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<u>Anniversary Number:</u>

<u>Short Report of the Telgte Meeting</u>
<u>on Social Dimensions of Taste</u>

<u>Summary:</u>

Apropos of the edition of No.5o of the research
report series an authors' meeting on matters of
taste took place near Telgte. Its most significant
results are reported in this anniversary number.

Short Report of the Telgte Meeting on Social Dimensions of Taste

The intended publication of an anniversary number (No.50) of the re-
search report series "Bielefelder Arbeiten zur Sozialpsychologie" in June,
1979, led Dietrich Brackwede to organize an ad-hoc authors' workshop. Since
the series editor had placed several bottles of French wine (vin d'Alsace)
at the authors' disposal all relevant conditions for a successful discussion
of current and future trends in social psychology were given. So the meeting
took place at the end of may, 1979, near Telgte in Westphalia.

The first topic of discussion was the publication language: English,
German, or French. The well known viewpoints of Werner TRAXEL (1975) and
Gustav Adolf LIENERT (1977) against and for English were confronted with
each other. The grafitti of a young Bielefeld student of sociology on Pro-
fessor Mummendey's door ("schreib deutsch du Arsch!") gave further support
for a discussion of the social relevant question whether German should be
the most sensitive language for publication. Finally, there was a strong
preference for English. French had been without chance (thus running counter
modern trends within the European Association of Experimental Social Psycho-
logy) because the wine was French.

After having decided for English the authors started discussing methodo-
logical problems in a broader sense. Most of the participants of the meeting
carried with them TAJFEL & FRASER's (1978) Penguin book because it had less
weight than ISRAEL & TAJFEL's (1972) critical assessment of the context of
social psychology. The discussion switched over to a critical analysis of
critical psychology and touched some practical aspects of modern action
research and modern action theory (Handlungstheorie). The notion was accep-
ted that a modern psychological theory of action would have to start from
the concept of human individuals that are in one way ore another active.
Taken this as a substantive result of discussion with implications for
further methodological and/or theoretical research, Gabriele Löschper,
our youngest coworker opended the first white wine bottle. The full flavour
of GEWURZTRAMINER gave rise to the still undiscussed question whether dif-
ferent dimensions of taste govern social psychologists' judgments when they
discuss social scientific problems.

While taste has been a well-known object of psychophysics - Gustav Theodor
FECHNER himself has facilitated experimental taste psychology by his famous
study on cross-sections of sausage (Salami) - more complex research on human

taste has more and more become a matter of researcher's taste. This led
some of the Bielefeld authors to the question whether eliminating deficits
of research on taste by investigating empirically the dimensions of taste
of French sorts of wine (e.g., vins d'Alsace) would be of social relevance,
yes or no. They decided "yes" because the majority thought that nothing
would be a more genuine social matter than sitting together and tasting
while discussing matters of taste. Furthermore there was complete agreement
that it would be difficult to find a problem that could not be due to a
social psychological analysis since it would be hard work to find an object
of research that is not "social". Finally the operationist's viewpoint that
social psychology is what social psychologists do decided the issue of dis-
cussion. The participants of the Telgte meeting agreed to restrict them-
selves on a limited number of stimuli to taste, and their unanimous votes
were for tasting and evaluating different sorts of Alsatian wine.

Three of the authors or subjects immediately performed a simple pair
comparison procedure à la Louis Leon THURSTONEs method of pair comparison
(cf. GUILFORD 1954) involving four stimuli (two GEWURZTRAMINERs and two
RIESLINGs) in an adjacent room. By consuming and comparing each possible
pair of stimuli, $n(n-1)/2$ pair comparisons resulted when sequence
or order effects were neglected, where the criterion of judment was called
"Kräftigkeit/Mundigkeit". The resulting unidimensional "Mundigkeit"-scale
was 0.00 - 0.06 - 0.25 - 2.45, thus indicating the existence of a
dominant taste of only one of the stimuli (a GEWURZTRAMINER) over the three
others including another GEWURZTRAMINER. It was argued that only one di-
mension would not be sufficient to characterize French wines. Moreover the
criterion seems to be synonymous with "Gewürztraminerhaftigkeit" so that
the result could be trivial though one of the GEWURZTRAMINERs did not differ
from the RIESLINGs. The results of this rather primitive scaling procedure
seem to show how necessary it would be to detect fundamental dimensions or
factors of taste by using multivariate procedures and having some knowledge
of the dimensional structure of taste before assessing specific sorts of
wine according to some criterion of taste. As a result the participants of
the Telgte meeting decided to start a multidimensional scaling procedure
using all different sorts of Alsatian wine being accessible.

Eight stimuli bottled in neutral-looking containers labeled A to H were
prepared by one of the colleagues who was expected to remember the code
less than the others as a result of the foregoing THURSTONE procedure. The

subjects made comparisons of each pair of stimuli with regard to their perceived <u>distance</u> or <u>similarity</u>. The distance scale was a five-points rating scale (1 for minimal, 5 for maximal distance). The drinking procedure included $n(n-1)/2 = 28$ pair comparisons (double-gulps) of random order. The resulting distance matrix is presented in <u>Table I</u>.

Table I:

<u>Mean distance scores of pairs of Alsatian wine. The 8 stimuli are coded</u>
<u>A to H. Letters in brackets indicate different vine-growers.</u>

		A	B	C	D	E	F	G	H
RIESLING (B)	A	--	3.0	2.6	3.4	3.4	2.4	2.0	2.6
GEWURZTRAMINER (S)	B		--	3.2	3.6	2.2	2.8	3.2	3.0
MUSCAT (K)	C			--	2.8	3.2	3.0	3.6	4.0
MUSCAT (M)	D				--	4.0	3.0	4.2	3.6
GEWURZTRAMINER (K)	E					--	2.8	2.6	2.4
SYLVANER (K)	F						--	2.4	1.6
RIESLING (S)	G							--	2.0
RIESLING (K)	H								--

To get some rough informations about clusters of stimuli a cluster analysis was performed. The method of choice was a cluster analysis programmed by the Health Sciences Computing Facility of the University of California, where clusters can be identified according to different amalgamation rules (BMDP1M). All processes begin with a cluster of one variable, this cluster joins with the cluster consisting of a second variable (or a second and a third) which is joined with a cluster that consists of one or some more variables, and so on. The first amalgamation rule were the <u>maximal</u> <u>distances</u> between the clustered variables, the second rule were the <u>minimal</u> <u>distances</u>, and the third amalgamation rule were the intercorrelations within the clusters. Distance scores were transformed into correlation coefficients according to LINNEWEBER's (1969) procedure. <u>Tables II to IV</u> show the resulting clusterings according to the three different procedures applied, when trees are constructed over the correlation matrices.

```
TREE PRINTED OVER CORRELATION MATRIX (SCALED 0-100).
CLUSTERING BY MAXIMUM DISTANCE METHOD.
     VARIABLE
NAME       NO.
                   -----------------------/
A        (  1) 88/79/85 88 74 81 81/
                 / /                   /
E        (  5)/83/77 93 81 87 79/
                /                     /
F        (  6)/83 85 79 85 69/
                             /
                 -------------/
B        (  2) 90 87/87 85/
                    /     /
                 ----/   /
D        (  4) 94/83 90/
                /     /
               /     /
G        (  7)/90 74/
                    /
                 ----/
C        (  3) 93/
                 /
H        (  8)/
```

Table II:

Clustering by maximum distance method

```
TREE PRINTED OVER CORRELATION MATRIX (SCALED 0-100).
CLUSTERING BY MINIMUM DISTANCE METHOD.
     VARIABLE
NAME       NO.
                   ---------------------/
A        (  1) 85 88 74 88 81 81/79/
                             / /
                 -----------------// /
B        (  2) 90 87 77/87 85/83/
                      /     / /
                 -------/   / /
D        (  4) 94/93/83 90/85/
                / /     / /
               / /     / /
G        (  7)/81/90 74/79/
               /     / /
              /     / /
E        (  5)/87 79/83/
                    / /
                 ----/ /
C        (  3) 93/85/
                 / /
                / /
H        (  8)/69/
                 /
F        (  6)/
```

Table III:

Clustering by minimum distance method

```
TREE PRINTED OVER CORRELATION MATRIX (SCALED 0-100).
CLUSTERING BY AVERAGE DISTANCE METHOD.
     VARIABLE
  NAME      NO.
                 --------------------/
  A      ( 1) 88/85 88 74 81 81/79/
               /                /  /
              /                /  /
  E      ( 5)/77 93 81 87 79/83/
                            /  /
                 -----------/  /
  B      ( 2) 90 87/87 85/83/
               /       /  /
              ----/   /  /
  D      ( 4) 94/83 90/85/  .
               /     /  /
              /     /  /
  G      ( 7)/90 74/79/
                  /  /
              ----/  /
  C      ( 3) 93/85/
               /  /
              /  /
  H      ( 8)/69/
               /
              /
  F      ( 6)/
```

Table IV:

Clustering by average
distance method

Tables II to IV show complete agreement of the three cluster analyses:

1) variables D, G form the first cluster (a MUSCAT and a RIESLING)

2) variables D, G, B form the second cluster (a GEWURZTRAMINER joins the two)

3) variables D, G, B, H, C form the third cluster (another RIESLING and MUSCAT follow).

Since the participants of the Telgte meeting were not completely satisfied with what they called the DGB cluster because they were suspicious of the clusterings as being not independent of the specific amalgamation rules applied to the data they immediately tried two other rules, namely the maximal and minimal distances between the variables within the clusters when trees are constructed over the distance matrices. These cluster analyses agreed only in part with each other but by no means with the former ones, showing

1) a cluster consisting of variables A, G (two RIESLINGs)

2) a cluster of variables A, G, F, H (three RIESLINGs and a SYLVANER)

3) a cluster of variables A, G, F, H, B, E.
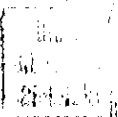
There was no agreement which rules to accept and which clusters to prefer. While some authors had a strong preference for the DGB cluster others preferred the RIESLING cluster solution. But all colleagues agreed with the interpretation that different results would be received when different criteria were applied.

Before a multidimensional scaling was tried a proposal was made to factor-analyse the data in any case: "Everything is factor-analyzed today, why not factor-analyze the wine data!". Since the method is a robust one and the number of variables did not exceed the number of authors there were no inhibitions to apply a principal components analysis with varimax rotations (SPSSPA2). The results were quite startling: Only one single factor with eigenvalue more than 1 was extracted. The factor was due to 73 percent of the total variance. The loadings are presented in Table V.

Table V: Correlation coefficients and factor matrix of eight Alsatian wines (A to H)

	A	B	C	D	E	F	G	H
A	1,00000	0,70700	0,63200	0,77500	0,77500	0,59200	0,50000	0,63200
B	0,70700	1,00000	0,74200	0,80600	0,54800	0,67100	0,74200	0,70700
C	0,63200	0,74200	1,00000	0,67100	0,74200	0,70700	0,80600	0,86600
D	0,77500	0,80600	0,67100	1,00000	0,86600	0,70700	0,89400	0,80600
E	0,77500	0,54800	0,74200	0,86600	1,00000	0,67100	0,63200	0,59200
F	0,59200	0,67100	0,70700	0,70700	0,67100	1,00000	0,59200	0,38700
G	0,50000	0,74200	0,80600	0,89400	0,63200	0,59200	1,00000	0,50000
H	0,63200	0,70700	0,86600	0,80600	0,59200	0,38700	0,50000	1,00000

FACTOR 1

A	0,78789
B	0,84687
C	0,88955
D	0,97008
E	0,83037
F	0,73534
G	0,80700
H	0,77309

VARIABLE	COMMUNALITY	FACTOR	EIGENVALUE	PCT OF VAR	CUM PCT
A	0,62077	1	5,55063	100,0	100,0
B	0,71718				
C	0,79130				
D	0,94222				
E	0,68951				
F	0,54072				
G	0,65125				
H	0,59767				

NUMBER OF FACTORS LE 1 ROTATION MAKES NO SENSE
PROCESSING CONTINUES BYPASSING ROTATION

The resulting principal factor is nearly identical with variable D (MUSCAT of vine-grower M), and least identical with variable F (SYLVANER of vine-grower K). Since there is only one single factor underlying all the drinks it was called "alcool" oder "wine". (Prof.K.RAINIO of Helsinki University some time ago delt with the problem of scaling all political parties of Finland according to their similarity; he did find only one dimension, too, which he called "communism"; according to an oral communication at Lämershagen, may 29th, 1979.)

Especially the female participants of the anniversary meeting felt that factor analysis is not sensitive enough to detect independent dimensions of taste. They voted for MINISSA. So the authors applied MINISSA, a multidimensional scaling program by ROSKAM & LINGOES (cf. LINGOES & ROSKAM 1973) in the Edinburgh version of september 30, 1975 (funded by S.S.R.C.Grant No. HR 3070/1). When MINISSA was run, all KRUSKAL stress coefficients for eight to four dimensions became zero. The stress coefficients were acceptable only for the three and two dimensions solutions, namely

$$0.86592 \times 10^{-2} \text{ for three dimensions,}$$
$$0.75491 \times 10^{-1} \text{ for two dimensions,}$$

i.e., there was to make a decision between two solutions. Since the authors found it much easier to read a two-dimensional diagram than to interpret a three-dimensional one the two-dimensions solution was preferred. It appears in Figure 1, while the final configuration and distance matrix is presented in Table VI.

Table VI:

Two-dimensional MINISSA solution; numbers 1-8 stand for wines A-H

F I N A L   C O N F I G U R A T I O N

	1	2
1	.1160	.5704
2	-.4139	-.9330
3	.9958	-.6910
4	1.5271	.5331
5	-.6557	-.6809
6	-.1967	.4041
7	-.5434	.5660
8	-.8268	.3812

MEAN	.0000	.0003
SIGMA	.7872	.6167

DISTANCES

	1	2	3	4	5	6	7
2	1.6246						
3	1.5376	1.4416					
4	1.4314	2.3391	1.1538				
5	1.4714	.3677	1.6515	2.4468			
6	.3547	1.3952	1.6190	1.7253	1.1781		
7	.0039	1.6035	2.4407	2.0941	1.3519	.4021	
8	.9163	1.3654	2.1045	2.3541	1.3560	.6716	.4183

Figure 1:

Results of MDS of 8 Alsatian wines (C,D=MUSCATs, E,B=GEWURZTRAMINERs, H,G,A=RIESLINGs, F=Sylvaner); dimension 2 (vertical) is plotted against dimension 1 (horizontal)
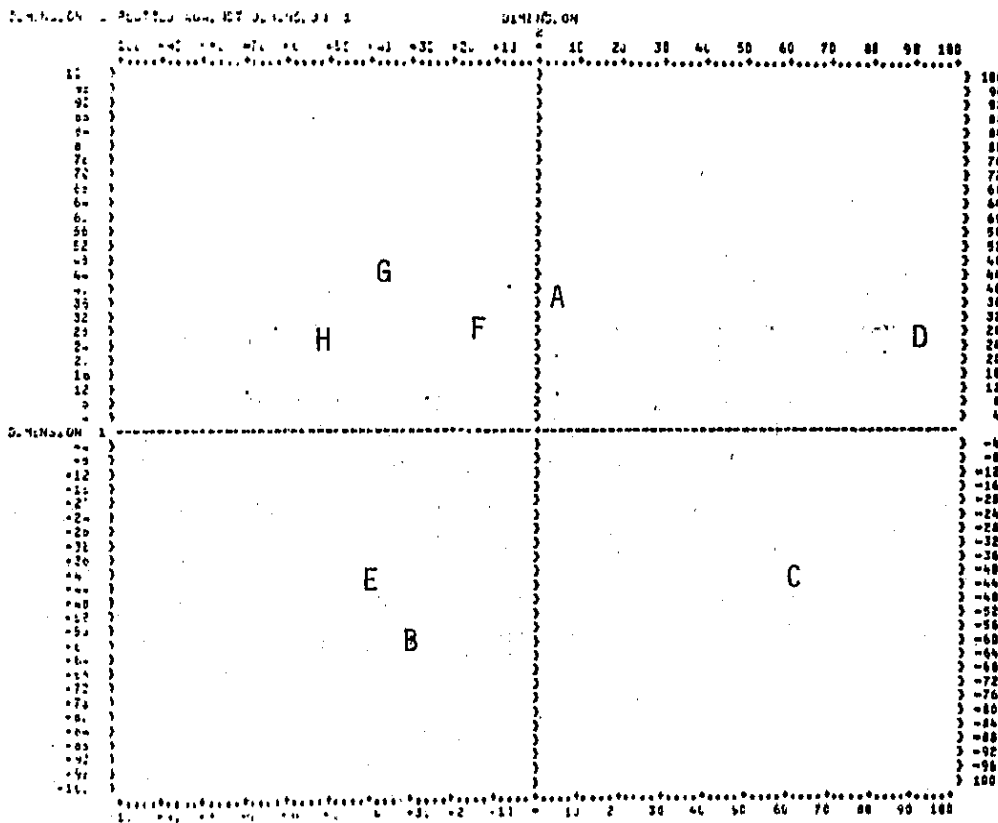

Fig.1 shows wines C and D (the MUSCATs) scoring high on dimension 1 as compared with all other stimuli. So we should call dimension 1 a MUSCAT dimension. Dimension 2 seems to be a bipolar one polarizing wines B, E (the GEWURZTRAMINERs) and wines A, F, G, H (the RIESLINGs and the SYLVANER). Accordingly we could call dimension 2 a RIESLING vs. GEWURZTRAMINER dimension. (If the colleagues had preferred a three dimensions solution each group of wines were represented by a specific dimension.)

As a result of the scaling procedure the labels sticked on by the wine-growers are reflected in the dimensions of taste. We could speak of a labeling effect.

Terminating the Telgte meeting the participants evaluated the results as being to a high degree dependent on the methods applied. Where cluster analyses lead to a DGB cluster, factor analysis extracts a general alcool factor. It is only multidimensional scaling that gives support to the labeling approach.

References

GUILFORD,J.P. Psychometric methods. New York-Toronto-London: McGraw-Hill 1954.

ISRAEL,J. & TAJFEL,H. (Eds.) The context of social psychology: A critical assessment. London: Academic Press (European Monographs in Social Psychology) 1972.

KRUSKAL,J.B. Multidimensional scaling by optimizing goodness of fit to a non-metric hypothesis. Psychometrika, 29, 1964, 1-27.

LIENERT,G.A. Über Werner Traxel: Internationalität oder Provinzialismus, zur Frage: Sollten Psychologen in Englisch publizieren? Psychologische Beiträge, 19, 1977, 487-492.

LINGOES,J.C. & ROSKAM,E.E. A mathematical and empirical analysis of two multi-dimensional scaling algorithms. Psychometrika Monograph Supplement No.19, 1973.

LINNEWEBER,V.W. Über Transformationsprobleme bei der Anwendung von Assoziations- und Distanzmaßen. Psychologische Beiträge, 12, 1969, 127-128.

TAJFEL,H. & FRASER,C. (Eds.) Introducing social psychology. Harmondsworth: Penguin Books 1978.

TRAXEL,W. Internationalität oder Provinzialismus. Psychologische Beiträge, 17, 1975, 584-594.