 |
| 4 | * | 7 WITH 3 | 75 |
| 5 | * | 2 WITH 6 | 62.5 |
| 6 | | 3 WITH 6 | 62.5 |
| 7 | | 1 WITH 7 | 62.5 |
| 8 | | 1 WITH 3 | 62.5 |
| 9 | | 5 WITH 6 | 50 |
| 10 | | 4 WITH 7 | 50 |
| 11 | | 5 WITH 7 | 50 |
| 12 | | 6 WITH 7 | 50 |
| 13 | | 4 WITH 8 | 50 |
| 14 | | 6 WITH 8 | 50 |
| 15 | | 2 WITH 4 | 37.5 |
| 16 | | 3 WITH 4 | 37.5 |
| 17 | | 1 WITH 5 | 37.5 |
| 18 | | 2 WITH 5 | 37.5 |
| 19 | | 3 WITH 5 | 37.5 |
| 20 | | 1 WITH 6 | 37.5 |
| 21 | | 2 WITH 7 | 37.5 |
| 22 | | 3 WITH 7 | 37.5 |
| 23 | | 1 WITH 2 | 25 |
| 24 | | 1 WITH 3 | 25 |
| 25 | | 4 WITH 5 | 25 |
| 26 | | 4 WITH 6 | 25 |
| 27 | | 2 WITH 3 | 12.5 |
| 28 | | 3 WITH 8 | 12.5 |

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