

7. ON THE MULTIVARIATE STRUCTURE OF WELLBEING

(Received 26 September, 1975)

Abstract. A mapping sentence is provided for defining the universe of observations of wellbeing. According to this, assessment of wellbeing is attitudinal. Data from several studies verify that the First Law of Attitude holds for wellbeing. These data also show the structure of the interrelationships among the variables to be that of intermeshing cylindrexes, in an SSA space of four dimensions. Areas of life play the role of polarizing facets, while self-versus-community and situation-versus-treatment serve as axial facets. Modulating facets include primary-to-secondary interaction, and generality-to-specificity.

1. INTRODUCTION

The concept of 'wellbeing' is widespread, but not technically defined in the social science literature. For example, it does not appear in English and English's (1958) *A Comprehensive Dictionary of Psychological and Psychoanalytical Terms* nor in the *International Encyclopedia of the Social Sciences* (1968). A description of the concept has been recently attempted by Andrews (1974, p. 280): "Wellbeing is broadly conceived to mean the 'level' of life quality – i.e., the extent to which pleasure and satisfaction characterize human existence and the extent to which people can avoid the various miseries which are potentially the lot of each of us".

Andrews' discussion is similar to that previously made by Bradburn and Caplovitz (1965, p. 1), where they make an explicit avowal of lack of definition: "The underlying assumption of this research is that there is a dimension variously called mental health, subjective adjustment, happiness, or psychological well-being, and that individuals can be meaningfully described as being relatively high or low on such a dimension. At present there is neither a generally agreed upon name for this dimension nor agreement as to the appropriate methods of deciding where a particular individual should be placed on it."

Psychological wellbeing may be regarded as an aspect of mental health, but this does not help clarify the definitional problem, since 'mental

health' itself has no agreed-on definition (Jahoda, 1958). Furthermore, there are varieties of wellbeing other than psychological. Indeed, in related work, Allardt (1973, p. 1) emphasizes that the problem is not unidimensional: "Welfare is conceived as a multidimensional phenomenon composed of several dimensions of values" (p. 1).

Lack of a basic definition impedes both empirical research and theory development in any area, and this appears to have been true regarding 'wellbeing'. A proper definition here evidently must allow for multidimensionality. In the present paper we shall propose a formal definition for the universe of wellbeing items, and report on empirical multivariate research guided by this definition. We hope this will stimulate further systematic research in the area, and thus help fill an important lacuna in the social science literature.

In effect, we shall present a partial theory for the structure of inter-correlations among the varieties of wellbeing. By 'theory' we mean 'an hypothesis of a correspondence between a definitional system for a universe of observations and an aspect of the empirical structure of those observations, together with a rationale for such an hypothesis' (Gratch, 1973, p. 35). The aspect of the empirical observations on which we shall focus is the correlation matrix for wellbeing items for a population at a single point of time. (For an example of a dynamic theory – over several points of time – on a related topic, see Guttman and Levy, 1975.) The two sample correlation matrices which will serve as our main empirical data are given in Tables I and II below.

A clear framework for research on wellbeing, and the conduct of cumulative research made possible thereby, are especially important for the growing field of social problem indicators. The present development stems from our previous work on such indicators (Guttman, 1971; Guttman and Levy, 1975; Levy, 1976), and is part of current work on this broader topic. The empirical data come from the Continuing Survey (of the Israel urban adult population), conducted jointly by the Israel Institute of Applied Social Research and the Communications Institute of the Hebrew University. Two surveys – spring and summer of 1973 – provide the data for our main analysis. Further partial replication comes from data of a previous survey of spring 1971, as well as from some U.S. data of spring 1971.

2. DEFINITION OF THE UNIVERSE OF WELLBEING ITEMS

A preliminary definition for 'wellbeing' that may serve as a useful point of departure for social research is that given under 'welfare' in the *Concise Oxford Dictionary*:

Welfare. Satisfactory state, health and prosperity, wellbeing (usually of person, society, etc.; or with *my* etc.).

For the purposes of theory construction and research design, it has been found useful to define concepts through the universe of items with which the theory is concerned (Gratch, 1973; esp. pp. 36-7). This requires specifying facets both for the *domain* (question part) and the *range* (possible answers) of the items. The Oxford Dictionary definition implies at least two facets for the domain of the universe of items of wellbeing, as well as a common range for the items of this universe.

One facet for the domain is the subject whose wellbeing is being studied: an individual or a group. A second facet is the area of life in which the wellbeing is assessed: health, economic prosperity, and others.

The range implied by the definition is from 'very satisfactory' to 'very unsatisfactory'. We understand the concept of 'satisfactory' here to be normative. Accordingly, a further facet that may be considered is the referent who establishes the norm: the individual himself, his group, or some other individual or some other group (compare the definition of 'social problem' items in Guttman, 1971, pp. 45-6).

Clearly, the level of wellbeing of an individual or of a group may vary from one area of life to another – and within areas of life. As does any universe of items, that for wellbeing generates a multivariate distribution when observed for a given population. Different varieties of wellbeing items can have different sizes of correlations among themselves for the same population. Hence, it is of interest to ascertain the structure of interrelations among varieties of wellbeing: how do the differential correlations relate to the definitional system? Such an investigation is the main purpose of the present paper. We shall propose a theory for the structure of wellbeing and test it with empirical data.

The definitional system for wellbeing observations that we shall adopt is in terms of *facets*. Some of the facets have been mentioned above; the others were suggested in the course of designing actual items for the fieldwork.

3. THE UNIVERSE OF OBSERVATIONS

Defining a universe of *observations* requires specifying both the universe of items (content) and the population to be observed. The universe of items will be formally defined as follows:

An item belongs to the universe of wellbeing items if and only if its domain asks for $\left(\begin{array}{l} \text{cognitive} \\ \text{affective} \\ \text{instrumental} \end{array} \right)$ assessment of the $\left(\begin{array}{l} \text{level} \\ \text{treatment} \end{array} \right)$ of the state of a social group in some life area, and the range is ordered from 'very satisfactory' to 'very unsatisfactory' according to the normative criterion of the respondent for that area of life.

As already noted, norms may vary from respondent to respondent. Generally, it is of interest to establish typologies of respondents by their norms. In the present study, it is assumed all respondents have essentially the same wellbeing norms on the life areas studied.

The population studied is that of adult Jews (20 years of age and over) residing in the larger cities of Israel: Jerusalem, Tel Aviv, Haifa, and Beersheva. The intention of the theory, of course, is to hold for any such social group in any country. Our main analysis is of the wellbeing items that were part of the spring and summer trimesters of 1973 of the Continuing Survey. The population samples consisted of 1940 respondents in the spring and 1830 in the summer, each of whom was interviewed in his home. As already remarked, supplementary data from an earlier trimester, and from the U.S., serve as partial replications for confirmation of the theory.

4. THE MAPPING SENTENCE FOR THE OBSERVATIONS

Observations are made by mapping the population into the categories of the items. Hence, design of observations implies design of the empirical mapping. A useful technique for expressing the design is that of the *mapping sentence*. This incorporates both the universe of items – such as defined above for 'wellbeing' – and the population studied.

Theory construction and development are facilitated by judicious construction of mapping sentences for the observations which are the concern of the theory. (For a general discussion of mapping sentences see Levy, 1976; also Elizur, 1970; Kernberg, *et al.*, 1972.) To this end, an optimal refinement of the facet design is sought. Our proposed mapp-

ing further who is administering the treatment. The further facets help delimit the subuniverse of wellbeing sampled in the present study.

The state or treatment is that of a certain group in a certain environmental framework. Accordingly, facet *C* classifies groups, and facet *D* environmental frameworks. For example, a respondent may evaluate his own state of wellbeing in terms of his internal primary environment (his mood, happiness, etc.) or his secondary environment (e.g. satisfaction from life in his town). Similarly, he may estimate the wellbeing of other social groups (new immigrants, the State, etc.) (To distinguish the political 'State' from 'state' meaning 'situation', the former is written throughout this paper with a capital 'S'.)

In this research, environmental facet *D* is treated as an ordered facet. The elements are ranked in terms of 'distance' from the respondent himself. For example the 'State' is defined to be a secondary framework for 'self' (of the respondent), and is more distant from 'self' than is a primary environment such as mood.

Facets *E* and *F* list the life areas for the various kinds of wellbeing. Facet *F* specifies the life area itself (family, recreation, economics, residence, etc.), and Facet *E* specifies whether assessment is being made for the life area as a whole or for some particular aspect of it (e.g. economic problems of the State vis-à-vis the particular economic problem of the poor).

The spring study contains a sample of 24 items from this universe of content. These are listed in the following table, along with the structuples which show how each fits into the Cartesian set *ABCDEF* defined by the six facets. For example, question 3 has been assigned the structuple $a_1 b_1 c_1 d_2 e_1 f_2$. This means that the first struct, a_1 , of this structuple is the first element of facet *A*, namely 'cognitive'. The second struct is b_1 , indicating that it is the *state* of wellbeing being assessed. Indeed, all of the first twelve questions have the struct b_1 ; each of these deals with a state of wellbeing. The remaining questions include some with the struct b_1 and some with the struct b_2 , the latter assessing *treatment*.

For convenience, we have included 'self' in the list of social groups; it is a group consisting of only one person. Question 3 has c_1 as its struct from facet *C*, since that question deals with the wellbeing of the respondent's self. The next struct, d_2 , indicates that the primary social environment of c_1 is involved in the assessment. The last two structs, $e_1 f_2$, show that the family life area in general is being assessed.

The structuples for the other questions have parallel interpretations. Spelling out the whole Cartesian set *ABCDEF* would provide a listing of some 5824 structuples ($2 \times 2 \times 8 \times 7 \times 2 \times 13$). To include one question of each kind in the study would require asking 5824 questions of each respondent. The necessity for selecting only a sample of questions for this study is apparent, as in most research projects which are well designed. No strictly systematic sampling design was attempted in the selection of the present 24 items; it was endeavored to have each life area represented, with about half the items dealing with 'state' and the other half with 'treatment'. Some further distinctions were between cognitive and affective assessments, and between personal wellbeing and that of the State as a whole.

The questions were put in closed form to the respondents: the categories of the ranges are indicated in the following table. In each case there are from four to five categories, and each range is ordered normatively from 'very satisfactory' to 'very unsatisfactory'.

List of Questions and their Structuples
Spring 1973 Survey

| Question number | Contents | Structuple ^a |
|-----------------|--|---|
| 1 | Generally speaking, are you happy these days? (very happy... very unhappy) | <i>a₂b₁c₁d₁e₁f₃</i> |
| 2 | How is your mood these days? (very good all the time... not good almost all the time) | <i>a₂b₁c₁d₁e₁f₄</i> |
| 3 | In general, how do you evaluate your family life? (very good... very bad) | <i>a₁b₁c₁d₂e₁f₂</i> |
| 4 | In general are you satisfied with the way you spend your leisure time? (very satisfied... not at all satisfied) | <i>a₂b₁c₁d₂e₁f₁</i> |
| 5 | In general, how do you evaluate your health these days? (very good... not at all good) | <i>a₁b₁c₁d₃e₁f₄</i> |
| 6 | Is your family income today sufficient? (definitely sufficient... insufficient) | <i>a₁b₁c₁d₃e₁f₆</i> |
| 7 | Are you satisfied with your education level? (very satisfied... very unsatisfied) | <i>a₂b₁c₁d₃e₁f₇</i> |

^a Definition of the structs in the structuples is given in the mapping sentence above. The structs of the structuples here are elements of the facets in the mapping sentence.

List of Questions (continued)

| Question number | Contents | Structuple |
|-----------------|---|-------------------------|
| 8 | In general, are you satisfied with the apartment you live in? (very satisfied... very unsatisfied) | $a_2b_1c_1d_3e_1f_1$ |
| 9 | In general, how do you evaluate the neighborhood you live in? (very good... not at all good) | $a_1b_1c_1d_4e_1f_1$ |
| 10 | In general, are you satisfied with life in <i>your town</i> these days? (very satisfied... not at all satisfied) | $a_2b_1c_1d_5e_1f_1$ |
| 11 | Do you want very much to continue living in this town? (definitely yes... definitely no) | $a_1b_1c_1d_5e_2f_1$ |
| 12 | Do you want very much to move to another town? (definitely no... definitely yes) | $a_1b_1c_1d_5e_2f_1$ |
| 13 | In general, how do you evaluate the current situation in the country with respect to work relations between employers and employees? (very good... not at all good) | $a_1b_1c_1d_6e_1f_1$ |
| 14 | Do you think that now the relations between new immigrants and veterans are good? (very good... not at all good) | $a_1b_1c_1d_6e_2f_9$ |
| 15 | When you watch Israeli TV, in general to what extent are you satisfied with the programs? (very satisfied... very unsatisfied) | $a_2b_1c_1d_6e_2f_{13}$ |
| 16 | In general, how do you evaluate the existing situation in your (or your spouse's) place of work with respect to work relations between employees and employers? (very good... not at all good) | $a_1b_1c_1d_7e_1f_1$ |
| 17 | In general, what in your opinion is the condition of new immigrants in the past 12 months? (very good... not at all good) | $a_1b_1c_1d_8e_1f_{10}$ |
| 18 | What is your opinion of the way the government handles economic problems of the country? (very good... not at all good) | $a_1b_2c_2d_8e_1f_6$ |
| 19 | Do you think the government is doing enough these days to explain its decisions? (very much... almost nothing) | $a_1b_2c_2d_8e_1f_{12}$ |
| 20 | Are you satisfied with the way the government handles strikes? (very satisfied... not at all satisfied) | $a_2b_2c_2d_8e_2f_{11}$ |
| 21 | Are you satisfied with the way the Histadrut handles strikes? (very satisfied... not at all satisfied) | $a_2b_2c_4d_8e_2f_{11}$ |

List of Questions (continued)

| Question number | Contents | Structuple |
|-----------------|--|-------------------------|
| 22 | What is your opinion of the way the authorities handle immigration problems? (very successfully... not at all successfully) | $a_1b_2c_2d_4e_2f_{10}$ |
| 23 | In your opinion, is the government doing enough for the economically deprived to improve their condition? (much more than is necessary... much less than necessary) | $a_1b_2c_3d_4e_2f_9$ |
| 24 | To what extent are you satisfied with the way the government handles problems related to terrorist activities against Israelis abroad? (very satisfied... not at all satisfied) | $a_2b_2c_2d_7e_2f_5$ |

The summer study contains a sample of 22 items which are also classified by the mapping sentence. Details will be omitted, but reference is made in appropriate places below on how the empirical findings replicate those of the spring survey.

5. ASSESSMENT OF WELLBEING IS ATTITUDINAL

The formal faceted definition above implies that the universe of wellbeing items is a subuniverse of attitudinal items: *all wellbeing items are attitudinal*. To prove this proposition, let us consider Guttman's definition of the universe of attitudinal items (Gratch, 1973, p. 36):

An item belongs to the universe of attitude items if and only if its domain asks about behavior in a $\begin{pmatrix} \text{cognitive} \\ \text{affective} \\ \text{instrumental} \end{pmatrix}$ modality toward an object, and its range is ordered from $\begin{pmatrix} \text{very positive} \\ \text{to} \\ \text{very negative} \end{pmatrix}$ towards that object.

The domain of wellbeing items does contain the facet of the three modalities of behavior toward an object. Furthermore, the wellbeing range of 'very satisfactory' to 'very unsatisfactory' is a special case of the attitudinal range 'very positive' to 'very negative'. Thus, each wellbeing item has its domain and its range conform to those necessary and sufficient for attitudinal items, which was to be shown.

It follows that general propositions about attitudes should hold in particular for assessment of wellbeing. We shall see that this is so for our data.

6. 'STATE OF SELF' AND 'GOVERNMENT'S TREATMENT' AS OBJECTS OF ASSESSMENT

An important point to be clarified is the nature of the *object* of the attitude for the case of wellbeing. What is it that is being assessed from positive to negative? This is a profound type of question which is basic to theory construction for attitudes. As the following discussion will show, the object need not always be 'obvious'; the discussion will illustrate a strategy to help pin down the object.

Technically, what is being immediately assessed is the domain of each variable in the observed set. In the present case, each domain is defined by a structuple of six structs—one from each of the six content facets. However, one or more of these facets may be specified to define the objects of the attitudes, and the others to be modifiers of these objects. The differential roles of the facets should have implications for the structure of the intercorrelations of the variables defined by them.

Inspection of the mapping sentence suggests that facet *E* is a modifier of facet *F*, facet *F* is a modifier of facet *D* and facet *D* is a modifier of facet *C*. Hence none of facets *D*, *E*, and *F* appears to be that of objects of the attitude; they are modifiers of the objects. Facet *A* modifies the act of assessment and hence also is not a candidate for being the object of the assessment. This leaves facets *B* and *C* for consideration.

Facet *C* presents a variety of social groups to which we have added the label 'reference' for one's self. This allows for the alternative variety of social groups which one does *not* consider to be his references, but which are not part of the present project. We interpret the concept of reference group here to be that of 'one's greater self', so that 'his social reference group' can be regarded as a collective noun. Accordingly, one kind of object can be specified to be the (wellbeing) state of one's greater self. This is being rated from high to low under the various qualifications made by facets *C*, *D*, *E*, and *F*. The specification of this collective object is made by the first element of facet *B*, together with the collective title of facet *C*.

Element b_2 here is more complicated than b_1 . Treatment has at least three major facets of its own: treater, type of treatment, and treated. In the present study, only one treater was asked about – namely the government. Types of treatment were not differentiated. The treated are again enumerated by facet *C*. Hence the mapping sentence above condensed the

treaters and treatments into the one element b_2 : 'government's (unspecified) treatment', and the object being assessed can be specified by b_2 and the collective title of facet C .

Were the government part of each respondent's greater self – all Israelis identify with the government – then the two varieties of objects associated with b_1 and b_2 could be regarded as subvarieties of a single object again: one's greater self.

However, since we cannot assume such identification *a priori*, we regard the varieties as distinct from each other. This distinction is expressed by having the range of the mapping sentence refer back to facet B . Had we but a single collective object, the range would be with respect to this object and would not need qualification by a particular facet.

The fact that at least two distinct kinds of objects are involved in this wellbeing research turns out to have important implications for the structure of the observed correlation matrices.

Let us now go on to explore what kinds of empirical lawfulness hold within 'state' items and within 'treatment' items, as well as between both kinds of items, for the given population of respondents.

7. WELLBEING AND THE FIRST LAW OF ATTITUDE

In discussing the structure of interrelations among a set of variables, a first question that may be asked concerns the signs of the correlations. Are the regressions monotone? If so, are the correlations of one sign or are they not? It must be recognized, of course, that the question of sign of a correlation is meaningful only if the meaning of direction is specified in advance. The range of the mapping sentence serves this purpose of specifying a common direction *a priori* for each variety of object (b_1 and b_2). The ranges of the items have the common notion of discrepancy from a norm: 'more satisfactory' to 'less satisfactory'. Given a monotone relationship between two variables for the population being studied, a positive correlation means that respondents who give replies that are more 'satisfactory' on one variable tend to give more 'satisfactory' replies on the other. Study of the bivariate regressions between the 24 items showed that they are indeed monotone. The monotonicity coefficients of the items are presented in the matrix below.

Having a common range for a subset of items leads to the possibility

TABLE I
Interrelationships among 24 wellbeing variables (monotonicity coefficients) Spring 1973 survey

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|-----------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1. Happiness | — | 77 | 66 | 55 | 56 | 35 | 26 | 30 | 28 | 45 | 23 | 14 | 06 | 06 | 02 | 23 | 07 | 11 | -00 | 01 | -03 | 07 | 09 | 09 |
| 2. Mood | 77 | — | 51 | 51 | 60 | 35 | 31 | 26 | 26 | 36 | 12 | 05 | 03 | 03 | -08 | 26 | -07 | 11 | -07 | -04 | -07 | -04 | 05 | 04 |
| 3. Good family life | 66 | 51 | — | 49 | 44 | 32 | 27 | 35 | 34 | 38 | 26 | 24 | 01 | 07 | -00 | 22 | 02 | -01 | -08 | -14 | -10 | 04 | 02 | -05 |
| 4. Satisfied with leisure | 55 | 51 | 49 | — | 38 | 39 | 42 | 38 | 29 | 37 | 27 | 29 | 16 | 11 | 09 | 24 | -03 | 10 | 05 | 06 | -02 | -00 | 10 | 08 |
| 5. Good health | 56 | 60 | 44 | 38 | — | 28 | 25 | 17 | 23 | 20 | 03 | -02 | -07 | -05 | -10 | 26 | -09 | -03 | -10 | -05 | -04 | -17 | -01 | -02 |
| 6. Sufficient income | 35 | 35 | 32 | 39 | 28 | — | 22 | 44 | 26 | 22 | 09 | 17 | -05 | -05 | 00 | 18 | -20 | 05 | -03 | -06 | -17 | -02 | 16 | -04 |
| 7. Satisfied with education | 26 | 31 | 27 | 42 | 25 | 22 | — | 33 | 28 | 32 | 22 | 16 | 06 | 08 | 07 | 14 | -10 | 17 | 10 | 16 | 06 | 05 | 16 | 10 |
| 8. Satisfied with apartment | 30 | 26 | 35 | 38 | 17 | 44 | 33 | — | 59 | 38 | 29 | 25 | 06 | 10 | -03 | 14 | -11 | 06 | 06 | -05 | -08 | 09 | 19 | 08 |
| 9. Good neighborhood | 28 | 26 | 34 | 29 | 23 | 26 | 28 | 59 | — | 55 | 41 | 37 | 11 | 17 | 03 | 15 | -07 | 10 | 04 | 01 | -06 | 05 | 08 | 09 |
| 10. Satisfied with life in town | 45 | 36 | 38 | 37 | 20 | 22 | 32 | 38 | 55 | — | 70 | 64 | 23 | 16 | 15 | 28 | 06 | 27 | 21 | 19 | 12 | 26 | 22 | 17 |
| 11. Want continue live in town | 23 | 12 | 26 | 27 | 03 | 09 | 22 | 29 | 41 | 70 | — | 88 | 12 | 10 | 16 | 22 | 07 | 16 | 15 | 13 | 08 | 19 | 08 | 07 |
| 12. Not to move to another town | 14 | 05 | 24 | 29 | -02 | 17 | 16 | 25 | 37 | 64 | 88 | — | 06 | 08 | 10 | 15 | 04 | 05 | 07 | 08 | 05 | 13 | -05 | 05 |
| 13. Good labor rel. in country | 06 | 03 | 01 | 16 | -07 | -05 | 06 | 06 | 11 | 23 | 12 | 06 | — | 34 | 21 | 31 | 07 | 39 | 33 | 47 | 45 | 25 | 24 | 04 |
| 14. Immigrants-veterans relations | 06 | 03 | 07 | 11 | -05 | -05 | 08 | 10 | 17 | 16 | 10 | 08 | 34 | — | 17 | 18 | 13 | 30 | 29 | 29 | 19 | 33 | 32 | 19 |
| 15. Satisfied with tv programs | 02 | -08 | -00 | 09 | -10 | 00 | 07 | -03 | 03 | 15 | 16 | 10 | 21 | 17 | — | -05 | -03 | 32 | 29 | 33 | 32 | 12 | 17 | 13 |
| 16. Good labor rel. at work | 23 | 26 | 29 | 24 | 26 | 18 | 14 | 14 | 15 | 28 | 22 | 15 | 31 | 18 | -05 | — | -05 | 22 | 04 | 15 | 04 | 10 | 02 | 10 |
| 17. Immigrants' condition good | 07 | -07 | 02 | -03 | -09 | -20 | -10 | -11 | -07 | 06 | 07 | 04 | 07 | 13 | -03 | -05 | — | 03 | -03 | 15 | 13 | 42 | -00 | 10 |
| 18. Gov. handling economic prob. | 11 | 11 | -01 | 10 | -03 | 05 | 17 | 06 | 10 | 27 | 16 | 05 | 39 | 30 | 32 | 22 | 03 | — | 53 | 54 | 44 | 37 | 42 | 20 |
| 19. Gov. explains its decisions | -00 | -07 | -08 | 05 | -10 | -03 | 10 | 06 | 04 | 21 | 15 | 07 | 33 | 29 | 29 | 04 | -03 | 53 | — | 44 | 38 | 37 | 40 | 13 |
| 20. Gov. handles strikes | 01 | -04 | -14 | 06 | -05 | -06 | 16 | -05 | 01 | 19 | 13 | 08 | 47 | 29 | 33 | 15 | 15 | 54 | 44 | — | 84 | 43 | 32 | 22 |
| 21. Histadrut handles strikes | -03 | -07 | -10 | -02 | -04 | -17 | 06 | -08 | -06 | 12 | 08 | 05 | 45 | 19 | 32 | 04 | 13 | 44 | 38 | 84 | — | 35 | 22 | 15 |
| 22. Gov. handles immigration | 07 | -04 | 04 | -00 | -17 | -02 | 05 | 09 | 05 | 26 | 19 | 13 | 25 | 33 | 12 | 10 | 42 | 37 | 37 | 43 | 35 | — | 18 | 18 |
| 23. Gov. helps deprived | 09 | 05 | 02 | 10 | -01 | 16 | 16 | 19 | 08 | 22 | 08 | -05 | 24 | 32 | 17 | 02 | -00 | 42 | 40 | 32 | 22 | 18 | — | 17 |
| 24. Gov. handles terrorism abroad | 09 | 04 | -05 | 08 | -02 | -04 | 10 | 08 | 09 | 17 | 07 | 05 | 04 | 19 | 13 | 10 | 10 | 20 | 13 | 22 | 15 | 18 | 17 | — |

TABLE II
Interrelationships among 22 wellbeing variables (monotonicity coefficients) Summer 1973 survey

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|---------------------------------------|----|-----|----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|----|-----|
| 1. Happiness | — | 71 | 43 | 36 | 54 | 29 | 23 | 49 | 29 | 21 | 14 | 19 | 22 | 06 | 20 | 36 | 12 | 08 | 09 | 13 | 15 | 20 |
| 2. Mood | 71 | — | 34 | 40 | 60 | 34 | 25 | 48 | 31 | 23 | 10 | 15 | 12 | -07 | 25 | 39 | 07 | 08 | 10 | 04 | 20 | 12 |
| 3. Satisfied with social group | 43 | 34 | — | 54 | 29 | 21 | 06 | 38 | 21 | 24 | 12 | 14 | 15 | 12 | 10 | 14 | 19 | 17 | 19 | 16 | 31 | 22 |
| 4. Success in acquiring friends | 36 | 40 | 54 | — | 36 | 22 | 23 | 32 | 45 | 18 | 02 | 05 | 10 | -04 | 20 | 15 | -01 | -01 | 25 | 02 | 17 | 00 |
| 5. Health condition | 54 | 60 | 29 | 36 | — | 34 | 24 | 41 | 37 | 36 | 01 | -04 | 07 | -10 | 27 | 12 | -13 | -00 | -02 | 05 | 14 | -06 |
| 6. Sufficient income | 29 | 34 | 21 | 22 | 34 | — | 65 | 35 | 21 | 28 | -01 | 27 | 07 | -02 | 09 | 19 | 06 | 05 | 03 | 05 | 17 | 22 |
| 7. Able to save | 23 | 25 | 06 | 23 | 24 | 65 | — | 29 | 12 | 11 | 08 | 20 | 01 | -04 | 03 | 13 | 10 | 04 | -13 | 04 | 11 | 25 |
| 8. Satisfied with work | 49 | 48 | 38 | 32 | 41 | 35 | 29 | — | 52 | 28 | 15 | 14 | 14 | 08 | 08 | 24 | 11 | 04 | 14 | 11 | 27 | 13 |
| 9. Success in performing job | 29 | 31 | 21 | 45 | 37 | 21 | 12 | 52 | — | 17 | 09 | 07 | -01 | -01 | 16 | 18 | -00 | -10 | 22 | 08 | 09 | -04 |
| 10. Safe to walk at night | 21 | 23 | 24 | 18 | 36 | 28 | 11 | 28 | 17 | — | -08 | -06 | 04 | -00 | 30 | 20 | -13 | -05 | 16 | 03 | 12 | -08 |
| 11. Employer-worker relations | 14 | 10 | 12 | 02 | 01 | -01 | 08 | 15 | 09 | -08 | — | 39 | 39 | 42 | -01 | 37 | 45 | 37 | 15 | 30 | 30 | 48 |
| 12. Satisfied with economic situation | 19 | 15 | 14 | 05 | -04 | 27 | 20 | 14 | 07 | -06 | 39 | — | 29 | 36 | -04 | 37 | 70 | 47 | 14 | 27 | 28 | 57 |
| 13. Ethnic relations | 22 | 12 | 15 | 10 | 07 | 07 | 01 | 14 | -01 | 04 | 39 | 29 | — | 64 | 05 | 30 | 35 | 28 | 17 | 28 | 25 | 36 |
| 14. Country success in ethnic integ. | 06 | -07 | 12 | -04 | -10 | -02 | -04 | 08 | -01 | -00 | 42 | 36 | 64 | — | -01 | 26 | 50 | 36 | 22 | 32 | 22 | 46 |
| 15. Security situation of Israel | 20 | 25 | 10 | 20 | 27 | 09 | 03 | 08 | 16 | 30 | -01 | -04 | 05 | -01 | — | 40 | -07 | -08 | 35 | -03 | 06 | -04 |
| 16. General situation of Israel | 36 | 39 | 14 | 15 | 12 | 19 | 13 | 24 | 18 | 20 | 37 | 37 | 30 | 26 | 40 | — | 33 | 22 | 25 | 17 | 27 | 43 |
| 17. Gov. handling economic problems | 12 | 07 | 19 | -01 | -13 | 06 | 10 | 11 | -00 | -13 | 45 | 70 | 35 | 50 | -07 | 33 | — | 51 | 23 | 44 | 34 | 67 |
| 18. Gov. handling strikes | 08 | 08 | 17 | -01 | -00 | 05 | 04 | 04 | -10 | -05 | 37 | 47 | 28 | 36 | -08 | 22 | 51 | — | 16 | 31 | 27 | 54 |
| 19. Gov. handling security problems | 09 | 10 | 19 | 25 | -02 | 03 | -13 | 14 | 22 | 16 | 15 | 14 | 17 | 22 | 35 | 25 | 23 | 16 | — | 25 | 17 | 32 |
| 20. Health Min. handling health prob. | 13 | 04 | 16 | 02 | 05 | 05 | 04 | 11 | 08 | 03 | 30 | 27 | 28 | 32 | -03 | 17 | 44 | 31 | 25 | — | 67 | 33 |
| 21. Satisfied with medical services | 15 | 20 | 31 | 17 | 14 | 17 | 11 | 27 | 09 | 12 | 30 | 28 | 25 | 22 | 06 | 27 | 34 | 27 | 17 | 67 | — | 33 |
| 22. Gov. handling current problems | 20 | 12 | 22 | 00 | -06 | 22 | 25 | 13 | -04 | -08 | 48 | 57 | 36 | 46 | -04 | 43 | 67 | 54 | 32 | 33 | 33 | — |

that all their regressions will not merely be monotone but will also have the same sign, namely positive (or zero). This has been shown to be the case for intelligence (cf. Guttman, 1965) and for certain attitudes (cf. Guttman and Levy, 1975; Levy, 1976; Levy and Guttman, 1974). A special case for which nonnegative correlations are hypothesized has been called by Guttman the 'First Law of Attitude' (Gratch, 1973, p. 36). In this special case, the object of the behavior is constant: all the attitudes are towards the same object. Since wellbeing items are all attitudinal, it is important to specify whether a given set of wellbeing items is concerned with one or with more than one object. This is the motivation for the preceding discussion of facet *B*. In the light of that discussion, we shall deal here with the distinctions between three subuniverses: (1) wellbeing state of self, (2) wellbeing state of reference groups other than self, and (3) treatment by government.

7.1. *Wellbeing State of Self*

In the list of the 24 variables, the first twelve deal with the state of the respondent in different life areas of facet *F*. Regarding these as twelve modifications of a single object – state of the self – provides a rationale for the hypothesis that the First Law of Attitude should hold for this subset. And indeed the intercorrelations among these items in Table I are all positive or zero.

This replicates the findings of the data of a previous trimester of the Continuing Survey (March–April, 1971), with further crosscultural replication from data of the Quality of Life survey of the University of Michigan (Summer, 1971), as reported in Levy (1976).

7.2. *Wellbeing State of Reference Groups (Other than Self)*

Similarly, the next five items deal with the state of one's reference groups (apart from self). The correlations among these five items are again positive or virtually zero, conforming to the First Law.

The largest of the correlations here is only 0.34 which is much smaller than many of the correlations in the self's sector. The areas of life of these five items do not overlap those of the previous twelve items. There was an opportunity to replicate this aspect of wellbeing in the following trimester of the Continuing Survey. Six items were asked on the state of wellbeing of one's reference groups, five of which are not in the previous

trimester. Their intercorrelations are shown in Table II, replicating the phenomenon of all being positive or zero. The First Law is sustained again.

The specification that the reference groups here are part of the one's greater self, so that both varieties of state refer to but a single object 'greater self', leads to the hypothesis that the intercorrelations between the first twelve items and the next five should conform to the First Law of Attitude. The 12×5 off-diagonal submatrix of Table I provides some support for this hypothesis. A rather systematic exception is the item on the state of new immigrants: while the correlations are small, they tend to be largely negative. This may be taken as providing indirect evidence that new immigrants are not yet regarded as part of one's greater self by a substantial part of the population.

Two further interesting negative correlations are between television on the one hand and mood and health on the other. These raise interesting questions about the relation between mass media of communication and one's greater self, which may deserve exploration on other occasions.

Replication of the findings on the greater self can be seen in the data of Table II (Summer 1973 survey). In the 9×6 off-diagonal submatrix of the correlations between state of self and state of other reference groups, the correlations are almost all positive or zero. Again the new immigrants provide an exception.

7.3. Treatment by Government

The last seven items in Table I are on the Israel government's treatment of the various reference groups. (One of these items is on the Histadrut rather than government; we have left it in because of the close association between the government and Histadrut in this matter.) The First Law of Attitude is well sustained for these items. In the lower right hand 7×7 submatrix of Table I the correlations are all positive, many of them substantially so. The population is indeed behaving as though the government's treatment were a single object of the several assessments.

The Summer 1973 survey again confirms the findings on treatment. The lower right hand corner of Table II contains only positive correlations.

We have not specified that the government necessarily be regarded as part of one's greater self, so that we do not hypothesize that the First Law

of Attitude hold between state of greater self and government's great-
ment. The relevant correlations are in the last seven rows of Table I. The
correlations here are all small and largely positive, but with a scattering
of negative correlations. This phenomenon is replicated in Table II.

Having discussed the signs of the correlations, we go on to the main
part of the theory to be proposed here, namely hypotheses on the relative
sizes of the correlations and not merely their signs.

8. THE HYPOTHESIS OF INTERPENETRATING CYLINDREXES

Great variation in size occurs among the correlations. For example, in
Table I, the largest coefficient is 0.88 while the smallest is -0.17 . A next
task in analyzing the structure of the interrelationships is to explicate the
location of large and small correlation coefficients. This is facilitated by
the parsimonious geometrical portrayal of the matrix provided by smallest
space analysis, in particular SSA-I (cf., Guttman, 1968; Lingoes, 1973;
Loether and McTavish, 1974). Such a data analysis technique alone is
insufficient for theory testing. Data analysis remains barren unless a
correspondence is established with the definitional system of the observa-
tions.

The hypothesis we propose for a correspondence between the well-
being mapping sentence and the SSA is that of interpenetrating cylindrex-
es. A cylindrex is defined in terms of two concepts: a two-dimensional
radex and an axis orthogonal to it. A radex (cf., Guttman, 1954, 1964)
is a circular arrangement in the plane, so then an axis perpendicular to
it helps define a cylindrical configuration: the circular arrangement is
repeated at each segment – or stratum – of the axis.

To rationalize a cylindrex hypothesis requires facets playing at least
three roles. Two roles are needed for the radex: polarizing and modulat-
ing. The polarizer's elements correspond to different directions from an
origin in the plane, while the modulator's elements correspond to relative
distance from this origin. The third role is for specifying order along the
axis of the cylinder.

Empirical studies on various topics have found that the facet of areas
of life often plays a polarizing role (Adi and Kamen, 1971; Guttman and
Levy, 1975; Guttman *et al.*, 1970; Levy, 1975, 1976; Levy and Guttman,
1971a, b). Our wellbeing data belong to this series of replications that

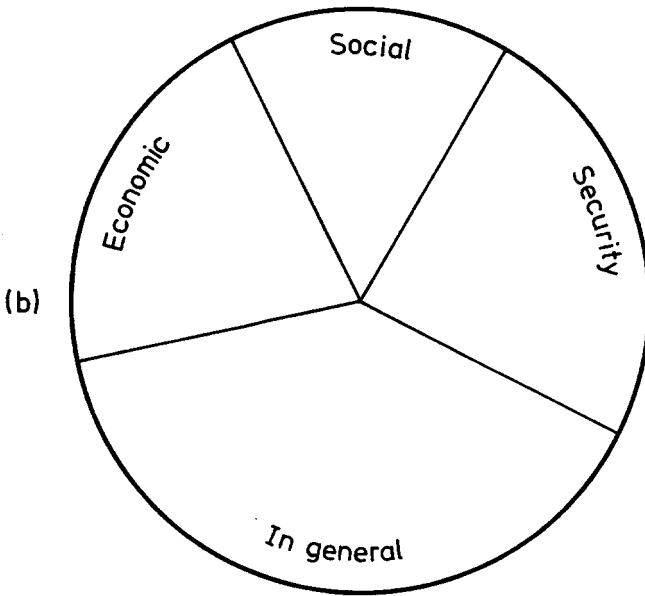
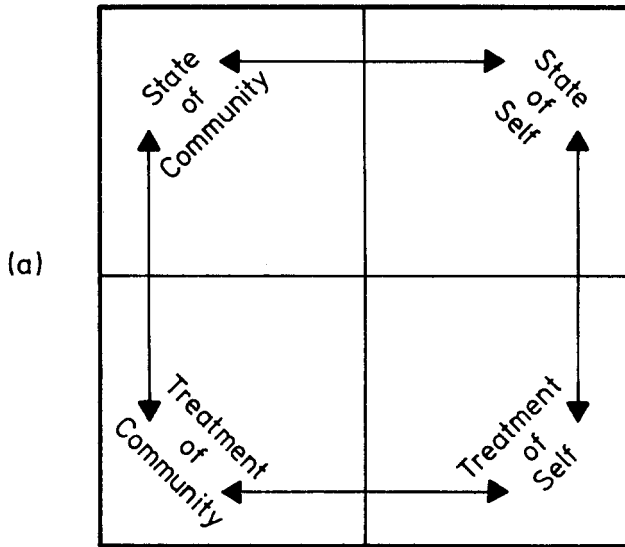


Fig. 1a-b. The four-dimensional duplex-radex of wellbeing. (a) Duplex of axes for cylinders. (b) Radex of strata of cylinders.

verify the radex hypothesis, and also provide evidence for the more inclusive cylindrex hypothesis.

9. THE FOUR CONDITIONAL AXES

To see the polarization within a cylindrex requires holding the central axis constant. One facet which corresponds to such an axis for our data is that of reference groups, with the crude dichotomy of two kinds of elements: self (and family) versus community (country-as-a-whole). Another facet which also corresponds to an axis is the dichotomy of state versus treatment.

Having two axial facets, where each is of different content, generates four conditional axes. These are shown in Figure 1a, which is essentially the fourfold table of the cartesian set of the two facets.

The polarization itself is shown schematically in Figure 1b. To simplify the preliminary presentation, only four areas of life are shown in Figure 1b, and their subdivision by a modulating facet is omitted. Two detailed empirical radexes are shown below in Figures 3 and 4.

10. THE FOUR CYLINDREXES

Each axis, together with the given radex, generates a cylindrex. Four axes, then, generate four cylindrexes. These are shown schematically in Figure 2.

The axis of cylindrex (a) in Figure 2 corresponds to state-versus-treatment, holding wellbeing of community constant. The axis of cylindrex (b) corresponds to community-versus-self, holding state constant. The axes of cylindrexes (c) and (d) have parallel interpretations.

A proper simultaneous representation of the four cylindrexes requires at least four dimensions, two for Figure 1a and two for Figure 1b. In principle, Figures 1a and 1b are geometrically orthogonal to each other, and hence generate a four dimensional space in which the cylindrexes intermesh. Figure 2 shows the cylindrexes as if separated from each other, but tilted to suggest how the intermeshing takes place in higher dimensional space. For example, the upper parts of cylindrexes (a) and (b) are identical: they both contain the variables of the *state* of wellbeing of the *community*. In the 4-space, these two parts of cylinders should be in

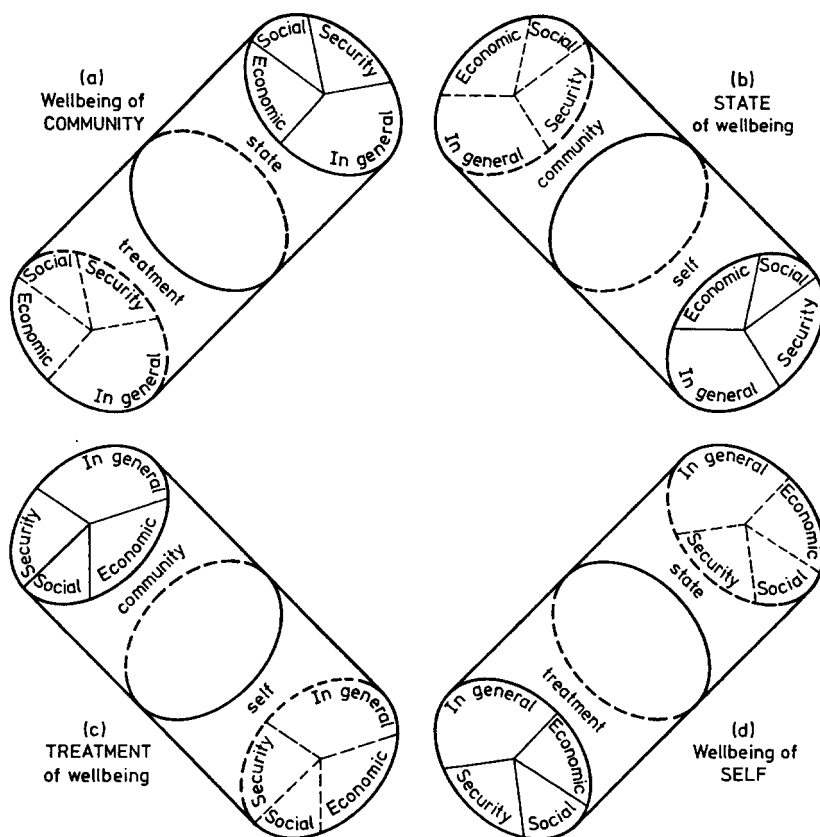


Fig. 2. The four intermeshing cylindrexes of the duplex-radex of wellbeing.

exactly the same place. Similarly, the other three pairs of adjacent half cylinders should each be identically located in the 4-space.

The available data permit us to document only cylindrexes (a) and (b). No questions were asked about treatment of self in any of the studies, so there is no empirical evidence as yet about cylindrexes (c) and (d).

Both the Spring and Summer surveys of 1973 support the hypothesis of cylindrexes (a) and (b). The Spring survey has the most detail for the radex, especially for self and family, so we shall discuss the radex in terms of those data. The Summer survey was designed more to fill in the overall picture suggested by the Spring results. Indeed, this second survey gives

direct two-dimensional empirical plots for Figures 1a and 1b respectively, justifying calling Figure 1a a duplex, and Figure 1b a radex.

Let us now look at the empirical data, beginning with radex of self and family, going on to the cylindrex (a) for wellbeing of community, and finally to the four-dimensional space of all the cylindrexes.

11. THE RADEX FOR THE STRATUM OF PERSONAL WELLBEING

For self-and-family, twelve questions were asked on the state of the following seven areas: recreation, family, health, security, economic, educa-

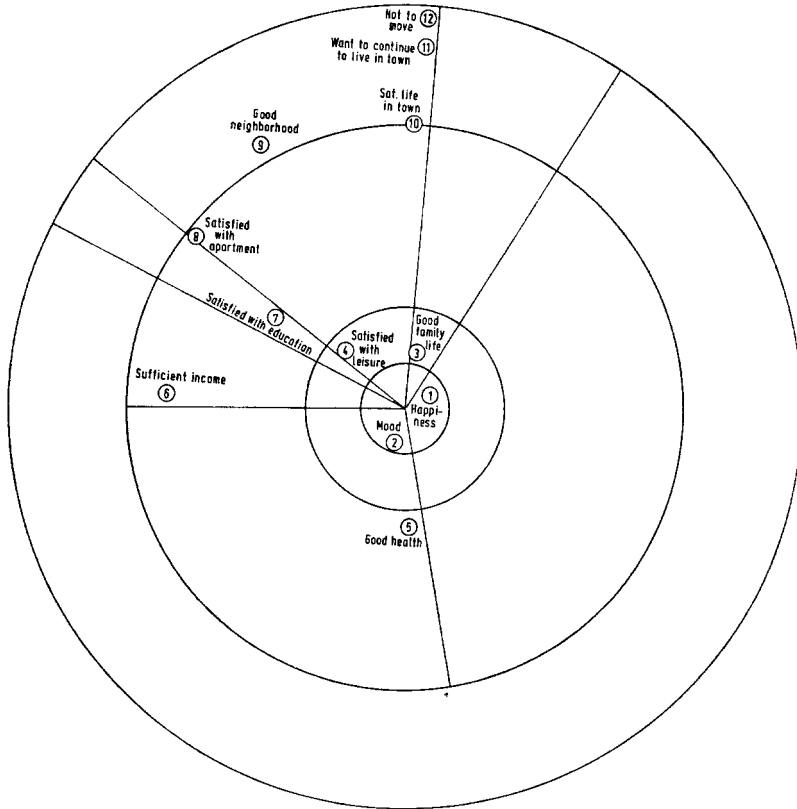


Fig. 3. Radex of personal wellbeing (from Table I).

tion, and in general. We had no *a priori* theory of order amongst the elements of this facet. A non-ordered facet is often to be hypothesized to be polarizing, since each element may be hypothesized to correspond to a different direction in the empirical space. Let us now go on to the data analysis to see at this stage what it means to have a correspondence between a polarizing facet and the structure of interrelationships among the data. Smallest space analysis of the submatrix of the interrelationships amongst the wellbeing variables for self-and-family shows that a two-dimensional space gives a rather good fit to the data. This approximate space is shown in Figure 3. Each of the first twelve wellbeing variables is represented as a point in this space. The distance between two points tends to increase as the coefficient between the two variables concerned decreases.

12. CIRCULAR ORDER OF REGIONS: AREAS OF LIFE

Figure 3 can be partitioned into regions emanating from an origin, where each region corresponds to an element from Facet F , namely some life area. There is a circular order of regions, since the six directions lie in a two-dimensional space. The order portrayed in Figure 3 is an empirical consequence of the data; it provides an empirical circular ordering of the elements of Facet F . Beginning at the upper part of the circle and going clockwise, the order is as follows: recreation (f_1), family (f_2), general (f_3), health (f_5), economic (f_6), education (f_7), and back to recreation (f_1).

The technical meaning of the geometric circularity is as follows. If we take points corresponding to two variables that lie at an equal distance from the origin but from different regions, then the correlation coefficients between them will increase as the regions are closer together in the circular order. For example: in Figure 3, variables 5, 6, and 8 are approximately equally distant from the origin, but in different regions. The region of income for variable 6, is the middle of the three. Accordingly, the distance from 8 to 5 is greater than that from 8 to 6 and from 6 to 5; the coefficients of correlation should have a corresponding order. Indeed, in Table I, $\mu_{56}=0.28$ and $\mu_{68}=0.44$, while smaller than both of these is $\mu_{58}=0.17$. Items 8 and 5 do correlate less with each other than do the other pairings of items.

13. MODULATION OF DISTANCE FROM THE ORIGIN: ENVIRONMENT

If variables are not equidistant from the origin, then merely knowing in which regions they fall is not sufficient for reproducing the relative sizes of their correlation coefficients. Information is needed also about distance from the origin. Such further information corresponds to modulating facets.

Facet *D* proves to play the role of a modulator. The environmental framework of the respondent serves to partition Figure 1 into circular regions around the origin. Variables belonging to the *primary* environment are concentrated in the three innermost circles. The circle closest to the origin contains the intimate internal primary variables (d_1): happiness and mood (items 1, 2). Variables belonging to the social primary environment (d_2) are in the second circle: family life, and recreation (items 3 and 4). In the third circle are resources of the primary environment (d_3): health, income, education, and dwelling (items 5, 6, 7, 8).

The outlying circle corresponds to secondary environment variables. Here we find items which deal with the neighborhood and the city of the respondent (d_4, d_5 : items 9, 10, 11, 12).

The transition from primary environment to secondary environment modulates the distance from the origin in the space of self's wellbeing (Figure 3). If we take two variables from the same region which lie approximately on the same radius in the region, the coefficient between them will increase as they become equally distant from the origin. For example, let us take three points from the recreation region: wanting to go on living in one's town (item 11), satisfaction with dwelling (item 8) and satisfaction with ways one spends leisure time (item 4). These three variables differ in degree of primacy, the most different being items 4 and 11. And indeed according to Table I, the coefficient between items 4 and 11 is lower than the coefficients between 8 and 11, and between items 8 and 4: 0.27 against 0.29 and 0.38.

Variables which are very close to the center will be very close to each other even if their directions in the map are different. This is because they are lying in a circle of small diameter.

14. THE DISTANCE FROM HAPPINESS

In the center of the circle lies the assessment of the respondent's feeling

of happiness. Happiness is closest to variables which relate to the respondent's internal and social primary environment. The monotonicity coefficients between happiness (item 1) and between mood (internal primary environment) is 0.77. Similar to these are the coefficients between happiness and social primary environments (0.66 with family life, and 0.55 with satisfaction with ways of spending leisure time).

The resources (income, dwelling, education, health) – which are also a part of the individual's primary environment – tend to be less correlated to happiness. The monotonicity coefficients between happiness (item 1) and between the resources variables vary from 0.26 to 0.35, with the exception of health (0.56). That is, primary resources – excluding health which is crucial for survival – are less related to happiness than are variables of internal and social primary environment. The feeling of wellbeing in physical aspects of life cannot predict personal happiness as well as can socio-psychological aspects of life. Variables concerning secondary environment – like neighborhood and town – tend to be even less correlated with happiness (the coefficients do not exceed 0.28), with the exception of satisfaction with life in town in general (0.45) which is even closer to happiness than primary resources. Perhaps it is possible to regard this variable as a resource of a primary environment.

The origin, happiness, in Figure 3 is determined by the partitionings related to the two facets: area of life and primacy of the environment. This origin is *not* central to the *empirical* distribution of the points in the map. To the contrary, the variables of the central circle are in a corner of the empirical distribution of the points. Almost all remaining variables are in the upper left section of this origin, while the lower right region is empty. Indeed, the substantive origin is not surrounded by empirical points. This phenomenon is replicated in the Summer survey, for the stratum of personal wellbeing. However, for the stratum of community wellbeing, this region appears to correspond to the area of security. Questions on this were not asked for personal wellbeing.

15. SOME FURTHER FACETS

Facets *A*, *B*, *C*, and *E* are not mentioned in the analysis of Figure 3. Facet *B* is held constant in the sample of the questions about self's wellbeing: all these questions deal only with *situation* (b_1) and not with treat-

ment (b_2). Therefore this facet cannot distinguish further lawfulness in Figure 3. The same applies to facet C , which is also held constant in the questions on the wellbeing of the self: all these questions relate to the respondent himself (c_1) and not to any other social group. As for facet A , there did not turn out to be separate empirical regions for cognitive and affective evaluations.

With regard to Facet E , there is a tendency for questions on specific aspects of life area to be farther away from the origin than more general questions on the same topic. For example: wanting to go on living in the same city is more distant than general satisfaction with life in the city. This facet presents a clearer systematic partition in the context of community wellbeing, to be discussed next.

16. THE CYLINDREX OF COMMUNITY WELLBEING

To study community wellbeing, twelve items were available: five on state and seven on treatment. Three items have such low correlation altogether amongst themselves and all the rest (items 16, 17, 24 in Table I), that they are known in advance to be geometrically remote and hence no further information about them is to be learned from the SSA. The nine remaining items – three of state and six of treatment – have a good technical fit in a two-dimensional space: coefficient of alienation 0.13. However, the theory of Figure 2a suggests going on to three dimensions, and indeed Figure 2a is confirmed thereby.

The six treatment items do show a circular order according to areas of life. This time the modulating facet is from *generality* to *specificity* of treatment. The two items asking about treatment in general (items 18 and 19) are in the center of the radex, while the four specific treatment items are towards the periphery. This same modulator also appears in the earlier 1971 radex.

The three state items lie in a stratum above the six treatment items. Altogether, then, the nine items provide a cylindrical configuration as hypothesized from their facets.

This cylindrex is replicated in the data of the Summer survey. The details will not be shown separately but are part of the overall four-dimensional picture to be presented next.

17. THE FOUR DIMENSIONAL PICTURE

SSA in four dimensions of Table II fortunately came out with a rotation of axes that directly approximates Figure 1. The plane of the first and third dimensions of the SSA approximates Figure 1a, while the plane of the second and fourth dimensions approximates Figure 1b. These two plane projections, as given by the computer, are shown in Figure 4.

In Figure 4a, the plane is partitioned into four regions according to the four elements of the cartesian set of Figure 1a. One region is empty of points. No questions were asked about treatment of self, and the data

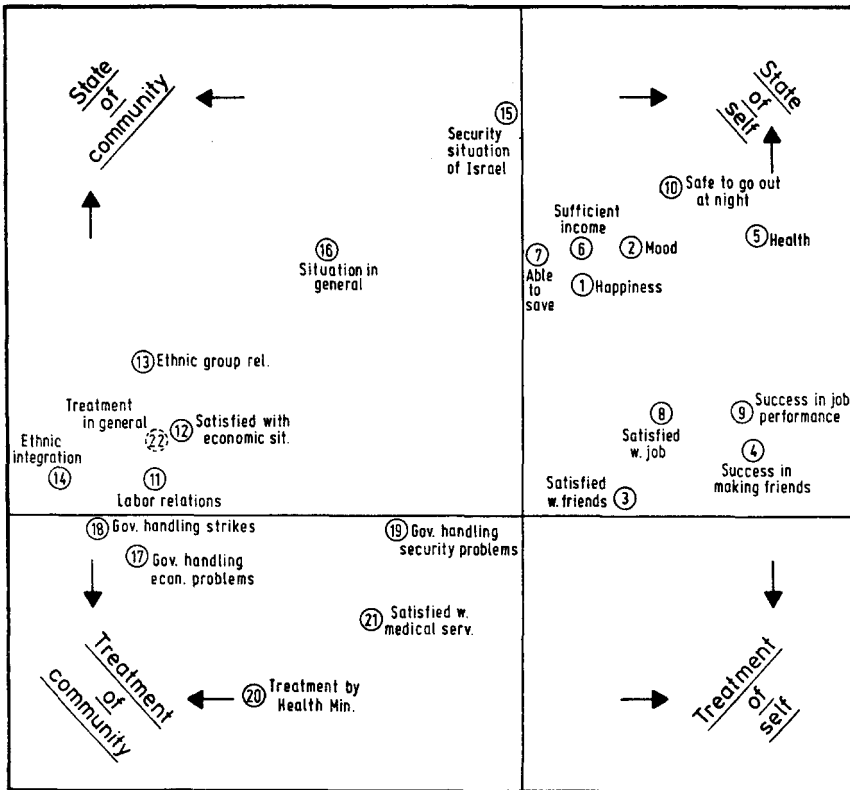


Fig. 4a. The empirical duplex projection of wellbeing corresponding to the axial facets self-vs-community and state-vs-treatment (from SSA of Table II).

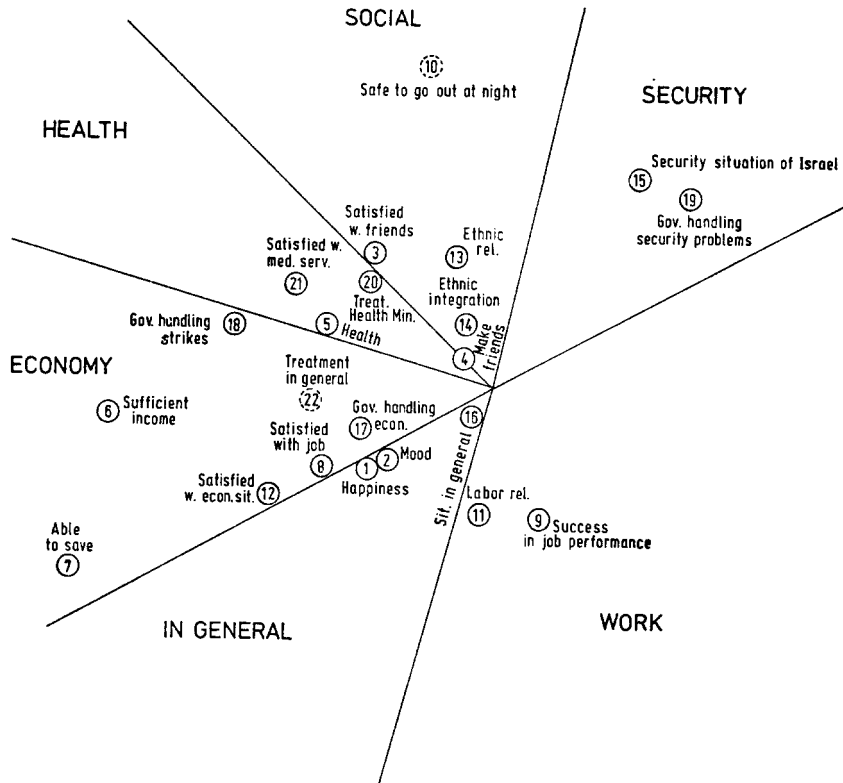


Fig. 4b. The empirical radex projection of wellbeing corresponding to the polarizing facet of areas of life (from SSA of Table II).

themselves act as if they recognize this fact! The computer left an empty space for such variables.

Having a correspondence between a cartesian set and the SSA space as in Figure 4a is called a *duplex*. (This is a special case of a *multiplex*, wherein each facet corresponds to an orthogonal dimension. A duplex is a multiplex of two facets, the two facets here being state-vs-treatment and self-vs-community.)

In Figure 4b, the variables are partitioned in quite a different fashion from 4a. The areas of life act as a polarizing facet.

The coordinates of Figures 4a and 4b are orthogonal to each other in the four-dimensional SSA space. Hence, the two figures together generate

intermeshing cylindrexes as implied by Figure 2. Only two complete cylindrexes, (a) and (b), are discernable from the data, as well as the connection between the upper portions of (c) and (d). The lower portions of (c) and (d) are missing because of the blank region in Figure 4a, for treatment of self.

Regions subdivided by modulating facets are not shown explicitly in Figure 4b, since our variables turn out to have different modulators for different strata.

It is difficult to conclude the discussion of wellbeing without asking: what correlates most with personal happiness? We have already looked into this within the radex of Figure 3, for state of wellbeing of self. How about the relationship of personal happiness with one's assessment of the situation of one's community? According to Table II, the highest correlation between personal happiness [in the lower part of cylindrex (b)] and the variables in the upper part of cylindrex (b) is with the 'general situation of Israel' ($\mu_2=0.36$). This says something about the axis of the cylinder being long compared with the diameter of the radex. Wellbeing items tend to correlate more within the stratum of self than with the stratum of community.

To assess systematically the relative spreads along axes and diameters of the intermeshing cylindrexes of wellbeing requires more variables than available in the present data.

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