PERSONALITY CHANGES DURING MARRIAGE

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This study is an analysis of long-time personality changes in husbands and wives as related to one criterion of marital adjustment, self-perceived happiness. Longitudinal data collected by Kelly were used for the present analysis. Variables analyzed for change were measured both at the time of engagement and after eighteen years of marriage. Variables analyzed for criteria of marriage outcomes were measured after eighteen years of marriage.

The first step of the analysis, a factor analysis of 100 criterion-related variables for husbands, identified five orthogonal factors: (1) Self-Perceived Happiness, (2) Family-Centeredness, (3) Individual Strength, (4) Semantic Harmony, and (5) Closeness of Interpersonal Relations with Others. Factor scores were computed for all couples. Husband-Wife correlations were substantial for all factors with the exception of 3 and 5, which apparently are measuring dimensions of the individuals in marriages.

For the subsequent analysis of change, couples were divided into Highs and Lows on Factor 1 scores (Self-Perceived Happiness). The resulting four groups: happy and unhappy husbands, happy and unhappy wives, were compared on 72 variables at Time-1 and at Time-2 for changes and convergence-divergence of groups. Time-1--Time-2 correlations were also computed on each variable for each of the four criterion-divided groups.

A number of significant differences were discovered on the 72

change variables taken individually. For example, UnhappyWomen changed toward less vivacious self-percepts, UnhappyMen changed toward better emotional adjustment, HappyMen changed toward more professional business and practical behavior in areas of interests and values, HappyMen and HappyWomen changed toward a more differentiated and functional attitude toward home and marriage. The method of analysis sets these indications of differential changes in the context of the original and final position between which change occurred.

Several statistically significant trends of change over the entire 72 variables were uncovered: (1) Unhappys diverged during the eighteen years of marriage, while Happys showed a slight tendency to converge. (2) When the direction of change was considered, personality changes of Happys as contrasted with Unhappys tended to be in the direction of better adjustment. (3) Among the Happys, the husbands were more consistent during the eighteen years of marriage than were their wives, whereas among the Unhappys the wives were more consistent than were their husbands.

Theoretical implications and directions for further research were considered.

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CHAPTER I

INTRODUCTION

This study explores long-term changes in people, changes that are related to an important social situation in which they participate. The social situation is their marriage; the changes are personal ones - changes in attitudes, values, interests, self-percepts, and personality. The program of the total study falls into two phases. First, marriages had to be dimensionalized, and then changes related to these dimensions uncovered.

The first phase, which was in fact a factor analysis of criteria of marriage outcomes, was a necessary preliminary to the central problem of the study, the analysis of changes.

The purpose of the study was to examine changes as they were related to an important social variable: a situation in which the changing individual was a part. Thus the study pushes the analysis of changes one step beyond an analysis of changes in general, changes that are related to the period of aging common to all people. As a couple's marriage is certainly an important social situation, it was felt that the characterization of marriages afforded by an analysis of criteria of marriage outcomes would uncover

factors of major theoretical and social importance. The use of factor analytic methods would identify possible correlates of change that had passed stringent requirements, imposed by the factor analysis, of stability, independence, and theoretical interest.

By first examining the social situation of marriage for the independent, measurable dimensions, it was hoped to effect an enormous short-cutting of the exploration of marriage-related changes. Only those possible correlates of change that were stable and independent in themselves would be identified, and only they would need to be used to effect the total exploratory survey. Since the criterion factors serve to give the simplest exhaustive description of the marriages investigated (as observed with the measures used), an analysis of changes that are related to these factors will give an exhaustive picture of change correlates of marriage outcomes. Information about specific variables would be derivable through their relationships to the factor-analyzed dimensions uncovered.

Thus a factor analysis of marriage outcomes preceded the second phase, the exploration of changes. For this step, the total group of married couples available for the study was divided on the basis of their marriage outcomes, and the various aspects of their changes examined and contrasted. The study of changes covered 72 variables measuring five categories of behavior: Allport-Vernon values, Bernreuter personality measures, Remmers attitudes, Strong

interests, and Kelly PRS self-percepts (1,6,29,47,52). A large enough coverage of change variables was analyzed so that overall trends of change, as well as changes on individual variables, could be examined.

Systematic explorations of changes in people over a long period of their lives are virtually non-existent in the social sciences. This is not hard to understand. The difficulties of a long-term longitudinal study are so great that one is surprised that so many have been pushed through so soon after the development of the necessary instruments. Controlled sampling of different age groups is usually used as a compromise approach. But our society shifts so rapidly literally from year to year, in educational and social influences, that the dangers from confounding influences are too great to allow for firm conclusions as to the effect of growing older on the individual. Anastasi points out that, "If older persons tend to have less education than younger persons, for example, samples of 20-year-olds and of 50-year-olds matched in education are not comparable, because of differential selection (2, p.509)." Owens (46) and Kuhlen (35) remind us that when we are interested in relating changes over time to some specific variable we must match our samples of the different age-groups well enough so that the younger <u>are</u> what the older once were.

These strong strictures against cross-sectional design in long-term studies of changes become even more crushing when, as in the present study, differential changes -

that is changes as they are related not simply to aging but to influences that are acting differently on different people - are the object of analysis.

This study takes advantage of the wealth of data collected from 300 couples over a period of almost twenty years by Kelly, for his long-term predictive study of marital outcomes (29,30,31). The overall design of the experimental analysis used can best be understood in the context of the question asked and the information available. Kelly's analysis focuses on premarital factors that are predictive of characteristics of the marriage situation that has been formed over a period of years. This study explores some of the processes of change that go along with the gradual establishment, during the period of marriage interaction, of these outcome characteristics. The predictive study relates behavior measured prior to marriage with the outcome of the marriage after almost twenty years; this extension to the process during the marriage relates changes during marriage with the outcome of the marriage.

CHAPTER II

BACKGROUND

Introduction

The present study focusses on a relatively new question about marriages: what changes in the members of a marriage take place during marriage? Although an enormous amount of empirical research has been done on marriage, most of these researches have been concerned with finding correlates or predictors of marital adjustment and are of only indirect relevance to the problem of changes during marriage. An even greater amount of research not concerned with marriage has treated specific problems of change in people, but again, in relation to questions very different from the present one. Most of the research on attitude change has been concerned with relatively short-term changes that result from different methods of learning or manipulation of the attitude-related situation. Developmental studies of changes in children usually treat longer-term changes, but have almost always been cross-sectional in design and, with a few exceptions, concerned chiefly with intellectual and physical development.

This summary of previous studies will cover those

relevant to the two fields of inquiry that converge in the present study: marriage research and personality change research.

Researches on Marriage

A number of good bibliographies and bibliographic summaries of researches on marriage are readily available. These should serve to give both a comprehensive coverage of the literature and more selective reviews of the major studies. They afford us with a whole range of background material, from the most exhaustive listing of articles to summaries of significant results reported in the literature. Ellis, with occasional collaboration, has compiled cumulative bibliographies every few years (17,18,20) for the journal devoted to this field, Marriage and Family Living. These bibliographies are arranged by topics, and original research is identified by an asterisk. Ludlow (40) and Kirkpatrick (33) have also published extensive bibliographies, while most of the standard texts and reports on major research projects present less complete background bibliographies. Ellis and Doorbar (19) have made a survey of the 745 publications on marriage during the period 1944-1950.

Locke, in his report on his own research, presents an extensive table giving item-by-item comparisons of the findings of the thirteen major marital prediction studies completed by 1951 (37, pp.342-357), and a chronological list of seventeen research investigations on marriage, with

details of sampling methods and criteria of marital adjustment (pp.388-392). Kirkpatrick, in his 1955 textbook, The Family, presents a similar summary of "Findings on Success in Marriage" which details results of 71 studies (34, pp. 599-624, summarized on pp.346-364).

The major studies on marriage fall into two general groups. First, the earlier classic studies by Davis (14), Hamilton (23), Bernard (5), Burgess and Cottrell (7), Terman (54), Kirkpatrick (32), and others, in which all data - both predictive and criterion-related - was collected simultaneously, so that data covering variables prior to marriage were based on retrospective reports, filled the period from 1920 to the mid-forties. By that time, comparatively long-term predictive studies began to reach fruition: such studies as those conducted by Terman and Oden (55), Locke and Klausner (38), Karlsson (27), Burgess and Wallin (9), and Kelly (31). The wealth of data analyzed covers a wide range of sociological variables touching on (a) the family background - composition, status, emotional atmosphere, sex training, (b) circumstances of courtship, (c) roles - education, occupation, class, religion, and so on, (d) marriage behavior - sex adjustment, attitudes toward marriage, children, and the home.

The aspects of these research projects that are pertinent to the present study are three: (1) development of criteria of marriage outcomes, (2) analysis of personality, interest, and attitude variables in relation to the

criteria, and (3) study of the process of change during the period of marriage.

Development of Criteria of Marriage Outcomes

Criteria of marriage outcomes have been developed almost entirely along the single dimension of marital happiness, starting with Davis' study (14), in which subjects were asked the single question, "Is your married life a happy one?" From Burgess and Cottrell's "marital-adjustment test" (7), through Terman's "marital-happiness test" (54), to Locke and Mackeprang's "Burgess-Cottrell-Terman-Locke marital-adjustment test" (39) and Burgess and Wallin's attempt (9) to measure eight specific criteria and two global indices - of happiness and general satisfaction - the characterization of marriages that lay behind the development of criterion tests stayed close to Davis' conception - 'is your married life a happy one?'

Burgess and Wallin attempted to develop specific criteria, but their results (9, p.504) would seem to indicate that they are still measuring the one general self-reported happiness factor. Their two overall criteria (happiness and general satisfaction) have a correlation of .82, and the eight specific criteria have correlations with the general criteria that range between .44 and .65. When we examine these specific criteria we can see how close they come to measuring the same thing - for example, they cover, "love for spouse," "specific satisfactions," "companionship."

Burgess and Wallin are fully aware of this limitation. Among their suggestions for future research they note:

> "The various criteria so far proposed to measure success in marriage show a moderate to a marked correlation with each other. This degree of association suggests the presence of a general factor in marital success. At the same time differences are present which indicate some degree of specificity, at least for certain of the criteria. A study is therefore proposed with the purpose of arriving at a restatement of the elements of generality and specificity in marital success."(9, p.782)

Burgess (8,9) distinguishes eight criteria of marital success - permanence, happiness, fulfilling expectations of the community, personality development, companionship, satisfaction with the marriage, integration in family life, and adjustment. It can be seen that these criteria cover a wider range of behavior than the ones actually measured in Burgess' research.

The analysis and development of criteria of marriage outcomes would seem to be the first aspect of marriage research that should be refined and broadened. Kelly's study was designed with the problem of dimensions of marriage-outcome criteria in mind, and presented the opportunity to attack this problem with new tools and concepts. Measures were chosen to cover a wide range of behavior. The variety of data collected by Kelly made explorations into new dimensions of marriage outcomes possible; and one of the objectives of the criterion analysis undertaken as the first step of this study was to search for new dimensions that might be tapped by the array of variables factored. Rather

than follow the traditional test-construction program, in which a scale is developed to measure something that has been determined on a priori grounds (either through theorizing or external validation), it was felt that the use of factor analytic techniques would result in major improvements. The factor analysis of a large matrix of criterion variables (of the sort that was actually done in the present study) would allow for the most efficient and revealing analysis of the dimensions of marriage outcomes, their interrelations, and their internal composition. The factor analysis would, for example, show us whether Burgess and Wallin's criteria clustered around a single dimension. It would form an intermediate step between theorizing that has already been done and future work. On the one hand theorizing would guide the choice of variables to be interrelated in the factor analysis, and the factor analysis would show to what extent hypothesized criteria were in fact stable, meaningful, and independent. On the other hand, the results of the factor analysis would serve as a guide for future theorizing, data collection, and analysis: theory would undergo the corrective of empirical analysis, stable empirically-arrived-at dimensions would be uncovered, and future test construction would be guided toward the development of more powerful instruments for measuring what we now know to be measurable and meaningful.

Personality, Interest, Attitude, and Value Correlates of Marriage Outcomes

As has already been noted, the bulk of the experimentation on marriage has been concerned with traditional sociological and marriage-related variables. This study was designed to examine changes in personality, interest, attitude values, and self-percepts that were related to marriage outcomes. Although relations between variables of this sort (which I shall characterize roughly as personality variables) and marriage outcomes are not especially pertinent to the central question of the present study - that of changes related to outcomes - there are two reasons why we should make a brief survey of them. First, previously reported relations will give us an idea of the magnitude of covariance to be expected between marriage outcomes and variables of this sort - variables with only very indirect relations to marriage outcomes. Second, the analytic design of the present study sets changes in their contexts of original (Time-1) scores and final (Time-2) scores, so that an analysis of personality variables as predictors (at Time-1) and as correlates (at Time-2) of marriage outcomes is a by-product of the study.

Terman (54), Burgess and Wallin (9), and Kelly (30) reported low but significant (r=.18 to .47) correlations between combined personality items and marital happiness or success. Burgess and Wallin conclude, "Previous studies have now identified a sufficient number of personality items

to serve as valid predictors of marital success." (p.536) Thus, we have indications that personality variables of the sort that have been examined for change in the present study are, to a small but appreciable degree, related to marital happiness.

Changes During Marriage

More pertinent to the central problem of the present study - the analysis of changes in these personality variables during the period of marriage - is Kelly's analysis of changes for all couples examined in the present study (31). Of 38 variables analyzed, significant changes (C.R. of 2.5 or more) on 12 variables were found for both sexes and significant changes on six additional variables were found for one sex or the other.

These preliminary results of Kelly's project formed the immediate point of departure for the present study. Changes for the entire group of couples investigated might be related to any of the cultural, social, individual, or marriage factors operating during the period of change. The natural next step would be an examination of the extent to which these changes are related to the marriage itself; more specifically, to meaningful dimensions of marriage outcomes, as identified through the factor analysis of the variables related to marriage-outcome criteria.

One further analysis of changes, made by Kelly prior to the present study, had served to suggest further the most

fruitful direction for the present study to follow. This analysis took the form of an intensive examination of changes on one variable (Strong Interest Maturity) as related to scores on an array of predictor variables measured during the original testing period, at the time the couples became engaged (31). The generally null results of this analysis led to the putting aside by Kelly, at least for the time, of this phase of his study. For the purposes of the present study, it gave some indication that individual predictor variables were not sufficiently general or powerful enough in their effects to bring about systematic change in the variables of the sort for which data was available for the analysis of change. It also pointed in the direction of looking for correlates of trends of change over many variables, rather than for correlates of specific changes.

These exploratory analyses led to two conclusions: 1. relations between Time-1 premarriage predictor variables and changes during marriage may be few (as was found for the one representative Strong variable analyzed) and 2. there is little relationship between the changes that took place from one variable to the next. In light of these facts, it was felt that correlates of change might more likely be uncovered from among the more stable and pervasive dimensions of the marriages themselves - influences that would be interacting with personality variables over the long period of marriage. And it was further decided to cover as extensive

a range of changes as possible so that, despite the independence of specific changes, a comprehensive picture of changes would emerge. With a large number of variables, a true mapping-out of areas of "change" and "no change" could be effected, overall trends could be noted, and a meaningful picture of broader dynamics of change might be inferred.

Further Studies of the Process of Change

Kelly's study of changes (31) is the only empirical investigation of this sort done to date in the area of marriage. The broader problems of measuring changes and identifying correlates of these changes have been attacked in relation to a number of different questions that have interested the psychologist. Large bodies of literature have grown up in recent years relevant to changing people's attitudes and to personality changes resulting from a wide range of psychological and physiological therapeutic measures. A great part of the enormous mass of data on intelligence and achievement, decision-making, problem-solving, and learning is pertinent to the study of changes. But the number of directly relevant studies of changes examined longitudinally over a long period of years, or changes as they are related to any important variables, much less social-interaction variables of the sort operating during marriage - is surprisingly few. This is so despite the fact that processes of changing are just as crucial, and in fact perform most

of the same functions, for the individual constantly fitting in with new life situations and demands as they are for the subject in a learning situation, about which we have come to know so much. As Foote suggests,

> A marriage is not likely to stand still or continue unchanged for very long. Arrest in development of either partner makes it vulnerable to breakdown... The view...that adjustment may take some time to achieve in marriage, but once achieved may be expected to endure, is thus perhaps only a half-concession to the developmental point of view(21).

We have indications and suggestions enough that what happens after an individual enters a new situation is of major importance in determining the outcome of the situation. But the study of processes of change within a situation is still at its infant stage.

A number of good, long-term longitudinal studies have measured and described growth in childhood: such studies as Dearborn and Rothney's measuring physical and mental growth curves (15), Olson's work, covering the same areas, with some emphasis on specific skills such as reading (45), and the Berkeley study under the direction of MacFarlane, which is beginning to yield results of more direct relevance to personality development (41,42). Spurts in physical growth at adolescence have been examined in a number of experiments conducted by Jones (25,26), Shock (50), and others.

There are several relatively short-term studies that are worth noting here because of their approaches toward the identification of correlates of the changes taking place. Sherif and Sherif (49) experimentally manipulated in-group

and out-group behavior in a summer camp in a study focussed on factors involved in co-operative and competitive behavior. This study gave a striking example, in the aggressive rivalry created between the two teams of campers, of changes that can be effected by the social situation. Hunt and Solomon (24), in an earlier study of an eight week camp period, examined differences in correlations between group status of campers and a number of rated traits from the first week to the last week of camp. Newcomb's Bennington study (44) examined changes in attitudes of girl undergraduates at an unusually liberal college, demonstrating that they were related to the college atmosphere and the extent to which the college formed the students' major reference groups.

Cattell's belief that P-technique is an especially promising tool for the clinic, since it can examine relations between changes and the course of treatment (12), led to an experiment in which day to day changes for one individual, tested twice daily for 40 days (13), were related to changes in attitudes. He also found that seven of nine factors identified from this change data on one individual agreed with factors previously identified by R-technique. A short-term study by Baldwin (3) on changes in mothers' child-centered behavior during a new pregnancy similarly indicates changes (decreasing child-centeredness) to be related to the new situation in which the mothers find themselves.

Strong's examination of the permanence of interest

traits over 22 years (53), as measured by the Strong Vocational Interest Blank shows high correlations on vocational interests over this long period of time. Owens (46) studied changes in intelligence, as measured by the Army Alpha, over a 30-year period, finding a total test-retest correlation of .77. Bayley and Oden (4) found even higher consistency in gifted subjects over a 10-year period.

Two studies with N's too small for more than suggestive results are also of interest. Smith (51) found indications of consistency of personality traits over a 50-year period. Roberts and Fleming (48) found personality traits differed in persistence from late adolescence to maturity - some, such as accepting responsibility and being interested in people, being persistent, while others, such as apprehensiveness and happiness, having low persistence. Cattell suggests that we have indications here that the source traits of surgency-desurgency and dominance-submission are the "most subject to change with age and circumstances" (10, p.615).

Woodrow (59,60), in studies of rate of improvement in different learning situations, found no general factor acting as one of the determinants of the rate of improvement when performances being learned differed, and only small relations between the rate of improvement on highly similar tests. Kelly, in his present marriage study, has found similar low intercorrelations between changes on different variables during the period of marriage (31).

Margaret Mead's new book on her second look at Manus society (43) presents a striking picture of enormous change, amounting to cultural upheaval, over the relatively short period of 25 years. This change from primitive to modern society is of course closely related to the unique situation of intimate contact with a completely different, favorably viewed new civilization, a civilization represented by a million GI soldiers who were in positions of authority and friendship with the native Manus.

A few of the above studies made attempts to relate the changes examined to behavior on other variables, rather than examining changes in general. The Bennington study, in its characterization of reference-group influences, was extremely successful in this. Sherif and Sherif's summer-camp study examined changes related to experimentally induced frustrations and competitive situations. Cattell, in his P-technique study of one subject, found relations between day-to-day changes in attitudes and changes in the subject's life-situations as reported in a diary. And studies of pregnancy and puberty have found personality changes related to the physical changes that take place at these times.

CHAPTER III

METHODOLOGY

Introduction

Because so little is known about changes that take place during marriages over a long period of time, it was felt that an empirical exploratory design would best serve the purpose of making inroads and a preliminary mapping-out of relatively new psychological territory. There is neither enough factual evidence nor sound theorizing on which to base hunches for any proposition that were grounded firmly enough to deserve the name 'hypothesis.' Rather, it would have been possible to list a number of 'hunches' (of the sort that of course lay behind all the decisions and directions taken). But, without the firm conceptualization of the crucial aspects of marriage behavior and their determinants that a well-developed theory would give, experimental confirmation of these hunches would do little more than establish the piecemeal, disconnected fact, with a slight extra fillip of an 'I told you so' from the 'hunch' itself.

On the other hand, a frankly fact-finding study would provide major advantages. It would enable the investigator

to cover a wide range of variables, and uncover not only relations but also lack of relations, important in giving a total first mapping-out of the area. Thus significant results would be given a just perspective by the totality of results.

The data that had been collected by Kelly fitted extremely well the needs of this study. It was exhaustive, plentiful, frankly exploratory. It formed a large pool from which the present author could draw. Over 100 variables had been measured when the couples were engaged and again after almost twenty years. In addition, almost one thousand variables assessing behavior after twenty years of marriage were measured.

A word should be said about the sample of subjects tested. The total sample originally contacted, interviewed, and tested by Kelly consisted of 600 people forming 300 couples who were engaged, in that they expressed a definite anticipation that they would be married. They were couples who responded to an invitation to participate in a long-term study, to spend a full day in initial testing and continue to report annually for seven years. This, then, was a sample in which it was quite likely that selective factors were operating. For example, Kelly has already reported (31) that 75% of the men had at least one year of college, while the Mean IQ equivalent (as estimated from the Otis Self-Administering Test of Mental Ability) was 115 for the men and 112 for the women. Kelly describes the sample of subjects

further as follows:

> The Mean age of the men at the time of the original testing was 26.7 and that of the women 24.7.....
> We can never know in what manner and to what degree our sample is selected by virtue of its being composed of persons who volunteered to participate in a study of marriage. Admittedly, it does not include, for example, the sorts of people who marry impulsively or those who still regard marriage as a relationship inappropriate for scientific study. However, in a study such as this, one cannot hope for a sample truly representative of the general population. Our goal was that of securing a sample with sufficient variation on each of the variables studied to permit analyses of covariance. In this respect we succeeded. In spite of the operation of known selective factors, the sample studied was characterized by wide individual differences with respect to each of the roughly 200 variables on which the subjects were assessed. And except for education and intelligence, the resulting distributions on the other variables were very similar to those of normative samples.

The subsample used in the present study is composed only of those subjects for whom the following information is complete: (1) Husband-1937 original test scores, (2) Wife-1937 original test scores, (3) Husband-1955 retest scores, and (4) Wife-1955 retest scores. These restrictions, because of the attrition from divorce, death, inability to relocate a couple, nonresponse from one member of the marriage couple, or incomplete response, gave a final subsample of 122 couples. This was still a sufficiently large group to examine statistically, albeit without some of the added precision that might have been gained if a larger group had been available. And, as was the case for the overall study discussed by Kelly in the above passage, covariances - in this case between changes and marriage criteria - would still be open to examination. However, the sample must be

kept in mind in drawing conclusions from the results obtained.

A detailed description of the entire pool of data collected in the overall marriage study can be got from the Bureau of Psychological Services, University of Michigan.

The relevant material is of two kinds, representing the two major phases of the study: first, criterion-related variables, and second, change variables (this of necessity can include only variables for which we have data both at the time of original testing, in 1937 and at the time of retesting, in 1955).

The Selection of the Criterion-Related Variables

The criterion factor analysis was the necessary first phase to the study. Its purpose in terms of the analysis of change was to identify, by the extraction of independent factors, the stable, important dimensions of the marriages in which the couples participated. Since these factors would be likely covariants of changes taking place, the most promising from among them would then be chosen for the analysis of change.

The 100 variables included in the criterion factor analysis are listed in Appendix A. These were chosen from almost 1000 variables that had been measured during the 1955 testing period. Only those variables that seemed to bear some relationship with possible dimensions of marriage were chosen.

The criterion-related variables were selected in terms of their relevance to possible criteria of marriage outcomes. Marriage outcomes were very broadly conceived, since it was felt that the effects of participation in a marriage would spread through many aspects of the husband's and the wife's lives, in addition to the marriage itself. Thus criterion-related variables tapped a range of behaviors and perceptions relating to the marriage unit, and also variables relating to behavior and achievements outside of the marriage itself that, for theoretical reasons, would seem to be related to the marriage-interaction situation in which the individuals were involved. Implicit in this analysis were hunches as to criterion factors that might be identified in the factor analysis. These hunches as to possible areas of relevant criterion variables are listed in Table 1.

TABLE 1

CONCEPTIONS OF RELEVANT CRITERION AREAS FROM WHICH TO CHOOSE CRITERION-RELATED VARIABLES FOR THE CRITERION ANALYSIS

1. Self-reported happiness
2. Sexual adjustment
3. Economic success
4. Emotional health
5. Physical health
6. Semantic harmony
7. Centripetality (family centeredness)
8. Child-centeredness
9. Closeness of intimate interpersonal relations
10. Values
11. Attainment of goals

The final list of criterion-related variables was selected by eliminating variables for which there was little variance or much missing data. The total was thus reduced to 100 variables, a number sufficiently large for a good coverage of criteria, and still manageable in terms of the computations necessary.

The Factor Analysis of the Criterion-Related Variables

Next, a practical decision had to be made. The 100 criterion-related variables had been measured twice for each marriage - once for the husband, once for the wife. Thus there were several possible approaches to the criterion analysis. (1) The men could be analyzed separately, (2) the women could be analyzed separately, (3) men and women could be analyzed together, and (4) couple scores could be derived from the individual scores and then analyzed.

It was felt that the many criterion-related variables dealing with individual outcomes, individual success of the husband or wife, precluded the casting of the criterion analysis into a rigid diad-group-centered study. And all criteria that were in fact social diad criteria should show up when individual member factors (that is, husband and wife factors analyzed separately) are related to one another across sex. That is, group characteristics would be identified by significant husband-wife correlations on the factors uncovered by an analysis of the criterion-related variables

as measured separately for husbands and/or wives.

The possibility of throwing together husband and wife scores, so that the extracted factors would reflect the whole group of subjects, was also entertained. But to the extent that the criterion factors were different for men and for women, this would not be justifiable, and would tend to blur the representation of the factor structure that would be obtained. And on this point no information was available; in fact one purpose of the proposed factor analysis was to examine the extent to which marriage outcomes have similar dimensions for husbands and for wives. Looking at the situation another way: if the factor structure for husbands was different from that for wives, lumping husbands and wives together would not be justified; if they were the same, it would not be necessary.

It was finally decided to conduct the criterion analysis on the men only. This would allow for subsequent analysis on the group of women and a fitting-together of the factor structure for the two groups. The immediate objective for the change study was to identify well-defined, independent criteria by which marriages could be characterized, to prepare for the subsequent analysis of changes. The program for this analysis was to be as follows: (1) extract factors, (2) compute factor scores for all individuals, (3) divide marriages into groups (highs, middles, and lows) on the factors. Since factor scores for the women could be computed on the basis of the factors identified in the factor

analysis of the men, it was felt that the third step, if it could be taken successfully, would justify the program. The building up of the three groups would differentiate the marriages in terms of the factors. The subsequent analyses of change, and of predictor variables, in relation to these factors, would serve, to the extent that relationships were established, to validate these factors.

The Factor Analysis of the 100 Criterion-Related Variables

The factor analysis of the 100 criterion-related variables was conducted by means of the following steps. First, the 100 criterion-related variables were intercorrelated, for the group of men for whom complete data was available (n equals 97), on Michigan's IBM 650, using an intercorrelation program developed for this purpose by the author.[1] Appendix B reports this intercorrelation matrix. The total matrix was then factor-analyzed on the Illiac electronic computer, by the centroid method (11). Three solutions were obtained, for 5, 7, and 12 factors. The final solution decided upon, after examination of the residual communalities after each factor extraction, was for 5 factors, using communalities estimated by 7 factors.

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[1] The program used was an intercorrelation program for matrices of any size. Other phases of the study were conducted using a Time 1-Time 2 correlation program developed by Mrs. E. Lowell Kelly, a rotation program developed by Robert Graham, a factor analysis on the Illiac by Kern Dickman, and two critical ratio programs developed by the author.

The factors were then rotated on the Michigan IBM 650, using a program developed for Quartimax Rotations (61). The rotated factor structure is presented in Appendix C, which gives loadings for all 100 variables on all five factors.

From an analysis of the variables highly loaded on each factor, a tentative identification of the factors has been made, which is presented in Table 2.

TABLE 2

THE FIVE MARRIAGE OUTCOME CRITERION FACTORS OBTAINED AFTER FACTOR ANALYSIS AND QUARTIMAX ROTATION

I. Self-Perceived Happiness
II. Family Centeredness
III. Individual Strength (Men)
IV. Semantic Harmony
V. Close Interpersonal Relations with Others (Men)

Variables highly loaded on each factor were then chosen, to be used in building up factor scores for each subject used in the study of change. The following considerations, as suggested by Cattell (11), were kept in mind in choosing the marker variables from which to build up factor scores. Four to ten variables was considered the desirable range of the number of individual variables to be summed. High loadings on the factor the variable represents plus neglibible loadings on all the other factors was sought. In addition, what loadings there were on the other factors were balanced

TABLE 3

VARIABLES USED IN COMPUTING FACTOR SCORES

	Variable No.
Factor I:	Self-perceived Happiness
	7. Difference between actual size of family and original desired size
	25. General satisfaction with marriage
	27. Regretted marriage
	31. Happiness of marriage - global rating
	38. Happiness - 7th 2-year period
	40. Happiness - 9th 2-year period
	41. Average happiness over all above periods checked
	42. Range of levels checked
	90. Total number of items reported as occuring during marriage
Factor II:	Family Centeredness
	2 (minus). Average yearly family income
	5. Men: frequency of impotence; Women: frequency of orgasm (direction reversed)
	52 (minus). Importance of attending church and taking part in religious activities
	55. Importance of getting money and material wealth
	76 (minus). Frequency of getting together socially with others - without spouse
	78 (minus). Number of different people with whom get together socially
	93 (minus). Spouse's drinking ever a problem
	96 (minus). Drinking of alcohol

TABLE 3-Continued

Variable No.
Factor III: Individual Strength (Men)
15. Difference between selfrole adequacy and spouserole adequacy
47. Physical health during past 20 years
57. Importance of you and spouse taking part in many recreational activities together
85 (minus). Weight given to ideas and feelings of children in making family plans
98. Present physical health
Factor IV: Semantic Harmony
43 (minus). Semantic difference for Factor 1
44 (minus). Semantic difference for Factor 2
45 (minus). Semantic difference for Factor 3
46 (minus). Semantic difference for total
56. Importance of life being free from sudden change and unexpected events
58 (minus). Importance of your life making a contribution to community, etc.
74. Frequency of attending group activities - without spouse
Factor V: Close Interpersonal Relations with Others (Men)
19. You understand spouse
50. Importance of having close and intimate friends
67. How well closest friend understands you
68. How well you understand closest friend
69. Importance of friendship with closest friend for your happiness
71. Extent to which discuss personal problems with closest friends
72. Extent to which discuss problems with closest friend

as well as possible, between plus and minus loadings, so that the factor score representations of the factors would be as independent as possible, reflecting the independence of the factors themselves.

The variables chosen for use in building up the factor scores are listed in Table 3.

Next, factor scores were computed for all members of marriages for which complete test-retest data were available (that is, for which the following four pieces of data were available: (1) 1937-husband, (2) 1937-wife, (3) 1955-husband, (4)1955-wife) (n equals 122). These scores are reported in Appendix D. Finally, criterion-divided groups were formed for each factor. The couples were divided on each criterion into approximately equal thirds by the following method. First, couples for which <u>both</u> the husband and the wife fell in the top third of the distribution were placed in the High group. In addition, couples for which <u>either</u> the husband or the wife fell in the top third, and the other member of the marriage fell in the top half of the distribution were placed in the High group. This procedure was repeated for the other end of the distribution to form the Low group. The total group was thus divided into approximate thirds. The High third was contrasted with the Low third in the subsequent analysis of change.

As a check on the independence of the five factors as approximated by the variables used in building up the factor scores, intercorrelations were obtained, as reported in Table 4.

TABLE 4

INTERCORRELATIONS OF COMPUTED FACTOR SCORES, FOR THE FIVE MARRIAGE-OUTCOME CRITERIA FACTORS

A. INTERCORRELATIONS FOR HUSBANDS

Factor	I	II	III	IV	V
I		01	10	-01	13
II			-24	-05	05
III				-10	-07
IV					15
V					

B. INTERCORRELATIONS FOR WIVES

Factor	I	II	III	IV	V
I		-10	-11	*	-05
II			-03	*	14
III				*	07
IV					*
V					

* Correlations of Criterion Factors was not computed for the Wives.

An examination of this table, in which we find intercorrelations ranging from -.24 to +.15 with a median of .08 (absolute score), indicates rather complete success in obtaining independent measures.

Husband scores were next correlated with wife scores for each of the five factors, as reported in Table 5.

TABLE 5

CORRELATIONS OF HUSBAND SCORES WITH WIFE SCORES FOR THE MARRIAGE-OUTCOME CRITERION FACTORS

Factor	Husband-Wife Correlation
I	63
II	61
III	-06
IV	*
V	13

* Husband-Wife correlation for Factor IV was not computed, because over half of the components were identical, which would have resulted in a spuriously high correlation.

These results give rather satisfactory husband-wife correlations of .63 on factor 1 and .61 on factor 2. Factor 4 scores, which included four semantic differential variables that are couple scores and hence identical for husband and wife, were not included because of the built-in correlation. Husband-wife correlations for the other two factors present a somewhat confusing and disturbing picture. As can be

seen from the table, there is no relation between a husband's score and his wife's score on any of these factors. This would seem to indicate that these three criteria are descriptive of the individual and not of the marriage. Thus two of the factors identified in the criterion analysis seem to be criteria of individual outcomes (since the analysis was done on the group of men, of husband outcomes) rather than marriage-group (couple) outcomes. Note that this does not necessarily mean that the factor structure uncovered for men is different from the structure that would be uncovered for women. A future factor analysis of wives might very well identify the same factors, with the women who are high on these factors not the wives of the men who are high on the same factors.

At this point it was decided to concentrate on Factor 1, which will be tentatively designated as "Self-Perceived Happiness," as the criterion for the subsequent analysis of differential changes. The criterion groups divided by Factor 1 will be designated as follows: the Highs as Happys or Hi's, the Lows as Unhappys or Lo's.

The Analysis of Change

Seventy-two variables, taken from five psychological instruments that tapped five different categories of behavior were examined in the analysis of change. The instruments used were: (1) Kelly's Personality Rating Scale (29), (2) Allport-Vernon Study of Values (1), (3) Bernreuter

Personality Inventory (6), (4) Remmers Attitude Scales (47), (5) Strong Vocational Interest Blank (52). The specific 72 variables analyzed for changes are listed in Appendix A.

The second phase of the study, the analysis of changes, was designed to extract the maximum amount of information about the change variables under consideration. Not only were the changes related to the outcome criterion of self-perceived happiness, but also the changes were put into the context of the original position, at the time of engagement in 1937, and the final position, after almost twenty years of marriage, in 1955, on the variables analyzed for change.

The division of couples into Highs and Lows on Self-Perceived Happiness was the first step toward the design employed. This allowed for comparisons between High groups and Low groups that would approximate the results obtainable in a correlational design, though perhaps with somewhat less sensitivity. In addition, it allowed for the large number of additional contrasts that were made. And finally, it allowed for an examination of the patterning of behavior across variables.

Thus the analysis-of-change phase of the study, because of the large number of tests of significances of differences that were made for each variable, employed an analytic design that is difficult to grasp all at once. To make the explanation of this design as clear as possible, I shall first give a brief picture of the information accumulated, next look at the individual pieces of information

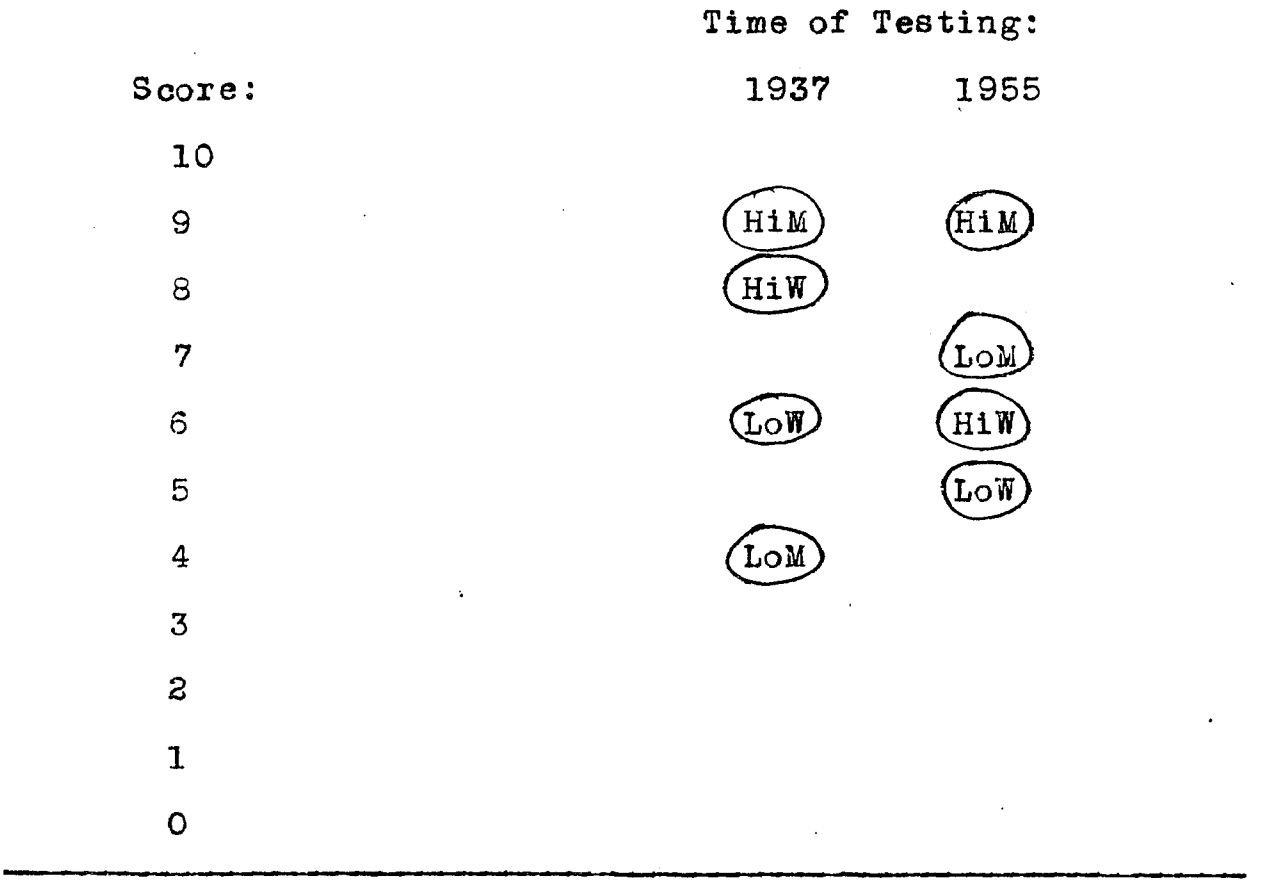
and the pertinent comparisons in which they are involved, and finally pull these pieces back into their places in the overall design.

Overview

An overview of the design of the analysis of changes phase of the study can best be got in conjunction with Figures 1 and 2, and Tables 6 and 7, which will be looked at in greater detail as this discussion proceeds. These picture the results of the analysis for a single variable of the 72 change variables. Figure 1 represents the first step of this analysis, in which eight basic Means (and their Sigmas) were accumulated. These were the Means for Happys, for Unhappys, for Husbands, for Wives, in 1937 and in 1955. Figure 2 represents the second step of this analysis, in which eight Mean Differences were computed. These were the four group changes from 1937 to 1955 and the four Husbands-Wives differences. Table 6 summarizes the Means computed. The pertinent comparisons, for which evaluations of the significance of differences were made, are listed in Table 7. These include (a) evaluations of differences at a specific time - in 1937, in 1955, between Happys and Unhappys, between Husbands and Wives; (b) evaluations of changes - the significance of group changes and of the differences between the changes of different groups; and (c) evaluations of convergence-divergence in the criterion-divided groups (Happys and Unhappys).

FIGURE 1

AN EXAMPLE OF THE FIRST STEP IN THE ANALYSIS OF CHANGE: THE BASIC MEANS ACCUMULATED FOR ONE VARIABLE OF THE 72 VARIABLES ANALYZED



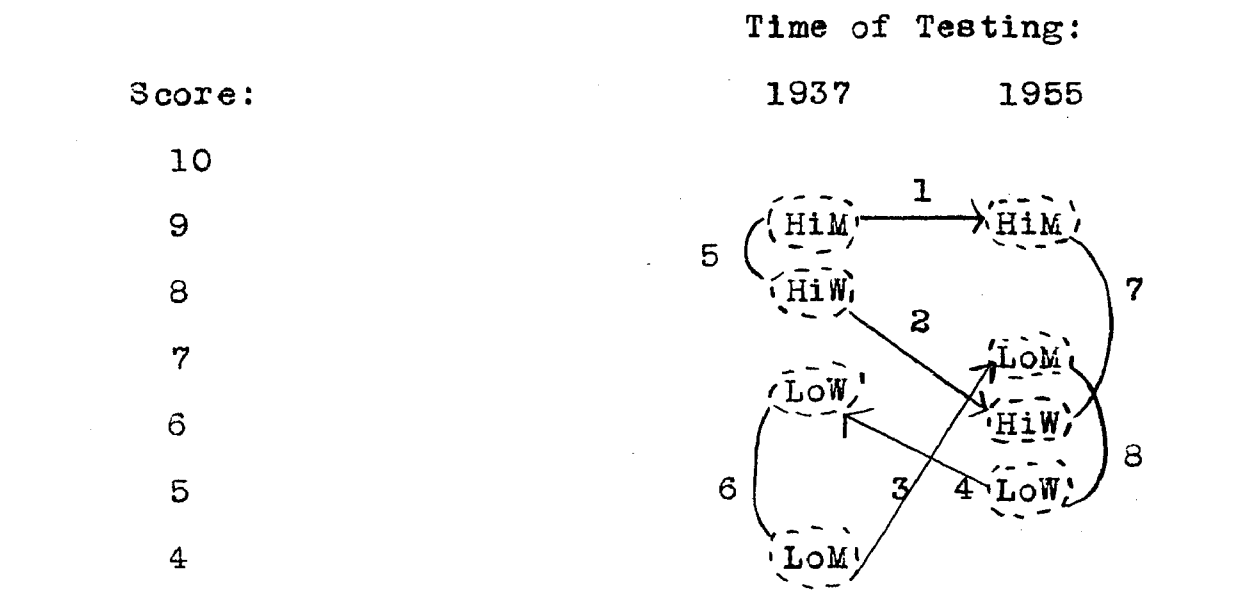
Hi designates High (Happy) criterion group
Lo designates Low (Unhappy) criterion group
M designates Men
W designates Women

Eight group means are thus reported for each variable. They are designated as follows:

1. HiM37 - HighMen in 1937
2. HiM55 - High Men in 1955
3. HiW37 - High Women in 1937
4. HiW55 - High Women in 1955
5. LoM37 - Low Men in 1937
6. LoM55 - Low Men in 1955
7. LoW37 - Low Women in 1937
8. LoW55 - Low Women in 1955

FIGURE 2

AN EXAMPLE OF THE SECOND STEP IN THE ANALYSIS OF CHANGE: THE MEAN DIFFERENCES DERIVED FOR ONE VARIABLE OF THE 72 VARIABLES ANALYZED



Eight mean differences are thus reported for each variable. They are designated as follows:

1. changeHiM - change of High Men
2. changeHiW - change of High Women
3. changeLoM - change of Low Men
4. changeLoW - change of Low Women
5. H-WdiffHi37 - Husband-Wife difference of Highs in 1937
6. H-WdiffLo37 - Husband-Wife difference of Lows in 1937
7. H-WdiffHi55 - Husband-Wife difference of Highs in 1955
8. H-WdiffLo55 - Husband-Wife difference of Lows in 1955

TABLE 6

SUMMARY OF SCORES AVAILABLE FOR EACH OF THE 72 CHANGE VARIABLES

A. Basic Means

1. High Men in 1937
2. High Men in 1955
3. High Women in 1937
4. High Women in 1955
5. Low Men in 1937
6. Low Men in 1955
7. Low Women in 1937
8. Low Women in 1955

B. Mean Change

1. Change of High Men
2. Change of High Women
3. Change of Low Men
4. Change of Low Women

C. Mean Husband-Wife Differences

1. Husband-Wife difference of Highs in 1937
2. Husband-Wife difference of Lows in 1937
3. Husband-Wife difference of Highs in 1955
4. Husband-Wife difference of Lows in 1955

TABLE 7

CRITERION-RELATED CONTRASTS THAT ARE OPEN TO ANALYSIS BY MEANS OF THE DESIGN EMPLOYED

A. Time 1 (1937)

1. High Men vs. Low Men
2. High Women vs. Low Women
3. High Men vs. High Women
4. Low Men vs. Low Women

B. Time 2 (1955)

1. High Men vs. Low Men
2. High Women vs. Low Women
3. High Men vs. High Women
4. Low Men vs. Low Women

C. Change from Time 1 to Time 2

1. High Men 1937 vs. High Men 1955
2. High Women 1937 vs. High Women 1955
3. Low Men 1937 vs. Low Men 1955
4. Low Women 1937 vs. Low Women 1955

D. Difference in changes from Time 1 to Time 2

1. Change of High Men vs. Change of Low Men
2. Change of High Women vs. Change of Low Women
3. Change of High Men vs. Change of High Women
4. Change of Low Men vs. Change of Low Women

E. Differences in Husband-Wife Differences

1. Husband-Wife difference of Highs vs. Husband-Wife difference of Los, 1937
2. Husband-Wife difference of Highs vs. Husband-Wife difference of Lows, 1955
3. Husband-Wife difference of Highs, 1937 vs. Husband-Wife difference of Highs, 1955
4. Husband-Wife difference of Lows, 1937 vs. Husband-Wife difference of Lows, 1955

Basic Group Means

A closer look at the details of this design should give a clear picture of this phase of the analysis. The formation of the two criterion-divided groups - the Happys and the Unhappys, - and the separate treatment of Husbands and Wives within each criterion group, allowed for the analysis of four different groups. This, as will be seen in a moment, made possible the evaluation of differences between Husbands and Wives and a characterization of Convergence-Divergence. In addition, it still allowed for characterizations of the criterion-divided groups as couples as well as Husbands and Wives. Simply by summing (or averaging) the Husband Mean and the Wife Mean (for example Happy-Husbands-1937 plus Happy-Wives-1937) the Couple Mean is obtained. This is the mean that would have been obtained by computing a Couple score for each married couple separately and then accumulating and averaging these scores. In other words, instead of summing a husband and his wife and then summing across all couples, the present design sums across all husbands and across all wives separately, and then sums these two groups together. The advantage lies in the additional information thus made available about the members of the two-person group that is the couple and the additional contrasts that can be made.

The separate treatment of Husbands and Wives meant that there were two groups within each of the two criterion

groups - four groups in all. These groups are designated: (1) HappyMen (HiM), (2) HappyWomen (HiW), (3) UnhappyMen (LoM), and (4) UnhappyWomen (LoW). In addition, the 72 change variables were measured at the two different times under consideration - at the time of engagements in 1937, and again in 1955. Thus we have two measures for each of the above four groups - a 1937 Mean and a 1955 Mean.

Derived Means: 1. Changes

Computation of the differences between these eight Means puts our information in a form where we can now make a number of evaluations of changes and of Husband-Wife differences. This, then, forms the next step of the analysis of changes.

Four indices of change are derivable from the eight Means and their Sigmas already accumulated. These are: (1) HappyHusbands change (changeHiM), (2) HappyWives change (change HiW), (3) UnhappyHusbands change (changeLoM), and (4) UnhappyWives change (change LoW). These changes were computed in the second phase of the analysis, which gave the difference between the Means (and the Sigma of this difference) for each of the four groups. (Note that the difference between the Means is identical with the Mean of the differences.) Thus again we arrive at the same Mean that would have been computed directly - in this case by computing the change for each individual and then summing

across individuals - by first getting the group Mean before and after change, thus getting the additional information contained in the eight basic Means already discussed along the way. This additional information allows us to look at the changes identified in the larger context of the original position from which change started and the final position after change. Appendix F contains a discussion of the meaning of the mean differences computed.

Derived Means: 2. Husbands-Wives Differences

In addition to the four Mean Change scores on each of the 72 variables, four Mean Husbands-Wives difference scores are derived at this second phase of the analysis. This gave us four Husbands-Wives Mean differences: (1) Happy Husbands-Wives difference in 1937 (H-Wdiff. Hi37); (2) Happy Husbands-Wives difference in 1955 (H-Wdiff. Hi55); (3) Unhappy Husbands-Wives difference in 1937 (H-Wdiff. Lo37); (4) Unhappy Husbands-Wives difference in 1955 (H-Wdiff. Lo55). Thus, these Husbands-Wives Mean differences are computed, in the same manner as the change scores just discussed, from the difference between the Means.

Comparisons Between Means

Tables 6 and 7 summarize the data accumulated and the comparisons that are possible for each of the 72 change variables. Table 6 lists the eight basic Means and the eight derived Means that have just been discussed. Table 7

lists the meaningful statistical comparisons that can be made from these data, so that an exhaustive picture of the analysis used can be had.

Using the eight basic Means we can make twelve meaningful statistical comparisons of the significance of the difference between two groups. Briefly, these are comparisons (a) of Highs with Lows, (b) of Men with Women, and (c) of 1937 Means with 1955 Means. These comparisons are: (1) HiM37 vs. LoM37; (2) HiW37 vs. LoW37; (3) HiM55 vs. LoM55; (4) HiW55 vs. LoW55; (5) HiM37 vs. HiW37; (6) HiM55 vs. HiW55; (7) LoM37 vs. LoW37; (8) LoM55 vs. LoW55; (9) HiM37 vs. HiM55; (10) HiW37 vs. HiW55; (11) LoM37 vs. LoM55; (12) LoW37 vs. LoW55. These then are the meaningful combinations of two Means from the total of eight basic Means. Since 28 combinations of two Means are possible, there are 16 non-meaningful combinations, such as HiM37 vs. LoW55, which of course will not be considered in the analysis of results.

From the eight derived Means we can make eight further meaningful statistical comparisons of the significance of the difference between two groups. These lie (a) along the change direction and (b) along the Husband-Wife difference direction. The individual comparisons are: (1) changeHiM vs. changeLoM; (2) changeHiW vs. changeLoW; (3) changeHiM vs. changeHiW; (4) changeLoM vs. changeLoW; (5) H-WdiffHi37 vs. H-WdiffLo37; (6) H-WdiffHi55 vs. H-WdiffLo55; (7) H-WdiffHi37 vs. H-WdiffHi55; (8) H-WdiffLo37 vs. H-WdiffLo55.

There are 20 non-meaningful comparisons such as changeHiM vs. H-WdiffHi37 and H-WdiffHi37 vs. H-WdiffLo55, which again will not be considered.

The comparison of derived Means that is most central to this study is the one treating change as related to the criterion. This includes two comparisons; (1) changeHiM vs. changeLoM and (2) changeHiW vs. changeLoW. The significance of the differences of changes in these two cases was tested for all 72 change variables.

The other six meaningful comparisons of derived Means were not relevant to the central question of the study - that of changes as related to the outcome criterion - except to put these changes in their broader context. These comparisons are revealed in the figures that diagram the Means for each of the 72 change variables, but tests of the significance were not run for individual variables to tell us whether the differences pass some pre-set level of significance. A number of trends relating to these comparisons can best be analyzed in terms of behavior over all 72 change variables rather than in terms of significance of contrasts on individual variables.

SUMMARY

To recapitulate briefly: the total picture of changes occurring during the 18 years of marriage, and the broader context of behavior within which these changes occurred, became available because of the analytic method employed.

First, eight basic Means and Sigmas were accumulated, four for each criterion-divided group. Thus we had data from which contrasts could be made between Happys and Unhappys, between Husbands and Wives, and between original testing (at the time of engagement, in 1937) and retesting (after eighteen years of marriage, in 1955.)

Next, eight Mean differences were derived from these basic Means. These gave four indices of change, by each of the four groups (HiMen, HiWomen, LoMen, and LoWomen), and four Husbands-Wives differences, for Happys and Unhappys, in 1937 and in 1955.

Finally, differences between Means were subject to statistical test. The central purpose of the study - the analysis of changes - focussed attention on the evaluation of the significance of the differences between changes of High groups as opposed to Low groups. These changes were set in a broader context that would help to answer questions on details of change - e.g. 'change from what point to what point?','how change is related to H-Wdifference in 1937 and 1955?'

In addition to the statistical tests of comparisons on individual variables, a number of comparisons were made over all 72 change variables. These made possible an examination of general trends of change over the entire array of behavior examined.

CHAPTER IV

RESULTS: 1. OVERALL TRENDS OF CHANGE ACROSS ALL 72 CHANGE VARIABLES

Introduction

Before going into a detailed analysis of results for the five different categories of behavior analyzed and the individual variables included in each category, it would be well to look at some criterion-related trends that can be observed over the group of 72 change variables taken as a whole. There are enough variables included in the analysis of changes to allow for statistical tests of the significance of behavior for the population of variables examined. These tests will contrast the behavior of Happys and of Unhappys in the three aspects of change. These are, (a) Convergence-Divergence, (b) change, and (c) consistency.

This overall analysis will include one additional type of data that has not been mentioned up to this point. In addition to the basic and derived Means already discussed, test-retest (that is, 1937-1955) correlations were computed for all four groups on all 72 variables. Thus we have the following four additional pieces of information on each variable: (1) $r(37\text{-}55_c HiM_J)$, (2) $r(37\text{-}55_c HiW_J)$, (3) $r(37\text{-}55_c LoM_J)$, (4) $r(37\text{-}55_c LoW_J)$. These correlations are

measures of the consistency of the groups regardless of changes that have occurred. That is, they give a measure of the degree to which the members of the group have maintained their relative place in the group, whether the group as a whole has changed or not. Comparisons of consistency of the four groups, as measured by these correlations, will be made over the entire group of change variables.

Convergence-Divergence Change

Convergence-Divergence is measured by the change in Husbands-Wives diffferences from Time-1 to Time-2. For example, looking at Figure 3, p.61, we can compute two convergence-divergence scores, one for the Happys and one for the Unhappys. For Happys, we find a Husbands-Wives difference (in coded scores) on the first P.R.S. variable, Intelligence, of .67 at Time-1 and a Husbands-Wives difference of 1.03 at Time-2. The Time-1 difference minus the Time-2 difference of -.36 is a measure of the Convergence-Divergence. A plus difference indicates Convergence (the Mean difference between husbands and Wives has grown smaller), while a minus difference indicates Divergence (the Mean difference between Husbands and Wives has grown larger).

Table 8 presents a comparison of the Convergence-Divergence of Happys and Unhappys, summarized for all 72 variables.

Here we see a trend, across the 72 change variables of convergence for the Happy couples as opposed to divergence

TABLE 8

CONVERGENCE-DIVERGENCE: NUMBER OF VARIABLES EXHIBITING CONVERGENCE AND DIVERGENCE FROM TIME-1 TO TIME-2, FOR HAPPY AND UNHAPPY COUPLES

Group:	Happys	Unhappys	Total
No. of Variables Converging	38	24	62
No. of Variables Diverging	34	48	82
Total No. of Variables	72	72	144

$X^2 = 5.43$ (significant at 2% level)

for the Unhappy couples. We also have an indication of a general drift over all couples toward divergence over the years (62 convergences and 82 divergences), a drift that was resisted and to some degree overcome by the Happy group.

TABLE 9

A COMPARISON OF HUSBANDS-WIVES MEAN DIFFERENCES AT TIME-1 AND AT TIME-2, FOR HAPPY AND UNHAPPY COUPLES, ACROSS 72 VARIABLES

	Greater Mean Husbands-Wives Difference for:			
Test Period:	Happys	Unhappys	Total	Ties
Time-1	42	30	72	0
Time-2	33	38	71	1
Total	75	68	143	1

$X^2 = 2.01$ (not significant)

Table 9 helps set this phenomenon, of convergence on the part of the Happys, as opposed to divergence on the part of the Unhappys, in the context of the original state in 1937 and the end state in 1955.

Thus Happy Men and Women are more different from one another than are the Unhappy Men and Women at Time-1, during their engagement, whereas after a period of almost 20 years of marriage, the Unhappy Men and Women are more different from one another than are the Happy Men and Women (X^2 = 2.01, not significant). The convergence, then, of the Happys, is a function of both an original state of greater dissimilarity and a final state of greater similarity than is the case for the Unhappys. The overall picture that emerges is one in which the Happys are more different when they get married, converge during the marriage, and end up more similar after a long period of marriage, on the variables measured in this study. Unhappys start out more similar than Happys, diverge during the years of marriage, and end up less similar to each other than the Happys.

Magnitude of Changes

A comparison of the Happys and Unhappys as to the amount of change on each variable, across all 72 variables, is presented in Table 10.

We thus find a slightly (non-significant) greater tendency to change, across all 72 change variables, for the Unhappy, as opposed to the Happy couples - equally strong

TABLE 10

A COMPARISON OF HAPPYS AND UNHAPPYS WITH RESPECT TO THE MAGNITUDE OF CHANGE ON EACH VARIABLE, ACROSS ALL 72 CHANGE VARIABLES

	Member of the Marriage Group		
No. of variables on which:	Husbands	Wives	Total
Happys change more:	31	32	63
Unhappys change more:	41	40	81
Total no. of variables:	72	72	144

X^2 (total) = 2.25 (not significant)

for both husbands and wives. Note that this treats only the amount of change; we have yet to look at the direction and psychological meaning of these changes.

Direction of Changes

The exploratory nature of this study precluded any assigning of denotations of desirability and undesirability to the ends of the scales used to measure the 72 change variables. However, positive and negative directionality were built into all of the scales as originally developed. Values and interests were ordered from "high" to "low," self-percepts and attitudes from "positive" to "negative" and personality variables from "adjusted" to "maladjusted." So directionality of change can be looked at across all 72 variables in terms of the positive-negative dimension, that is, the "high," "positive," or "adjusted" end of the

scale as defined in its original development. Table 11 presents the results for this phase of the analysis, comparing Happys with Unhappys as to the greater positiveness of change on each variable.

TABLE 11

A COMPARISON OF HAPPYS AND UNHAPPYS WITH RESPECT TO THE POSITIVENESS OF CHANGE ON EACH VARIABLE, ACROSS ALL 72 CHANGE VARIABLES

Number of variables on which positiveness of change is greater for:	Member of the Marriage Group: Husbands	Wives	Total
Happys	46	48	94
Unhappys	26	24	50
Total	72	72	144
X^2 (Total) = 13.4 (significant at the 1% level)			

Table 11 indicates a strong trend for greater positiveness of change during the years of marriage among the Happys, both Husbands and Wives (this despite the fact that positiveness has been defined without a first look at the variables in question). Taken in conjunction with the results presented in Table 10, Table 11 presents a picture of larger changes by the Unhappys in the negative direction, changes that are largely resisted by the Happys. Table 12 will serve to throw additional light on this picture.

TABLE 12

POSITIVENESS OF CHANGE DURING THE PERIOD OF MARRIAGE FOR HAPPYS AND UNHAPPYS, OVER ALL 72 CHANGE VARIABLES

Criterion Group:	Number of variables for which change is in the direction of:							
	Positiveness			Negativeness			Total	N C*
	Total	M	W	Total	M	W		
Happys (Husbands and Wives)	77	36	41	64	33	31	141	3
Unhappys (Husbands and Wives)	68	35	33	76	37	39	144	0
Total (Husbands and Wives)	145	71	74	140	70	70	285	3

*No Change

Although the direction of change is not significantly different ($X^2 = 1.56$) over the 72 change variables, we can see from Table 12 to what extent the trend that is present plays a part in the contrast between Happys and Unhappys that we have been discussing. Happys tend to change more often in the positive direction; Unhappys tend to change more often in the negative direction. But more important, when there is a general change in the negative direction on a variable for all of the criterion-divided groups, the Unhappys change more. The Happys tend to resist this change, giving us the results summarized in Table 11, a greater positiveness of change, over all the variables, for

the Happys.

An examination of the individual variables involved in the analysis of change seems to indicate that a priori judgments as to directionality of the scales would have reversed directions in certain cases and increased the trend that we have just examined. For example, on the Personality Rating Scale, the positive end of the "conventional-unconventional" scale is "conventional," and the positive end of the "quiet-boisterous" scale is "quiet." These two scales, plus the "modest-vain" scale (which presents an interesting possibility of vagueness of desirability of direction) are the only ones of the nine PRS scales on which the Unhappys reversed the trend of greater positiveness of change for the Happys. When we look at the results for individual variables within the different categories of behavior tapped by the different test instruments used, we will return to this point.

The possibility presents itself that this greater positiveness of change on the part of the Happys, as contrasted with the Unhappys, is a function of the relative position of the Happys and the Unhappys at Time-1, during the period of engagement. Table 13 will help us to examine this possibility.

We thus find that the Happys showed a slight tendency, at the time of the engagement, to be more positive, across the 72 change variables, than the Unhappys; and this tendency grew more pronounced over the years of marriage. Thus the

TABLE 13

A COMPARISON OF THE POSITIVENESS OF HAPPYS AND UNHAPPYS, AT TIME-1 (during engagement) AND AT TIME-2 (after almost 20 years of marriage), ACROSS ALL 72 CHANGE VARIABLES

Group Means Higher For:	Time of Engagement (Time-1)	Time of Marriage (Time-2)
Happys(Husbands plus Wives)	73	84
Unhappys(Husbands plus Wives)	67	57
Total	140	141
No difference	4	3
	X^2=0.25 (not significant)	X^2=5.16 (significant at the 2% level)

change toward greater positiveness that we have noted was not a result of original greater negativeness, a tendency of regression toward the Mean of the entire group of subjects, but rather a continuation and accentuation of a greater positiveness, on the part of the Happys, that was already beginning to manifest itself at the time of engagement.

It should be noted that the presentation of the data, although treating changes for the Happys as contrasted with the Unhappys, that is, changes for the criterion-divided groups as wholes, has been in terms of Husband changes and Wives changes. Group changes have been derived from these by summing together Husbands changes and wives changes.

This has been done because a comparison of this procedure and the other possible procedure - the building up of group scores for each variable (which would entail the summing of Husband and Wife score for the variable and then the comparison of Happys and Unhappys) revealed neglibible differences. In other words, when groups are characterized by the Mean of the midpoint between members, the results are very closely approximated by the separate comparison of Husbands and of Wives, divided into two groups by the criterion, and the simple summing of these results across sex.

Consistency Over the Period of Marriage Within the Criterion-Divided Groups

The Time-1--Time-2 correlations within the criterion-divided groups throw some interesting further light on the consistency of the changes taking place during marriage. These correlations are indices of consistency within the four criterion-divided groups (HappyMen, HappyWomen, UnhappyMen, UnhappyWomen) taken separately, computed for each of the 72 change variables. They do not reflect overall criterion-divided group changes, which have already been treated in the previous discussion, but rather the consistency of the individuals within these groups in contributing toward these changes. Table 14 presents the pertinent results.

Here we find several phenomena of interest. The UnhappyWives are the most consistent of the four groups, whereas the HappyWives are the least consistent. As we can

TABLE 14

A COMPARISON OF THE TIME-1-TIME-2 CONSISTENCY OF THE DIFFERENT CRITERION-DIVIDED GROUPS, ACROSS THE 72 CHANGE VARIABLES

A. A COMPARISON OF THE CONSISTENCY OF HAPPYS AS CONTRASTED WITH UNHAPPYS, FOR HUSBANDS AND FOR WIVES, ACROSS THE 72 CHANGE VARIABLES.

Number of variables for which greater consistency over the period of marriage for:	Member of the marriage-group		
	Husbands	Wives	Total
Happys	36	20	56
Unhappys	33	52	85
Total	69	72	141
Ties	3	0	

X^2=8.76 (significant at the 1% level)

B. A COMPARISON OF THE CONSISTENCY OF HUSBANDS AS CONTRASTED WITH WIVES, FOR HAPPYS AND FOR UNHAPPYS, ACROSS THE 72 CHANGE VARIABLES.

Number of variables for which greater consistency over the period of marriage for:	Criterion-Divided group		
	Happys	Unhappys	Total
Husbands	51	25	76
Wives	17	46	63
Total	68	71	139
Ties	4	1	

X^2=22.19 (significant at the 1% level)

TABLE 14-Continued

C. A COMPARISON OF ALL FOUR GROUPS AS TO CONSISTENCY:

Number of variables for which the most consistent group over the period of marriage was:	
HappyMen	23
HappyWomen	7
UnhappyMen	13
UnhappyWomen	35
Minus ties	-6
Total	72

Ties counted for all groups tied.

see from Table 14A, the UnhappyWives are more consistent than the HappyWives on 52 of the 72 change variables. Although the differences are not as great for men, we find indications for a definite reversal: HappyHusbands are more consistent than UnhappyHusbands.

Looking at the situation from another angle, we can compare the consistency of Husbands with the consistency of Wives within the criterion-divided groups, as is done in Table 14B. Here we find a marked tendency for HappyHusbands to be more consistent than the group of their wives - the HappyWives, whereas UnhappyWives are more consistent than the group of their husbands - the UnhappyHusbands. Table 14C confirms the overall comparison of the four criterion-divided groups that has emerged so far. UnhappyWomen are

the most consistent group, HappyMen next, UnhappyMen third, and HappyWomen the least consistent.

Thus, regardless of the amount or direction of changes, or the convergence or divergence of groups, the Happy couples are characterized by greater consistency on the part of the Husbands, whereas the Unhappy couples are characterized by greater consistency on the part of the Wives. Looking at this phenomenon in another way, we have indications that the HappyHusbands and the UnhappyWives are reacting with greater uniformity to whatever influences are affecting the entire group, and are less subject to ideosyncratic influences than are the HappyWives and the UnhappyHusbands.

CHAPTER V

RESULTS 2: AN EXAMINATION OF INDIVIDUAL VARIABLES WITHIN THE FIVE CATEGORIES OF BEHAVIOR TESTED

Introduction

With the picture of overall trends presented in the previous chapter in mind, we can move into a detailed examination of the behavior of the four criterion-divided groups on the individual variables tested. The psychological meaning of the relationships among individual variables' changes in the sample tested as related to the criterion can best be examined within the five different categories of behavior tapped by the 72 change variables.

The small number of variables tapped within each category of behavior precludes any but suggestive generalizations as far as comparisons of overall trends from one behavior category to another goes. But a more detailed analysis of those differences that are significant for the individual variables within each category will give a more detailed picture, for each category of behavior, of the husband-wife patternings, and the specific changes, related to the criterion.

Behavior Category 1: Kelly's Personality Rating Scale

Figure 3 presents the pertinent results, organized variable by variable, for the nine self-percept variables measured by the Personality Rating Scale. (Table 15 recapitulates this material in terms of statistical significances, reporting only those differences that are significant beyond the 5% level.)

Significant Differences Between HappyMen and UnhappyMen

A number of changes in self-percepts are significantly related with the criterion. HappyMen change significantly in their self-percepts in the direction of seeing themselves as more intelligent, more pleasant-voiced, and more boisterous after almost 20 years of marriage than at the time of their engagements. UnhappyMen changed in the opposite direction on self-perceived intelligence, considering themselves less intelligent after almost 20 years of marriage than at the time of engagement, and on quietness, perceiving themselves quieter after years of marriage than at the time of engagement. The difference between the changes on quietness for HappyMen and UnhappyMen was also significant.

None of the differences in self-perceptions between HappyMen and UnhappyMen at the time of engagement were statistically significant. After 20 years of marriage, a significant difference occurs on one of the nine self-perception variables: quietness, on which the UnhappyMen

FIGURE 3

SELF-PERCEPTS

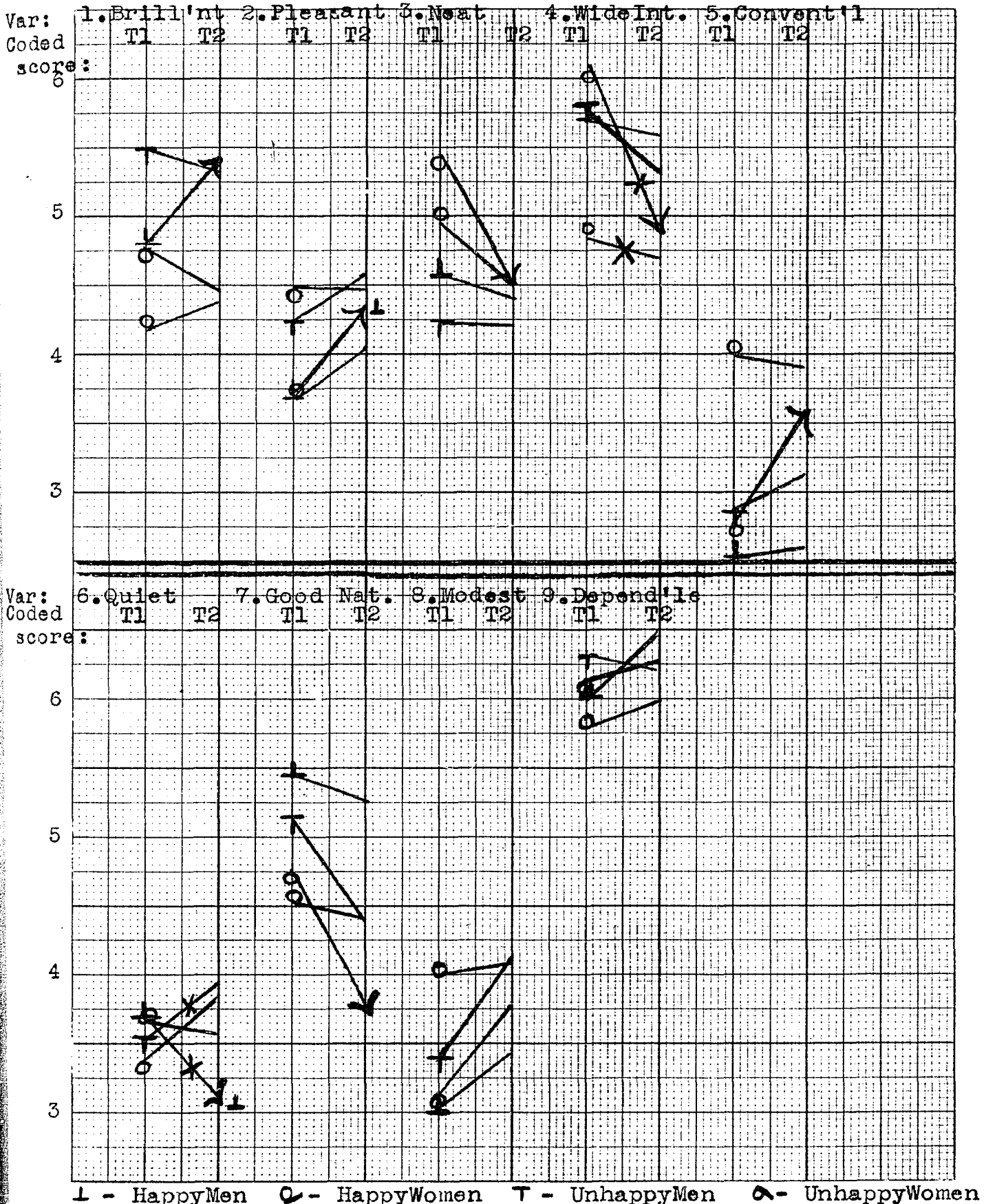


TABLE 15

SIGNIFICANT DIFFERENCES ON THE NINE KELLY PRS SELF-PERCEPT VARIABLES

Variable	Time-1				Time-2				Change				Dif.in change	
	Hi-Lo		Husb-Wife		Hi-Lo		Husb-Wife		Husbands		Wives		Hi-Lo	
	Male	Fem	Hi	Lo	Male	Fem	Hi	Lo	Hi	Lo	Hi	Lo	Male	Fem
1.Intellig.							x	x	x					
2.Voice		*							x					
3.Dress				*				x				*		
4.Interests		*	x				x					*		x
5.Convention.		x	*				*					x		
6.Quietness					*				*				*	
7.Temper												*		
8.Vanity			*											
9.Dependabil.														

x = the difference (significant beyond the 5% level) is in the direction indicated by the headings, the first group higher

* = the difference (significant beyond the 5% level) is in the opposite direction to that indicated by the headings, the second group higher

Changes are indicated by an x for positive direction, an * for negative direction.

Note: Fourteen C.R.'s were computed for each variable.

perceive themselves as significantly more quiet than the HappyMen perceive themselves. This was the variable on which the difference between changes for these two groups was significant. Thus we find, looking at the situation on this variable as a whole, that, at the time of their engagements, UnhappyMen perceived themselves as slightly more boisterous (not significant), during the years of marriage changed in the direction of perceiving themselves as less boisterous (not significant), while HappyMen changed in the direction of perceiving themselves as more boisterous (significant), the difference between these two changes being significant, so that after almost 20 years of marriage the HappyMen perceived themselves as being more boisterous than the UnhappyMen perceived themselves.

Significant Differences Between HappyWomen and UnhappyWomen

In contrast to the changes in the husbands, which took place among the HappyMen, the changes in the wives were changes among the UnhappyWomen. We find the UnhappyWomen making significant changes during the years of marriage on four of the nine self-perception variables, in the direction of: more careless dress, narrower interests, greater conventionality, and more ill temper. For all of these variables but one - conventionality - we find an overall change in women in the same direction as reported by Kelly (31) for the entire change group. But we find, from an examination

of the changes for HappyWomen diagramed in Figure 3, that the group of HappyWomen resisted these overall changes to a great extent, and on one of these four variables - conventionality - changed slightly in the opposite direction. The difference between the changes on breadth of interests for HappyWomen as contrasted with UnhappyWomen was also significant.

On three of the nine self-perception variables, the differences between HappyWomen and UnhappyWomen were significant at the time of engagement. HappyWomen perceived themselves as having more unpleasant voices, narrower interests, and greater conventionality than UnhappyWomen perceived themselves. After nearly 20 years of marriage, there were no significant differences between HappyWomen and UnhappyWomen on any of the self-perception variables.

We thus find, for women, an overall tendency for the UnhappyWomen to perceive themselves as possessing more desirable traits at the time of their engagements than the HappyWomen perceive themselves. During the years of marriage, the Unhappys changed in the direction of the Happys, perceiving themselves as possessing less desirable traits than they had once thought, so that, after almost twenty years of marriage, no differences of any significance remain between the two groups.

Significant Husband-Wife Differences

At the time of engagement, the Mean difference between HappyMen and HappyWomen was significant for three of the nine self-perception variables: the Husbands perceived themselves as having wider interests, being more unconventional, and being vainer than the Wives. The Husbands changed sufficiently (though this change was not significant) during the marriage in the direction of self-perceived modesty so that after nearly twenty years of marriage the Husbands-Wives difference on this variable was no longer significant (though it still approached significance). The large change on the part of the HappyMen in the direction of perceiving themselves as more intelligent increased the difference between Husbands and Wives on this variable to the point where it had become significant after the years of marriage.

In contrast to the Happys, the significant differences between the UnhappyMen and the UnhappyWomen were still fewer. On only one of the nine self-perception variables was the difference between Husbands and Wives significant - Wives perceived themselves as more neatly dressed than Husbands perceived themselves. It can be seen from Figure 3 that this was largely a result of the UnhappyWomen's favorable self-perceptions (in comparison with HappyWomen), further reinforced by a slight tendency for the UnhappyMen to perceive themselves unfavorably (in comparison with the HappyMen). By 1955, the change on the part of the UnhappyWomen in the direction of perception of themselves as more careless

in dress had erased the significant difference between Husbands and Wives on this variable. The difference between Husbands and Wives on self-perceived intelligence, which had approached significance at the 5% level at the time of engagement had now become significant, apparently as a result of the overall tendency on the part of the UnhappyWomen to perceive themselves in a less favorable light after years of marriage. The final outcome for Unhappys on self-perceived intelligence duplicates very closely the situation for Happys: Husbands perceive themselves as significantly more intelligent than wives perceive themselves. But the process by which this outcome is achieved is different for the two criterion-divided groups.

Further Non-Significant Trends Within the Category of Self-Perceptions

The general tendency for HappyMen to change significantly in the direction of perceiving themselves more positively, while UnhappyWomen change significantly in the direction of perceiving themselves more negatively, shows up in several further ways. On all nine self-perception variables, the trends of change for Husbands and Wives move in the same way. That is, in general the HappyMen make the significant changes in the favorable direction, while the UnhappyWomen make the significant changes in the unfavorable direction; but the HappyWomen move along with the HappyMen and the UnhappyMen move along with the UnhappyWomen, though

their changes are slighter. Note that these general trends are true for all of the self-perception variables (with the single exception of Men's perceptions of neatness of dress), not merely those for which changes were statistically significant.

As has already been mentioned, the desirable end of some of the self-perception scales seems open to conjecture. For six of the nine scales, the movement of the Happys is in the direction of the positive end of the scale. These are the scales for which the positive end is clearly the desirable end: greater intelligence, pleasanter voice, neater dress, wider interests, better temper, and greater dependability. The three scales on which the reversal tendencies occur seem much more equivocal as to desirability. They are: Unconventional-Very Conventional, Boisterous-Very Quiet, and Very Vain-Modest. We find the Happys changing more than the Unhappys in self-perceptions in the direction of Unconventional, Boisterous, and Vain. This would seem to fit into a coherent picture. The Happys, led by the Husbands, change in the direction of more favorable self-perceptions, seeing themselves as more intelligent, pleasanter, more attractive, and more vivacious. The Unhappys change in the opposite direction, the change in the Wives being the most pronounced.

Behavior Category 2: Allport-Vernon Study of Values

Figure 4 presents the pertinent results, organized variable by variable, for the six values variables measured by the Allport-Vernon. Table 16 recapitulates this material in terms of statistical significances, reporting only those differences that are significant beyond the 5% level.

Significant Differences Between HappyMen and UnhappyMen

The trends of change in the Values category of behavior are similar for both HappyMen and UnhappyMen, but in general the magnitude of changes is greater for the HappyMen. The HappyMen changed significantly, during the 18 years of marriage, in the direction of lower theoretical and lower social values. The UnhappyMen largely resisted this change (though there was a nonsignificant tendency to change in the same direction as the HappyMen). Both HappyMen and UnhappyMen changed significantly toward greater religious values, though again the change was more pronounced for the HappyMen.

None of the differences in values between HappyMen and UnhappyMen at the time of engagement were statistically significant. After nearly 20 years of marriage, a difference occurs for aesthetic values, on which the HappyMen have now become significantly lower than the UnhappyMen. This was the result of the general trend of greater change on values variables by the HappyMen, a trend which increased the difference between the HappyMen and UnhappyMen on aesthetic

FIGURE 4

VALUES

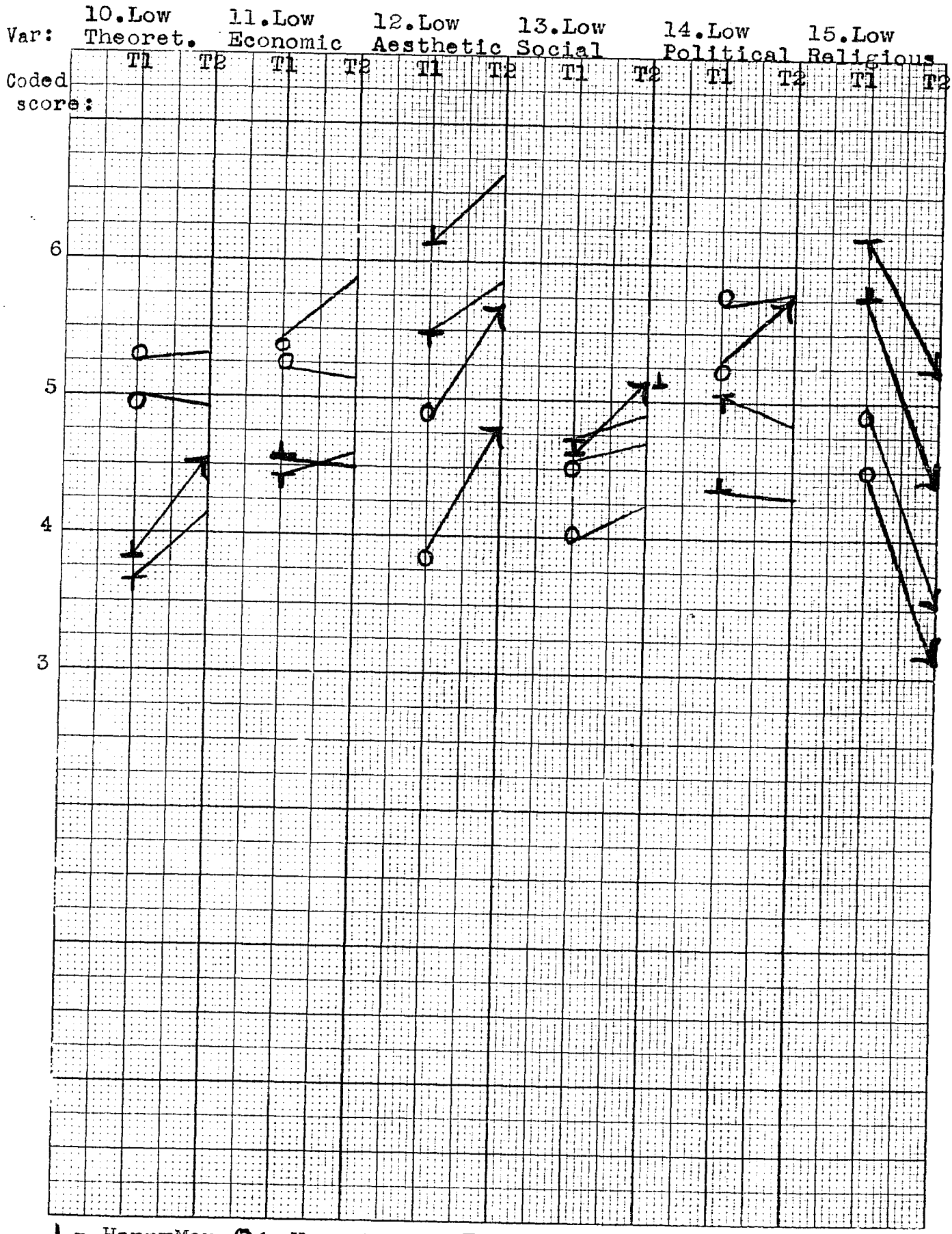


TABLE 16

SIGNIFICANT DIFFERENCES ON THE SIX ALLPORT-VERNON VALUES VARIABLES

Variable	Time-1				Time-2				Change				Dif. in change	
	Hi-Lo		Husb-Wife		Hi-Lo		Husb-Wife		Husbands		Wives		Hi-Lo	
	Male	Fem	Hi	Lo	Male	Fem	Hi	Lo	Hi	Lo	Hi	Lo	Male	Fem
10. Theoret.			x	x			x		*					
11. Economic				x				x						
12. Aesthetic		*	*	*	*	*	*	*			*	*		
13. Social			*	*					*					
14. Political			x				x	x				*		
15. Religious			*	*			*	*	x	x	x	x		

x = the difference (significant beyond the 5% level) is in the direction indicated by the headings, the first group higher.

* = the difference (significant beyond the 5% level) is in the opposite direction to that indicated by the headings, the second group higher.

Changes are indicated by an x for positive direction, an * for negative direction.

values for which we already had indications (non-significant) at the time of engagement.

Significant Differences Between Happy Women and Unhappy Women

The trends of change on the six values variables were much the same for both HappyWomen and UnhappyWomen. Both groups change significantly, during the 18 years of marriage, in the direction of lower aesthetic values and higher religious values. HappyWomen changed significantly on a third

value variable, in the direction of lower political values. This trend of change was largely resisted by the Unhappy-Women, though the difference between the changes of the two groups was not significant.

The only values variable on which there was a significant difference between HappyWomen and UnhappyWomen, either at the time of engagement or after 18 years of marriage, was Aesthetic Values. HappyWomen were significantly lower than UnhappyWomen in Aesthetic Values at the time of engagement. Both HappyWomen and UnhappyWomen changed in the direction of lower Aesthetic Values during the period of marriage (nonsignificant), but the HappyWomen changed more in this direction, increasing the difference on Aesthetic Values between the two groups of women.

Significant Husband-Wife Differences

At the time of engagement, the Mean difference between HappyMen and HappyWomen was significant on five of the six Values variables. HappyMen were significantly higher than HappyWomen in Theoretical Values and Political Values, and significantly lower than HappyWomen in Aesthetic Values, Social Values, and Religious Values. All of these differences remained through the years of marriage, the Happy-Men and HappyWomen differing significantly in exactly the same pattern after 18 years of marriage.

As was the case for self-percepts, the category of behavior just discussed, the Husband-Wife differences for

the Unhappys were somewhat fewer and less stable. At the time of engagement, UnhappyMen were significantly higher than UnhappyWomen in Theoretical Values and Economic Values, and significantly lower than UnhappyWomen in Aesthetic Values and Religious Values. The nonsignificant change in the UnhappyMen in the direction of lower Theoretical Values decreased the difference between UnhappyMen and UnhappyWomen to the point where it no longer achieved significance. At the same time, the significant decrease in Political Values on the part of the UnhappyWomen during the years of marriage resulted in a significant difference on this variable after 18 years of marriage - UnhappyMen ending up significantly higher than UnhappyWomen in Political Values.

Further Nonsignificant Trends Within the Category of Values

Two factors make the results on Allport-Vernon Values rather difficult to interpret. First, the Values scores are derived from a forced-choice technique that assumes equal Mean Values for all people. That is, a profile of individual variability in values is given, but differences between individuals with strongly held values in general in the one case and weakly held values in general in the other case cannot show up. Thus, groups or changes in groups that are high in some values will automatically be compensated for on these scales by correspondingly low scores in other values. And second, the social desirability of these

Values does not seem to lie clearly on the positive High-Value side of the scales.

The general tendency of change in Values is one of greater change for Happys (both Men and Women) in the direction of lower Theoretical, Aesthetic, and Social Values and in the direction of higher Economic and Religious Values. These tendencies were already present at the time of engagement, the changes during marriage serving to accentuate them. Although these tendencies are not statistically significant, they present interesting suggestions of a picture of Happys as more conventionally adjusted to the demands of day-to-day living, while Unhappys are to a slight extent more in the thrall of such comparative frivolities as Theoretical and Aesthetic Values.

Behavior Category 3: Bernreuter Personality Inventory

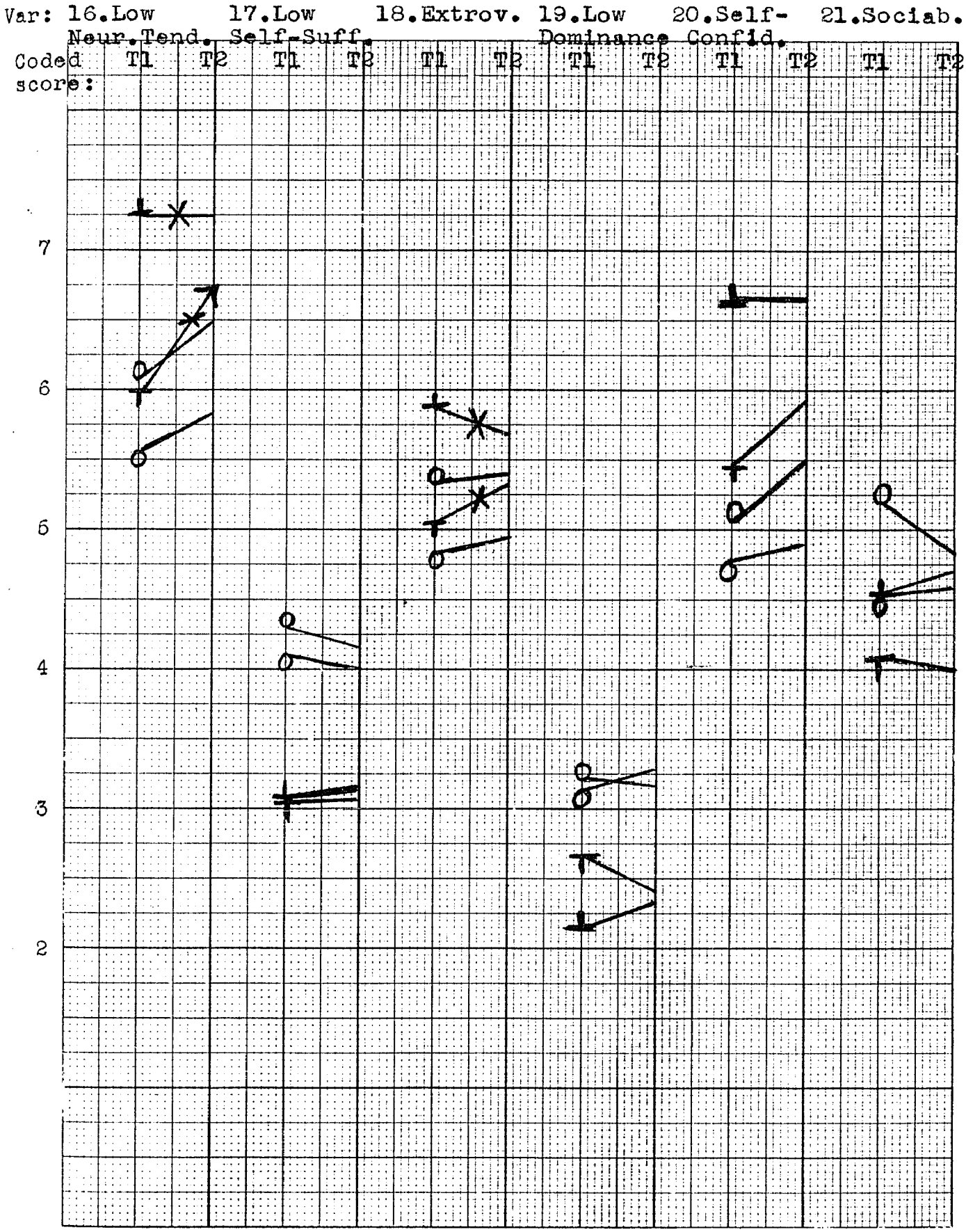
Figure 5 presents the pertinent results, organized variable by variable, for the six Personality variables measured by the Bernreuter Inventory. Table 17 recapitulates this material in terms of statistical significances, reporting only those differences that are significant beyond the 5% level.

Significant Differences Between
HappyMen and UnhappyMen

There is a general tendency in the neurosis-related personality variables tapped by the Bernreuter, of greater

FIGURE 5

PERSONALITY VARIABLES



⊥ - HappyMen ○- HappyWomen T - UnhappyMen ○- UnhappyWomen

\ - Non-Sig. Change ⊥\ - Sig. Change (5% level)

* - Sig. Difference in Change (5% level)

TABLE 17

SIGNIFICANT DIFFERENCES ON THE SIX BERNREUTER PERSONALITY VARIABLES

Variable	Time-1				Time-2				Change				Dif. in change	
	Hi-Lo		Husb-Wife		Hi-Lo		Husb-Wife		Husbands		Wives		Hi-Lo	
	Male	Fem	Hi	Lo	Male	Fem	Hi	Lo	Hi	Lo	Hi	Lo	Male	Fem
16. Neurot. Ten	*		*				*	*		x			x	
17. Self-Suff.			x	x			x	x						
18. Introvers.	*		*										x	
19. Dominance			x				x	x						
20. Self-Consc.	*		*				*	*						
21. Nonsocial		*	x		*									

x = the difference (significant beyond the 5% level) is in the direction indicated by the headings, the first group higher.

* = the difference (significant beyond the 5% level) is in the opposite direction to that indicated by the headings, the second group higher.

Changes are indicated by an x for positive direction, an * for negative direction.

maladjustment on the part of the UnhappyMen as contrasted with the HappyMen at the time of engagement, followed by changes during marriage of this group of UnhappyMen in the direction of better adjustment. UnhappyMen were significantly higher than HappyMen at the time of engagement in Neurotic Tendency (B1-N), Introversion (B3-I), and Self-Consciousness (F1-C). The only change of either of these groups that was great enough to be significant in itself was the lessening of Neurotic tendency on the part of the UnhappyMen. The

difference between this change and the change exhibited on Neurotic Tendency by HappyMen (who remained the same, i.e. unchanged) was statistically significant, as was the differences in changes on Introversion - the UnhappyMen changing toward greater Extroversion, the HappyMen changing toward greater Introversion. After 18 years of marriage, the differences between HappyMen and UnhappyMen on these three personality variables, Neurotic Tendency, Introversion, and Self-Consciousness had ceased to be significant, though the tendency toward differences still lay in the same direction. A difference was now statistically significant on a fourth personality variable, Sociability (F2-S), on which, after 18 years of marriage, HappyMen were more social. A tendency toward this difference had been present at the time of engagement, and the changes (nonsignificant) during the period of marriage had accentuated these differences to the point of significance.

Significant Differences Between HappyWomen and UnhappyWomen

The differences between HappyWomen and UnhappyWomen in the personality variables measured by the Bernreuter were slight. The only significant difference between these two groups of women was in Sociability (F2-S), in which the HappyWomen were more social at the time of engagement. This difference was no longer significant after 18 years of marriage, due largely to the change (nonsignificant) toward

lesser sociability of the HappyWomen during this period. None of the changes for either of the two groups of Women were significant, and no new significant differences between HappyWomen and UnhappyWomen had arisen after the period of marriage.

Significant Husband-Wife Differences

Continuing the tendency already noted, significant Husband-Wife differences were again found more regularly among the Happys. HappyMen were significantly higher than HappyWomen on Self-Sufficiency (B2-S), Dominance (B4-D), and Non-Sociability (F2-S), while they were significantly lower than HappyWomen on the other three Bernreuter variables, being less Neurotic in Tendency (B1-N), less Introverted (B3-I), and less Self-Conscious (F1-C). The directions of these differences all remained the same during the 18 years of marriage, but only four of the six differences remained significant after the period of marriage. The two personality variables on which HappyHusbands and HappyWives grew more similar were Introversion-Extroversion (B3-I), on which the Men changed slightly toward greater Introversion while the Women changed slightly toward greater Extroversion, and on Sociability (F2-S), on which the changing was done largely by the HappyWomen, who moved toward the Nonsocial end of the scale.

The differences between UnhappyMen and UnhappyWomen on the Bernreuter Personality variables were fewer and showed a

tendency of change opposite to that of the Happy groups. Whereas the Happys originally showed significant group differences on all variables at the time of engagement and moved toward one another (that is, converged) on all these variables, while still remaining significantly different on four of the six variables, the Unhappy groups showed only one difference between UnhappyMen and UnhappyWomen at the time of engagement, diverged on all six variables, and thus became different on four of the six variables. The one difference between the two Unhappy groups that was significant at T-1, the time of engagement, was in Self-Sufficiency (B2-S), on which the Unhappy groups showed virtually the same tendency as the Happy groups, the UnhappyMen being significantly higher than the UnhappyWomen. After 18 years of marriage, three new differences had also become significant. In addition to being significantly higher than the UnhappyWomen on Self-Sufficiency, the UnhappyMen were also significantly higher than the UnhappyWomen on Dominance (B4-D), and significantly lower than the UnhappyWomen on Neurotic Tendency (B1-N), and on Self-Consciousness (F1-C).

Further Nonsignificant Trends Within the Category of Personality

On three of the personality variables, both HappyMen and HappyWomen are on the more adjusted side of the scale than both groups of Unhappys - UnhappyMen and UnhappyWomen. These differences are: Happys show less Neurotic Tendency, greater Extroversion, and greater Gregariousness. All of

these differences were most pronounced at the time of engagement; after 18 years of marriage they had grown smaller, though the tendency toward these differences remained. Thus the poorer adjustment on the part of the UnhappyMen, as contrasted with the HappyMen is also reflected, to a lesser degreee, in the UnhappyWomen. And the differences are more pronounced at the time of engagement, the years of marriage producing greater improvement in adjustment on the part of the Unhappys as opposed to the Happys, so that the differences between Happys and Unhappys become greatly diminished after 18 years of marriage.

Behavior Category 4: Remmers' Generalized Attitude Scales

Figure 6 presents the pertinent results, organized variable by variable, for the six Attitude variables measured by the Remmers. Table 18 recapitulates this material in terms of statistical significances, reporting only those differences that are significant beyond the 5% level.

Significant Differences Between HappyMen and UnhappyMen

HappyMen had more favorable attitudes toward Housekeeping at the time of engagement than UnhappyMen. But during the years of marriage, the HappyMen changed significantly in their attitudes in this area, the difference between this change and the change of the UnhappyMen also being significant, so that after 18 years of marriage there were

FIGURE 6

ATTITUDES

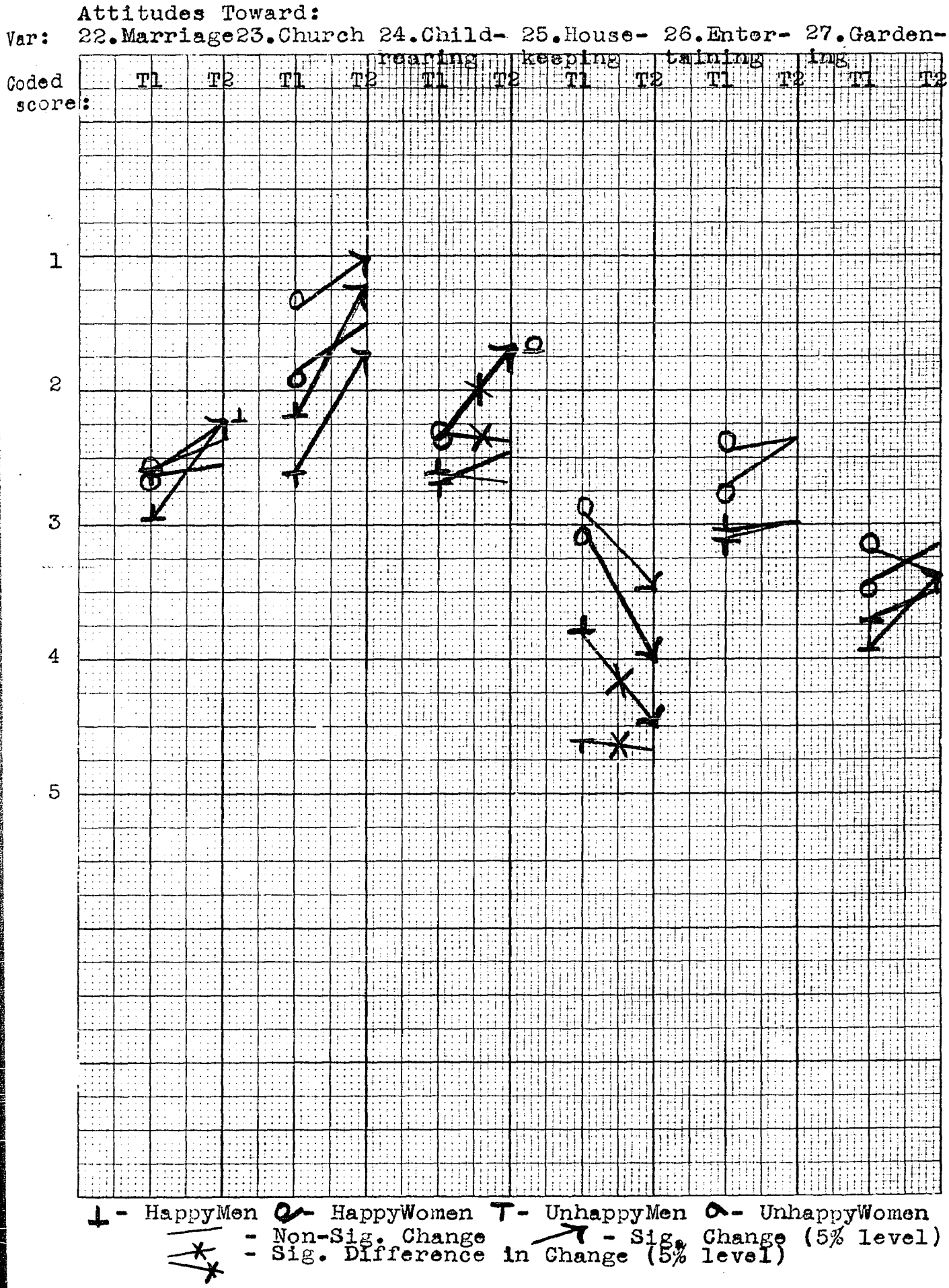


TABLE 18

SIGNIFICANT DIFFERENCES OF THE SIX REMMERS ATTITUDES VARIABLES

Variable	Time-1				Time-2				Change				Dif.in change	
	Hi-Lo		Husb-Wife		Hi-Lo		Husb-Wife		Husbands		Wives		Hi-Lo	
	Male	Fem	Hi	Lo	Male	Fem	Hi	Lo	Hi	Lo	Hi	Lo	Male	Fem
Attitude toward:														
22.Marriage									x					
23.Church			*						x	x	x	x		
24.Childrear.			*			x		*			x			x
25.Housekeep.	*	x	*	*			*	*	*		*	*	*	
26.Entertain.														
27.Gardening									x					

x = the difference (significant beyond the 5% level) is in the direction indicated by the headings, the first group higher.

* = the difference (significant beyond the 5% level) is in the opposite direction to that indicated by the headings, the second group higher.

Changes are indicated by an x for positive direction, an * for negative direction.

no longer any significant differences between the two groups of Men on Remmers family-and home-centered attitudes. HappyMen also changed significantly in the direction of more favorable attitudes toward Marriage and toward Gardening. These changes were greater than the slight similar change on the part of the UnhappyMen, but the differences between the changes of the two groups were not significant. Both HappyMen and UnhappyMen changed significantly in their atti-

tudes toward the Church, both changing in the direction of more favorable attitudes. The HappyMen started out more favorably inclined toward the Church, changed more in the favorable direction, and ended up even more favorably inclined (significant at the 10% level).

Significant Differences Between HappyWomen and UnhappyWomen

On none of the six Remmers attitude scales was there a significant difference between HappyWomen and UnhappyWomen at the time of engagement. During the period of marriage, the HappyWomen changed significantly in the direction of more favorable attitudes toward Child Rearing. This change was also significantly different from the change of the UnhappyWomen, which was slightly in the opposite direction, toward more unfavorable attitudes toward Child Rearing. These contrasting changes resulted, after the period of 18 years of marriage, in significantly more favorable attitudes toward Child Rearing on the part of the HappyWomen as opposed to the UnhappyWomen. Both HappyWomen and UnhappyWomen changed significantly during the years of marriage in the direction of less favorable attitudes toward Housekeeping. HappyWomen also changed significantly in the direction of more favorable attitudes toward the Church, along with the groups of HappyMen and UnhappyMen already discussed. UnhappyWomen also changed in the same direction, but their change was smaller and was not significant.

Significant Husband-Wife Differences

HappyMen were significantly less favorable in their attitudes toward the Church and toward Housekeeping than HappyWomen at the time of their engagements. These differences in attitudes toward Housekeeping were still significant and slightly greater after 18 years of marriage, both groups of Happys changing in the direction of less favorable attitudes, but the HappyMen, already less favorable than the HappyWomen, changing more. The difference between the two groups of Happys in their attitudes toward the Church were no longer statistically significant after 18 years of marriage. Both groups changed in the direction of more favorable attitudes toward the Church, but the HappyMen changed more, erasing most of the difference that originally existed between the two groups. Attitudes toward Child Rearing, virtually identical for HappyMen and HappyWomen at the time of engagement, became significantly different after 18 years of marriage, due largely to the significant change already noted of the HappyWomen toward more favorable attitudes toward Child Rearing.

UnhappyMen were significantly less favorable than UnhappyWomen in their attitudes toward Housekeeping at the time of engagement. This difference reflects the similar difference on the part of the Happys, though the Unhappys are less favorably inclined toward Housekeeping as a whole. The negligible change during marriage toward more unfavorable

attitudes toward Housekeeping on the part of the UnhappyMen, who resist the general trend over the other three groups of significant change toward less favorable attitudes toward Housekeeping, decreased the difference between UnhappyMen and UnhappyWomen as measured after 18 years of marriage, though this difference still remained statistically significant. One other difference between the two groups of Unhappys became significant after the years of marriage - in attitudes toward Entertaining. Largely resulting from the change (nonsignificant) on the part of the UnhappyWomen in the direction of more favorable attitudes toward Entertaining, the UnhappyMen's attitudes ended up significantly less favorable toward Entertaining than the UnhappyWomen's attitudes. This closely mirrors the situation for the two Happy groups, for which the differences are virtually the same, although they do not quite achieve statistical significance.

Further Nonsignificant Trends Within the Category of Attitudes

We get hints of a picture of more adjustive and more differentiated attitudes toward some of the aspects of marriage tapped by the Remmers on the part of the Happys. Both HappyMen and HappyWomen are more favorably inclined toward Marriage at Time-3 than the two Unhappy groups, this despite an original situation in which the HappyMen were less favorable toward Marriage than the UnhappyMen. HappyWomen also grow more favorable toward Child Rearing with their marriages,

while HappyMen drift slightly toward less favorable attitudes in this area. The Unhappys show an opposite effect, UnhappyMen becoming slightly more favorable toward Child Rearing, while UnhappyWomen become slightly less favorably inclined.

Behavior Category 5: Strong Vocational Interest Blank

Figure 7 presents the pertinent results, organized variable by variable, for the 45 Interest variables measured by the Strong. Table 19 recapitulates this material in terms of statistical significances, reporting only those differences that are significant beyond the 5% level.

Significant Differences Between HappyMen and UnhappyMen

At the time of engagement, HappyMen were significantly lower than UnhappyMen in the Creative-scientific Interests, as tapped by the Physicians, Osteopaths, and Dentists keys. HappyMen were significantly higher than UnhappyMen in the Business Interests, as tapped by the Bankers and Sales Managers keys. None of these five significant differences between the two groups of Men remained after the 18 years of marriage, when in fact there were no significant differences between HappyMen and UnhappyMen on any of the Interest variables.

A number of significant changes occurred during the period of marriage. HappyMen changed significantly in the direction of Higher Psychologist Interests (one of the keys

FIGURE 7

INTERESTS

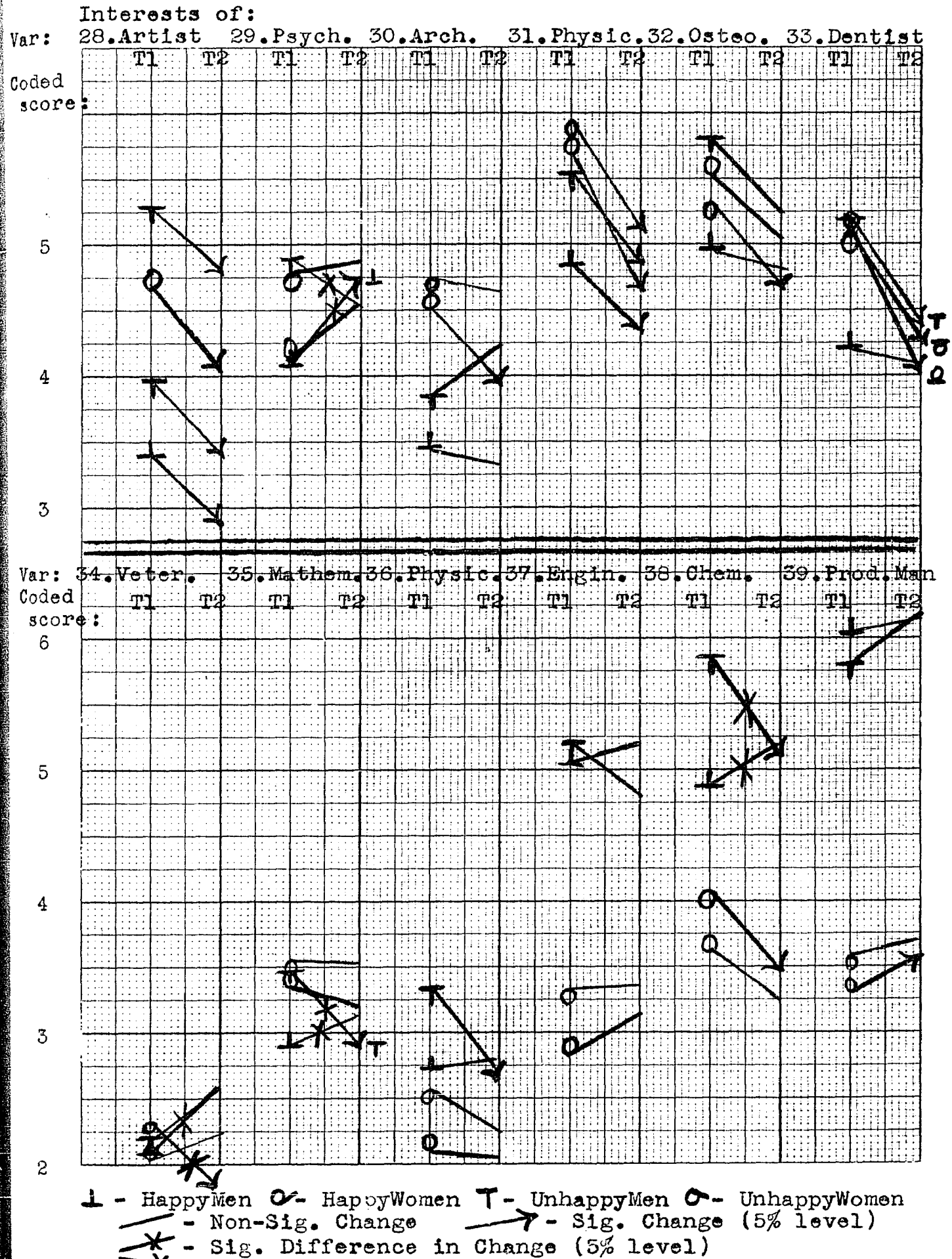
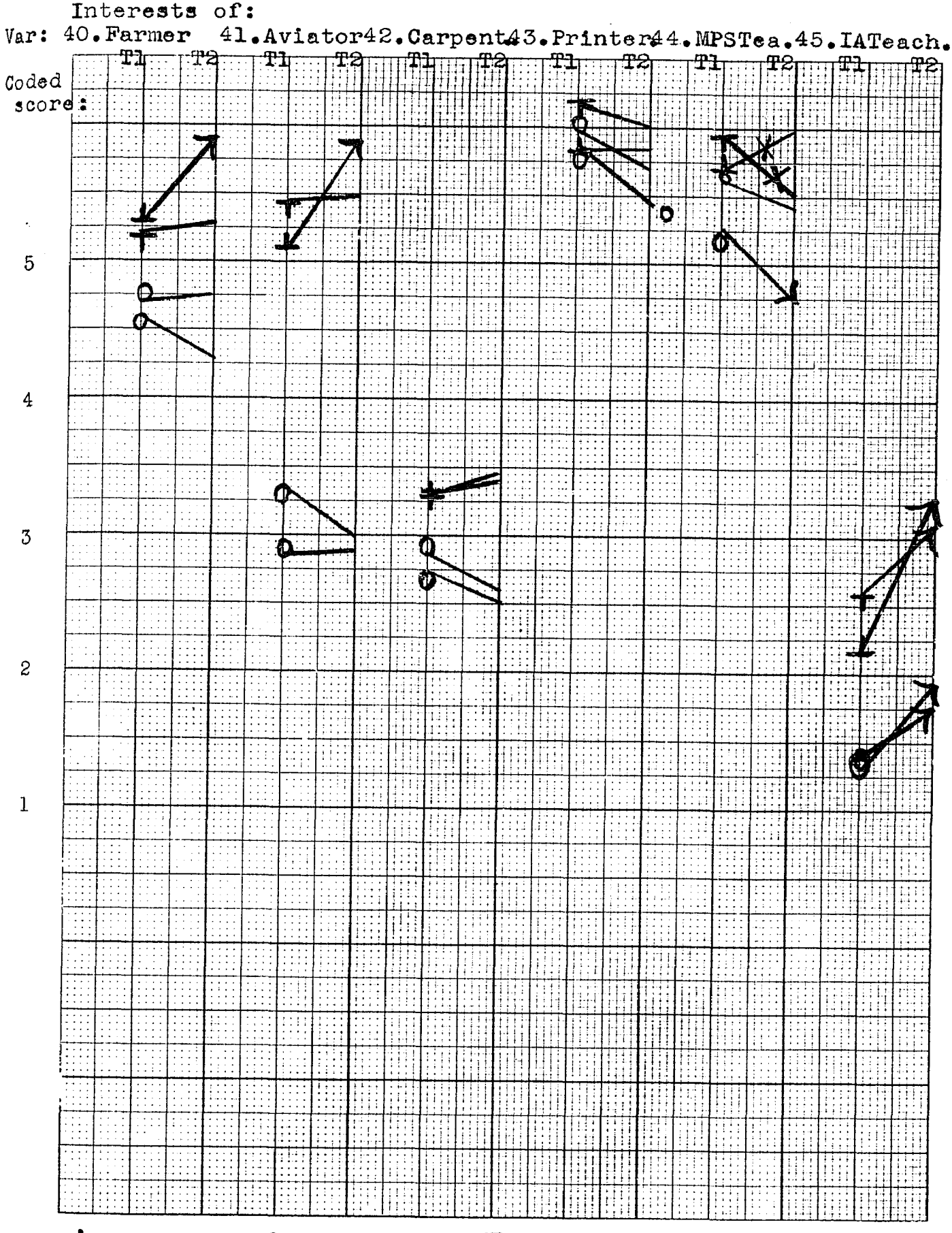


FIGURE 7-Continued



⊥ - HappyMen O- HappyWomen T- UnhappyMen O- UnhappyWomen
— - Non-Sig. Change → - Sig. Change (5% level)
✱ - Sig. Difference in Change (5% level)

FIGURE 7-Continued

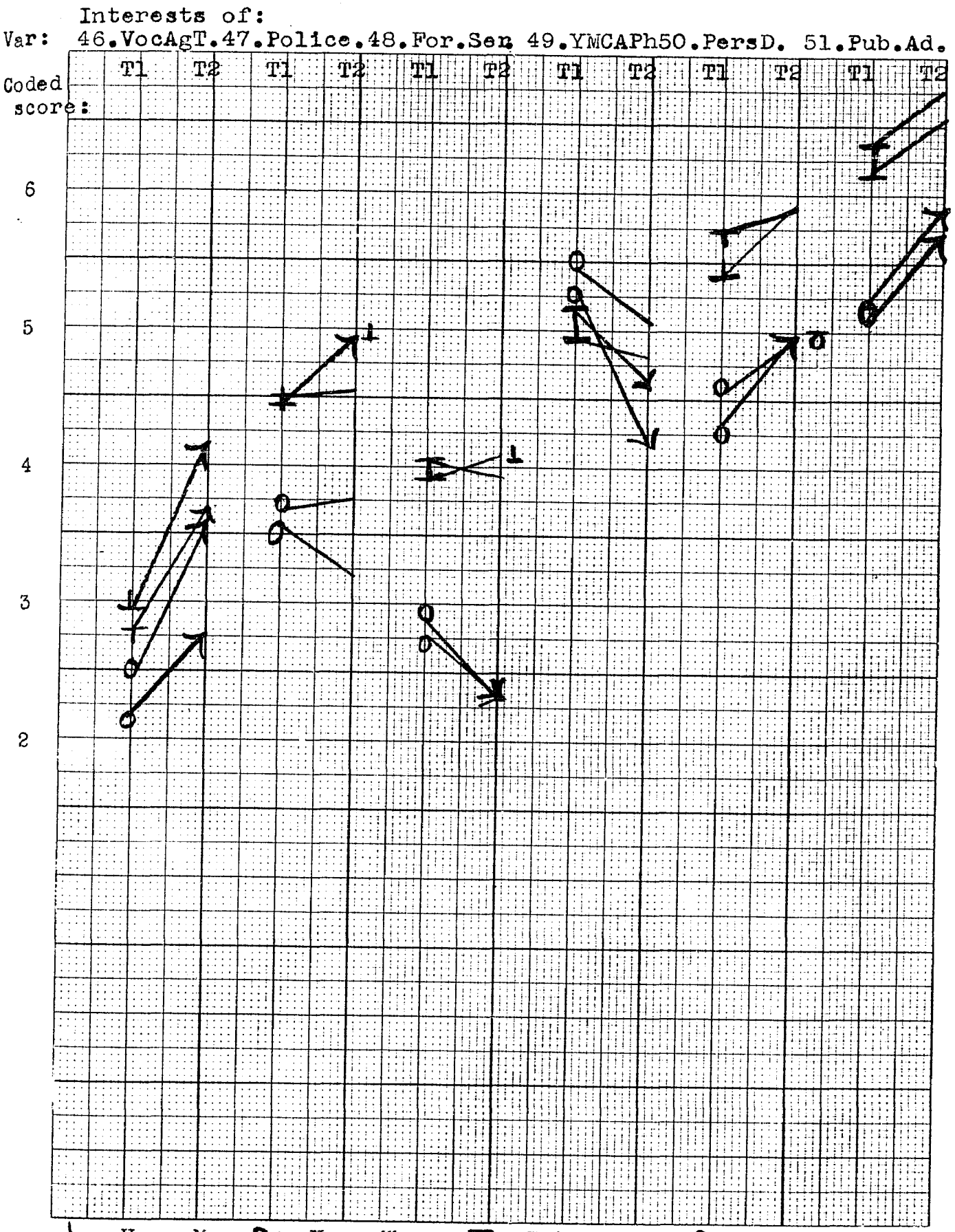
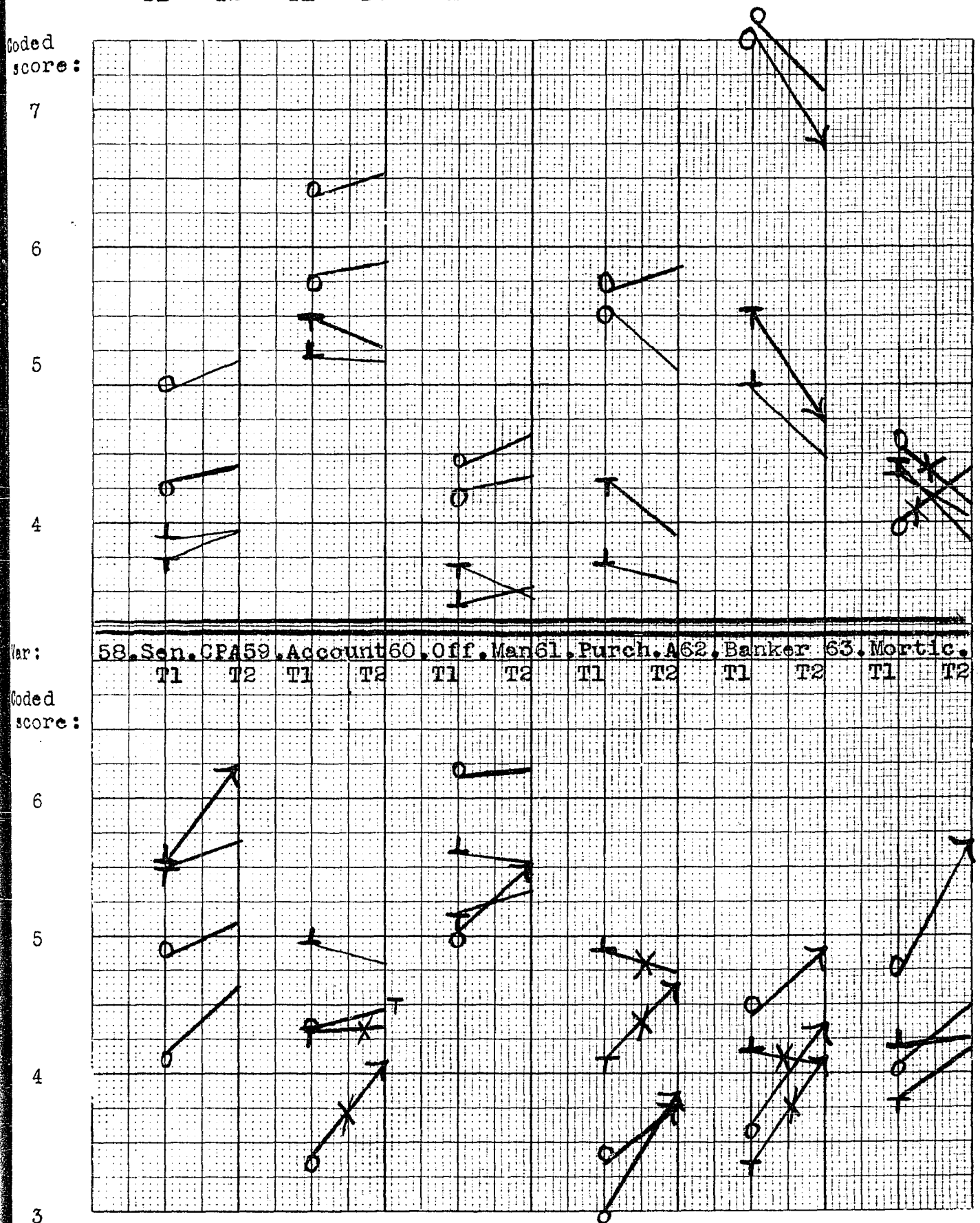


FIGURE 7-Continued



⊥ - HappyMen O - HappyWomen T - UnhappyMen O - UnhappyWomen

= Non-Sig. Change → = Sig. Change (5% level)

= Sig. Difference in Change (5% level)

FIGURE 7-Continued

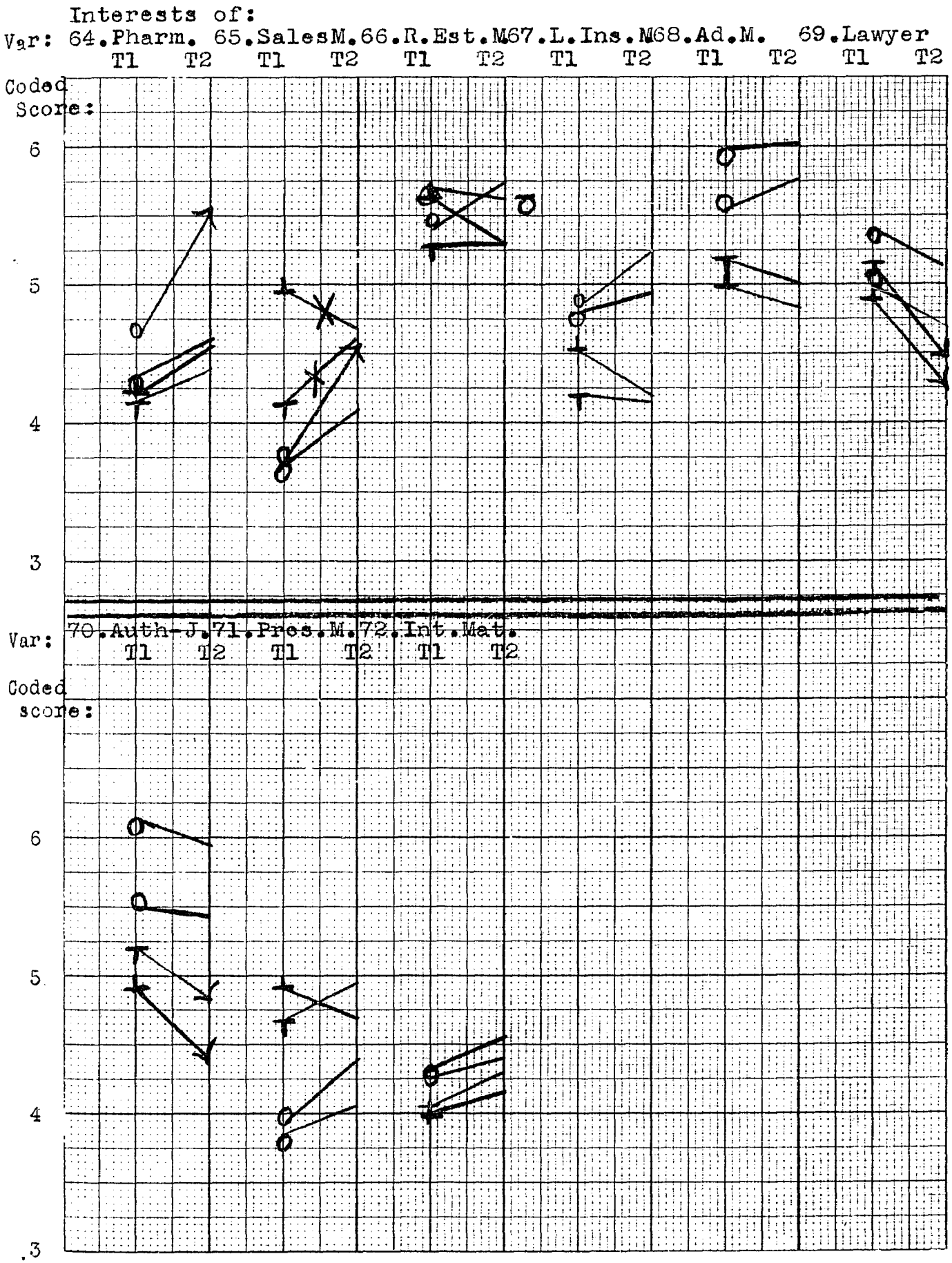


TABLE 19

SIGNIFICANT DIFFERENCES OF THE FORTY-FIVE STRONG INTEREST VARIABLES

Variable	Time-1				Time-2				Change				Dif. in change	
	Hi-Lo		Husb-Wife		Hi-Lo		Husb-Wife		Husbands		Wives		Hi-Lo	
Interests of:	Male	Fem	Hi	Lo	Male	Fem	Hi	Lo	Hi	Lo	Hi	Lo	Male	Fem
Creat-Scient:														
28.Artist			*	*		*	*	*	*	*	*	*		
29.Psycholog.									x				x	
30.Architect			*					*		*				
31.Physician	*		*						*	*	*	*		
32.Osteopath	*											*		
33.Dentist	*		*							*	*	*		
34.Veterinar.								x				*		x
Technical:														
35.Mathematic.										*			x	
36.Physicist										*				
37.Engineer			x	x			x	x			*	*	x	
38.Chemist			x	x			x	x						
39.Production Man			x	x			x	x			x			
Sub-Prof. Tech:														
40.Farmer							x	x	x					
41.Aviator			x	x			x	x	x					
42.Carpenter								x						
43.Printer												*	x	
44.Math.P.S.T.														
45.Ind.ArtsT.			x	x			x	x	x	x	x	x		
46.Voc.Agr.T.						x		x	x	x	x	x		
47.Policeman			x	x			x	x	x					
48.ForestServ.			x	x			x	x		*		*		
Uplift:														
49.YMCAPhysDir.										*		*		
50.Pers.Dir.			x	x			x	x				x		
51.Publ.Admin			x	x			x	x		x		x		
52.YMCA Secty			*			x	*							
53.SocSciHST.			*				*							

TABLE 19-Continued

Variable	Time-1				Time-2				Change				Dif.in change	
	Hi-Lo		Husb-Wife		Hi-Lo		Husb-Wife		Husbands		Wives		Hi-Lo	
Interest of:	Male	Fem	Hi	Lo	Male	Fem	Hi	Lo	Hi	Lo	Hi	Lo	Male	Fem
Uplift:														
54.CitySchSup			*				*	*						
55.Minister			*	*			*	*						
56.Musician			*	*			*	*		*		*		
57.C.P.A.														*
Business Detail:														
58.Senior CPA				*			*	*	x					
59.Accountant		x		x								x		*
60.Office Man		x										x		
61.Purch.Ag.			x	x			x	x		x	x	x	*	
62.Banker	x	x					*			x	x	x	*	
63.Mortician						x	*				x			
64.Pharmacist						x	*				x			
Business Contact:														
65.Sales Man.	x		x								x		*	
66.RealEstSls.														
67.LifeInsSls.							x							
Verbal:														
68.Adv.Man				*			*	*						
69.Lawyer									*	*				
70.Auth-Journ.		*	*	*		*	*	*	*	*		*		
71.PresMfgCon.			x	x				x						
72.Int.Matur.														

x = the difference (significant beyond the 5% level) is in the direction indicated by the headings, the first group higher.

* = the difference (significant beyond the 5% level) is in the opposite direction to that indicated by the headings, the second group higher.

Changes are indicated by an x for positive direction, an * for negative direction.

tapping Creative-Scientific Interests), while UnhappyMen were changing in the opposite direction (nonsignificant), the differences in the change of the two groups being significant.

UnhappyMen had higher (nonsignificant) Psychologist Interests at the time of engagement, while the opposing changes by the two groups of Men during the marriage resulted in a final reversal, HappyMen being higher (nonsignificant) after 18 years of marriage.

UnhappyMen changed significantly in the direction of lower Creative-Scientific and Technical Interests, as tapped by the Dentist's, Mathematician's, Physicist's, and Chemist's keys, during the period of marriage, this change being largely opposed by the HappyMen; so that the difference in changes by the two groups of Men was significant for two of these four Interests - Mathematician and Chemist.

HappyMen changed significantly in the direction of higher Sub-Professional Technical Interests, as tapped by the Farmer's, Aviator's, and Policeman's keys. Changes in these three Interests areas were negligible for the UnhappyMen, though the differences in changes between the two groups of Men were not statistically significant. UnhappyMen changed significantly in the direction of lower YMCA Physical Director (a key tapping the Uplift Factor) and Musician Interests, while HappyMen showed a similar but lesser tendency.

On keys tapping the Business Details Factor, HappyMen

changed significantly in the direction of higher Senior CPA Interests, UnhappyMen showing a similar but much less pronounced tendency toward change. UnhappyMen changed significantly in the direction of higher Purchasing Agent's and Banker's Interests, while HappyMen changed slightly in the opposite direction, these differences in changes between the two groups of Men being significant. On these two variables, HappyMen resisted a trend of change that was manifest over the three other criterion groups, since both UnhappyWomen and HappyWomen changed significantly toward higher Banker's and Purchasing Agent's Interests, along with the UnhappyMen.

On two additional Interest variables, the difference in the changes of the HappyMen as opposed to the UnhappyMen were significant, although the changes of each group taken separately were not large enough in themselves to achieve significance. First was Math-Physical Science Teacher (tapping the Subprofessional-Technical Factor), on which HappyMen increased in interest while UnhappyMen decreased in interest. UnhappyMen were higher than HappyMen on this variable at the time of engagement, the changes bringing about a reversal so that HappyMen ended up higher than UnhappyMen after 18 years of marriage. A similar opposing change took place on Sales Manager's Interests (tapping the Business Contact Factor). In the case of this variable, HappyMen were significantly higher than UnhappyMen at the time of engagement, the two groups converging to virtual

equality during the years of marriage.

A number of other Interest variables exhibited significant changes during the years of marriage for both of the groups of Men, some in common with both groups of Women, thus exhibiting changes over the entire population. These were: (1) common changes for all four groups toward lower Creative-Scientific Interests, as tapped by the Artist's and Physician's keys, and toward higher Subprofessional-Technical Interests as tapped by the Industrial Arts Teacher's and Vocational Agriculture Teacher's keys; and (2) common changes for both HappyMen and UnhappyMen toward lower Verbal Interests as tapped by the Lawyer's and Author-Journalist's keys.

Significant Differences Between HappyWomen and UnhappyWomen

In addition to the significant changes just noted that the two groups of Women exhibited in common with the two groups of Men, both HappyWomen and UnhappyWomen changed significantly in interests cutting across several of the Strong factors. Both groups of women changed in the direction of lower interests in Dentist's, Forest Serviceman's, and Musician's Interests, and toward higher interests in Public Administrator's, Purchasing Agent's, and Banker's Interests. As has already been noted, all of these changes, with the exception of the changes in Forest Serviceman's and Public Administrator's Interests were accompanied by

similar significant changes on the part of the UnhappyMen.

At the time of engagement, HappyWomen differed significantly from UnhappyWomen on four of the Interest variables, being significantly higher on Accountant's, Office Man's, and Banker's Interests (all tapping the Business Detail Factor) and lower on Author-Journalist's Interests (tapping the Verbal Factor). None of these differences remained significant. Instead, after 18 years of marriage, HappyWomen became significantly higher than UnhappyWomen in the Subprofessional-Technical Interests of Vocational Agriculture Teachers, Business Detail Interests of Morticians, and Pharmacists.

The significant changes in Interests by one or the other group of Women were as follows. HappyWomen changed significantly in the direction of lower Creative-Scientific Interests, as tapped by the Architect's key, and in the direction of higher Business Interests, as tapped by Production Manager's, Mortician's, Pharmacist's, and Sales Manager's keys.

UnhappyWomen changed significantly in the direction of lower Osteopath's, Veterinarian's, Chemist's, Math Physical Sciences Teacher's, and YMCA Physical Director's Interests; and in the direction of higher Personnel Director's, Accountant's, and Office Manager's Interests. Thus changes were toward lower interests tapping Scientific and Uplift Factors and higher interests tapping Business Factors.

The differences between the changes of HappyWomen as opposed to UnhappyWomen were significant on Veterinarian's Interests, on which UnhappyWomen changed significantly toward lower Interests, opposing an opposite (nonsignificant) tendency on the part of HappyWomen, and on Accountant's Interests, on which UnhappyWomen changed significantly in the direction of higher Interests, HappyWomen remaining virtually the same, so that after 18 years of marriage the two groups had become similar, the difference in the changes of the two groups of Women being significant.

HappyWomen changed during marriage in the direction of lower CPA's Interests, while UnhappyWomen changed in the direction of higher CPA's Interests, so that, although neither of these changes was significant in itself, the difference between the changes attained statistical significance. On this variable measuring CPA's Interests, HappyWomen were higher than UnhappyWomen at the time of engagement, whereas after 18 years of marriage UnhappyWomen were higher than HappyWomen (though neither of these differences was significant).

Significant Husband-Wife Differences

On a number of the Strong Interest variables, the differences between HappyMen and HappyWomen on the one hand and UnhappyMen and UnhappyWomen on the other hand are similar in their significance and direction. Because of the large number of Interest variables, these will be summarized

together.

For both Happys and Unhappys, at both Time-1, during engagement and Time-2, after 18 years of marriage, the Men were significantly higher in certain Technical and Business Detail Interests, as tapped by the Engineers, Chemists, Production Managers, Aviators, Industrial Arts Teachers, Policemen, Forest Servicemen, Personnel Directors, Public Administrators, and Purchasing Agents keys. The Men were significantly lower than the Women in the interests of Artists, Ministers, Musicians, and Author-Journalists. These cut across several of Strong's occupational factors, but appear to be tapping a non-practical aesthetic dimension.

The HappyMen were significantly lower than the Happy-Women at the time of engagement in the Interests of Architects, Physicians, and Dentists, none of these differences remaining after 18 years of marriage. In contrast, in this area of Creative-Scientific Interests, the Unhappys increased in their differences during the marriage, so that, whereas they had not differed on any of these variables at the time of engagement, the UnhappyMen had significantly higher Veterinarian Interests and lower Architect Interests than the UnhappyWomen after 18 years of marriage.

Both HappyMen and UnhappyMen were significantly higher in the Subprofessional-Technical Farmers' Interests than the corresponding groups of Women after 18 years of marriage, though these differences had not been significant at the time of engagement.

UnhappyMen were significantly higher than UnhappyWomen at Time-2 in two additional Subprofessional-Technical Interests, those tapped by the Carpenter's and Vocational Agriculture Teacher's keys, while there was a corresponding but lesser (nonsignificant) tendency in the same direction for the Happys. HappyMen were significantly lower than HappyWomen both at the time of engagement and after 18 years of marriage in the Uplift Interests of YMCA Secretaries, Social Science High School Teachers, and City School Superintendents.

None of these differences, with the exception of a similar difference for City School Superintendent's Interests at Time-2, were significant for the UnhappyMen as contrasted with the UnhappyWomen. UnhappyMen were significantly higher than UnhappyWomen, both at the time of engagement and after 18 years of marriage, in the Business Detail Interests of Senior CPA's. Similar differences for the Happys approached significance at the time of engagement, achieving significance after 18 years of marriage. UnhappyMen were significantly higher than UnhappyWomen at the time of engagement in the Business Detail Interests of Accountants, these differences no longer remaining of significance (and closely resembling the differences on this variable for the Happys) after 18 years of marriage.

Although negligible and of no significance at the time of engagement, the differences between HappyMen and Happy-Women on the following Interest variables became significant after 18 years of marriage, the Women being higher in

Business and Verbal Interests, as tapped by the Bankers, Morticians, Pharmacists, and Life Insurance Salesmen, and Advertising Men keys. Only in the case of Advertising Men, on which the UnhappyWomen were significantly higher than UnhappyMen at both Time-1 and Time-2, were there similar situations for the Unhappys.

HappyMen were significantly higher than HappyWomen at the time of engagement in the Business Interests of Sales Managers and Presidents of Manufacturing Concerns, both of these differences diminishing, largely as a result of increases in these Interests on the part of the HappyWomen, to the point of negligible differences after 18 years of marriage.

These results contrast with the situation for the Unhappys. There were no significant differences at either test period for the Unhappys in Sales Manager Interests, while the UnhappyMen were significantly higher than Unhappy-Women in the Interests of Presidents of Manufacturing Concerns, this difference growing slightly larger during the years of marriage.

Further Nonsignificant Trends Within the Category of Interests

The discussion of the Interests variables has in general treated Interests that fall in the same general Interest Factor together, for the sake of clarity and understanding. The significant differences reported to

this point are reinforced by lesser differences, giving a picture of a pattern of behavior in Interests that appears to emerge.

At the time of engagement, HappyMen were lower than UnhappyMen in Scientific Interest, the two groups changing toward one another and often reversing position during the 18 years of marriage. HappyMen increased in Interests in the outdoor, masculine Subprofessional-Technical Factor tapped by Farmer and Aviator, making for greater differences between HappyMen and UnhappyMen after 18 years of marriage. HappyMen were higher than UnhappyMen in Business Interests, as characterized by Banker and Sales Manager, at the time of engagement, these differences diminishing during the period of the marriages.

UnhappyWomen were lower than HappyWomen at the time of engagement in Business Interests, but changed during the period of marriage to the point where the two groups of Women were virtually identical.

CHAPTER VI

DISCUSSION

Cause and Effect Relations

The analysis of trends across the 72 change variables gives indications of several phenomena of interest that appear to be operating during the years of marriage for the sample of couples under consideration in this study and the array of variables on which change has been examined. First, the results of Kelly's analysis (31) point quite definitely to a number of changes common to the groups of Husbands in general and Wives in general, many of which are common to the entire group of married couples. During the 18 years of marriage, the situation is neither static nor one of random changes.

The present analysis gives further indications as to how these changes are related to the atmosphere of the marriages within which the changes occur. On a number of variables we find opposing changes - in one direction for the Happys, in the other direction for the Unhappys. More generally, showing up as a trend across the 72 variables, we find a tendency for greater positiveness of change among the Happys, and a lesser tendency for greater magnitude of

change among the Unhappys.

We have here very promising indications of the possibility of experimentally measuring relations between social influences acting in a natural setting over a long period of time and individual personality variables.

Cause and effect relationships can only be inferred from the present data. But there are several indications that tend to point to the conclusion that Self-Perceived Happiness, the criterion of marriages that has been related to change in the present study, becomes established relatively early in the course of a marriage, and thus would have acted for a number of years as a causal agent in the marriages studied here. Although, as Foote (21) points out, the evidence is not clear-cut and unequivocal, we have reason to believe that divorce, when it comes, comes in the first few years in the marriage career. Landis (36) in his study of retrospective reports on the establishment of a stable relationship in marriage finds only 10% to 25% (depending upon the area of adjustment) of the couples questioned felt that they had <u>not</u> adjusted to one another within the first year.

Finally, from the 100 criterion variable intercorrelation matrix of the present study, we find that variable number 42, Happiness of the first two-year period of marriage, has a loading of 40 on Factor I, Self-Perceived Happiness. This is a retrospective judgment on the part of the subject, and hence must be taken with great reservations; but again

it is an indication of comparatively early establishment of a stable placement of the typical couple at a point on the Self-Perceived Happiness dimension of marriage.

Despite these indications as to the causal influence of the marriage atmosphere on the personality of the members of the marriage over a comparatively large part of the total period of the marriage, it is extremely doubtful whether any conclusions as to causal connections should be drawn. We have no way of determining, from the present data, that the changes that revealed themselves over the 18-year period hadn't in fact worked themselves through during the first few years of the marriage, during the period of adjusting to the marriage, little change occurring afterwards. If this were the situation, the changes themselves might be causal, leading to and bringing about the resultant self-perceived happiness.

A third possibility as to the relationships between change and Self-Perceived Happiness is that a back-and-forth causal relationship operates, change affecting Self-Perceived Happiness which in turn affects personality variables, leading to further change, and so on. This would appear to be the least confining or distorting assumption upon which to view the results of the present study. For purposes of further study, a fourth possibility is quite likely and especially fruitful: that more basic causal variables underlie both change and perceived happiness.

A precise specification of causal relations would cer-

tainly be a desired next step in the examination of co-relations uncovered in the present study. It would of course need an experimental design calling for repeated measurement, such as was done in Cattell's P-Technique study (13), of the variables undergoing changes and of the possibly causative variables, plus a close understanding of the mechanisms of cause and effect underlying the relationships and changing relationships uncovered. Even then, the causal connections would be far from clear. We would have in this case a good example of the weakness in inferring causality from temporal relationships alone, certainly a dangerous procedure unless the operative variables are under full control and the mechanisms of their interrelationships are well understood. The discovery of a relationship, whether set in temporal sequence or not, will not in itself throw any light on cause-and-effect. The first stages, then, of the application of scientific methodology to new questions, will of necessity produce only correlations. Only the long process of theoretical fitting-together of the facts of correlations uncovered will lead to the point where experimental manipulation of variables (or the simulation of this method via sampling methods in the natural setting) will give a convincing picture of causal interconnections between variables, within the necessary broader context of an understanding of the totality of variables that <u>might</u> be operative, but are <u>known</u> not to be.

The results of the present study, then, should serve

as facts to be fitted into tentative theoretical understandings of change taking place within a social situation such as marriage, facts that themselves to some extent help to organize the theoretical construction. But these facts cannot be formative of theory until the theory is there.

Trends of Changes

The large number of contrasts between criterion-divided groups on individual variables presents a lot of specific facts as to relationships that might be of interest in themselves for future follow-up. In isolation they speak for themselves; the present discussion will attempt to pull together the overall picture of changes related to Self-Perceived Happiness that occur. It should be repeated that generalizations can only be made to the populations of people and of behavior sampled in this study.

The general tendency toward greater positiveness on the part of the Happys, both Men and Women, gives an interesting indication of positive behavioral concomittants of perceived marital happiness. The general drift toward more negative interests, attitudes, etc. is resisted by the Happys who in this respect appear to largely overcome the usual, typical results of aging. But, as has been noted, in an empirical study of this sort, we cannot know exactly what 'positiveness' implies over so large and relatively heterogeneous a group of variables. Here an examination of some of the categories of behavior involved helps give more detail

to the picture that emerges. The positiveness of change on the part of the Happys appears to be directed toward the conventional, conforming, fitting-in (to the demands of marriage and of society). The pattern of changes on the Allport-Vernon, toward lower Theoretical and Aesthetic Values and toward higher Economic and Religious Values, combined with such further indications as the positive change in HappyWives' attitudes toward one of their major jobs in marriage - child-rearing - all point in this direction.

On the other hand, we have indications of poorer personality adjustment in the Unhappys at the time of engagement that largely work themselves out during the marriage, so that little difference remains in middle age, after 18 years of marriage, between the group of Happys and the group of Unhappys. UnhappyWomen apparently perceived themselves unrealistically, in too favorable a light, at the time of engagement, while UnhappyMen (and to a lesser degree UnhappyWomen) manifested more neurotic behavior than the Happys at the time of engagement.

Thus we have indications that during the years of marriage Happys developed most in aspects of social adjustment, while Unhappys developed in personal adjustments to the point where they had pretty well overcome their original weaknesses, weaknesses that may well have been operative in making for their relative unhappiness in marriage as perceived by themselves.

Consistency

The greater consistency over the years of the Husbands on the part of the Happys, as opposed to the greater consistency of the Wives on the part of the Unhappys, would seem to fit in with several alternate interpretations. The more consistent group is changing, regardless of whether these changes are large or small, positive or negative, in a more consistent manner, the members of the group changing together rather than in differing amounts or directions. Again, this might be cause or effect. As causal, we would have indications of the relative dominance and importance of stable and consistent behavior on the part of Men in Happy marriages, while greater consistency on the part of the Women and lesser consistency on the part of the Men leads to self-perceived Unhappiness. The slightly greater dominance of the HappyMen and the UnhappyWomen than the groups of their spouses at the time of engagement, as measured on the Bernreuter, would fit in with this interpretation. Thus, a picture emerges of Happy marriages being ones in which wives change and adapt to the marriage situation.

Looking at these differences in consistency as a resultant effect of the marriage atmosphere, the Happy marriage has a relatively uniform influence on the Husbands, whereas the development of the Wives under its influence is more diverse. Conversely, the Unhappy marriages have a relatively uniform influence on the Wives, the Husbands

changing in a more scattered manner.

A third possibility is that the Unhappy marriages interfere with the common tendencies toward change (resulting from aging or other factors) on the part of the Unhappy-Men, while Happy marriages center the HappyWomen's lives more fully around their individual marriage and home, removing them from the more uniform outside influences.

Assortative Mating and Convergence-Divergence

As has already been discussed more fully in Appendix F, the indications of convergence on the part of the Happys and of divergence on the part of the Unhappys probably point to a phenomenon that would have shown up as more pronounced if it had been the central object of examination and had been measured more directly, through the summing of individual absolute Husband-Wife differences. These results present an interesting extension of the results already available from Kelly (31) and Winch, Ktsanes, and Ktsanes (56,57,58) on assortative mating. Kelly found that Husband-Wife correlations at the time of engagement on 38 of the 72 variables analyzed in the present study ranged from -.02 to .58, with the possibility of a slight tendency for the couples to become less similar over the years of marriage. He concludes that a moderate degree of similarity between husband and wife is necessary to get them together in the first place, to give them sufficient points of contact and common interests for the establishment of an enduring relationship. But

equally important, he emphasizes the points of difference that make the couple interesting and attractive to one another. As to the changes once the marriage has been established, Kelly suggests that, although there are many influences toward similarity and convergence, apparently there are equally strong influences toward divergence in the role expectations of our highly differentiated society.

In contrast with Kelly, Winch, Ktsanes, and Ktsanes hypothesize a complementary interaction between Husband and Wife in which each marriage partner, because of contrasting needs, fitting the marriage role that complements and thus best serves the other's needs. Although there is some question as to the conclusions that can safely be drawn from experimental evidence whether their results can be generalized to the wide range of needs they measured or only to a single dominance-submission dimension, this hypothesis appears to be supported experimentally.

The initial greater similarity on the part of the Unhappys in the present study, changing during the 18 years of marriage to a final greater similarity on the part of the Happys, helps us a bit in extending our understanding of the similarity vs. complementarity problem in assortative mating. First, it might be well to examine what is meant by 'complementarity' and 'similarity' when these are measured in terms of group variance and correlations. We are justified in assuming that the people at one end of the continuum are plus (e.g., dominant) and the people at the

other end of the continuum are minus (e.g., submissive) only if we have outside criteria for establishing this fact. In other words, the fact that there is a range on a variable for our group in no sense tells us whether the range encompasses the entire population or whether it is restricted to a small part of the possible variability. For example, a typical group tested by the psychologist - the class of college students - would be quite restricted in range of intelligence, so that a correlational study of friendship choices might well demonstrate a negative relationship on IQ between friends, the sort of relationship that would result from people with IQ's of 110 being friends of people with IQ's of 140. But the same study on the group of high school students from which the college students were drawn, through the selective factors of college admissions, as a subgroup, or the study of the larger-town group into which the college students will merge after graduation, might well demonstrate a positive relationship on IQ between friends. The friendships between the 110 and 140 IQ people would then contrast with the friendships between the 70 and 100 IQ people. Thus only a clear characterization of the individual as in fact having a specific need and of his partner as having a second need which complements - satisfies and is satisfied by - the first, would allow us to examine whether more friendship, or marriage, choices were made on the basis of complementarity or of similarity.

For this reason, Husbands-Wives correlations for the

Happys compared with Husbands-Wives correlations for the Unhappys would not necessarily give meaningful information on the question of the relation of similarity or difference of Husband and Wife to self-perceived happiness. The HappyHusbands might all be dominant, the HappyWives all submissive, but this complementary situation would not in any way imply what the expected correlation between HappyHusbands and HappyWives might be. Thus it seems safest to look at the data in terms of comparisons between Happys and Unhappys as to similarity, or difference, rather than in terms of characterizations of people as being similar or complementary.

We thus find, on the variables analyzed, a greater initial similarity of Husbands and Wives for the Unhappys. We appear then to have evidence for the desirability of a certain degree of difference (not necessarily complementarity) at the time of the inception of the marriage. Possibly too great similarity may get and keep people together for a while at first, but after a while it is detrimental to enduring success. Thus the Unhappys, originally slightly more similar to one another than the Happys, diverge during the years of marriage. On the contrary, the Happys, possibly under the influence of the more cohesive and benign atmosphere of their marriages, converge in the variables studied during the years of marriage, so that they are finally more similar to one another than are the Unhappys. This change on the part of the Happys confirms results reported by Keeley, who found, in a cross-sectional study, a relationship

between similarity of values and marital success, and a "positive and significant correlation, albeit slight, ... in the cases of certain categories of values" as related to length of marriage (28, p.343). Thus a lesser degree of similarity at the time when the marriage is being formed, but a greater degree of similarity after the marriage relationship has been firmly established, appear to be related to self-perceived happiness. And the period of the marriage serves to act as an influence toward convergence when the marriage is perceived to be a happy one, whereas it acts as an influence toward divergence when the marriage is perceived to be unhappy.

CHAPTER VII

SUMMARY

The present study focussed upon changes during marriage as they were related to important characteristics of the marriage situation.

The first phase of the study was the identification of the important characteristics of marriage, by means of an exhaustive factor analysis, using the group of Husbands for whom data was available, of a large number (100) of variables, measured after 18 years of marriage, that appeared to be relevant to a characterization of the outcome of a marriage.

Five orthogonal marriage outcome criterion factors were identified. These appeared to be related to the following types of behavior:

1. Self-perceived Happiness
2. Family-Centeredness
3. Individual Strength
4. Semantic Harmony
5. Closeness of Interpersonal Relations with Others.

Factor scores were computed for all couples for whom complete change data was available (that is, both Husband and Wife scores at both Time-1, in 1937 at the time of engagement, and Time-2, in 1955 after 18 years of marriage).

Husbands were correlated with their Wives on the five criterion factors. Factors 3, and 5 showed no Husband-Wife correlation, while Factor 4 had a built-in correlation due to its being based largely on couple rather than individual measures (thus giving the identical score to both Husband and Wife).

For the second phase of the study, it was decided to study changes during marriage as they were related to Factor 1, Self-Perceived Happiness.

Seventy-two change variables, for which data was available both at Time-1, in 1937, and at Time-2, in 1955, were included in the analysis of change. They covered five general categories of behavior: (1) Self-Percepts, (2) Values, (3) Personality, (4) Attitudes, and (5) Interests.

The married couples were divided into groups on the basis of their Factor scores on Factor 1, the group of the highest third being characterized as Highs or Happys, the group of the lowest third being characterized as Lows or Unhappys. This provided four groups for the analysis: (1) HighMen, (2) HighWomen, (3) LowMen, and (4) LowWomen.

Eight basic Means were accumulated for these four groups: four at Time-1 and four at Time-2. These were:

(1) High Men in 1937

(2) High Women in 1937

(3) Low Men in 1937

(4) Low Women in 1937

(5) High Men in 1955

(6) High Women in 1955

(7) Low Men in 1955

(8) Low Women in 1955

Eight derived Mean Differences were computed. These were:

(1) High Men change from 1937 to 1955

(2) High Women change from 1937 to 1955

(3) Low Men change from 1937 to 1955

(4) Low Women change from 1937 to 1955

(5) High couple Husbands-Wives difference in 1937

(6) High couple Husbands-Wives difference in 1955

(7) Low couple Husbands-Wives difference in 1937

(8) Low couple Husbands-Wives difference in 1955

Eighteen meaningful contrasts between Means were thus open to analysis. The following contrasts were tested directly, by means of t-tests, for each of the 72 change variables:

(1) High Men vs. Low Men in 1937

(2) High Men vs. Low Men in 1955

(3) High Women vs. Low Women in 1937

(4) High Women vs. Low Women in 1955

(5) High Men vs. High Women in 1937

(6) High Men vs. High Women in 1955

(7) Low Men vs. Low Women in 1937

(8) Low Men vs. Low Women in 1955

(9) High Men in 1937 vs. High Men in 1955

(10) High Women in 1937 vs. High Women in 1955

(11) Low Men in 1937 vs. Low Men in 1955

(12) Low Women in 1937 vs. Low Women in 1955

(13) High Men change vs. Low Men change

(14) High Women change vs. Low Women change

The following additional contrasts were examined for trends across all 72 change variables, but were not tested for the significance of differences on the individual change variables:

(1) High Husbands-Wives differences in 1937 vs. Low Husbands-Wives differences in 1937

(2) High Husbands-Wives differences in 1955 vs. Low Husbands-Wives differences in 1955

(3) Difference in Husbands-Wives differences between 1937 and 1955, for Highs

(4) Difference in Husbands-Wives differences between 1937 and 1955, for Lows.

Time-1 - Time-2 correlations were also computed, on each of the 72 change variables, for each of the four criterion-divided groups. These gave measures of consistency within groups, regardless of the amount of change by the group as a whole. These correlations were also used in the examination of trends across all 72 change variables.

The following trends over the entire group of change variables were discovered:

(1) Happys converged during the 18 years of marriage, while Unhappys diverged during the 18 years of marriage. These were changes from an initial situation in which the Happys were less similar than were the Unhappys, to a final

situation in which the Happys were more similar than were the Unhappys.

(2) Happys, as compared with Unhappys, were more positive in their changes during the 18 years of marriage.

(3) Among the Happy groups, the Husbands were more consistent during the 18 years of marriage than were their wives, whereas among the Unhappy groups the Wives were more consistent during the 18 years of marriage than were their Husbands. In addition, HappyMen were more consistent than were UnhappyMen, whereas UnhappyWomen were more consistent than were HappyWomen.

A number of significant differences were discovered in the analysis of behavior of the four criterion-divided groups on the 72 change variables taken individually. More important than the statistical test of individual contrasts is the picture, given by the basic and derived Means on each variable, of the situation at the time of engagement, changes that occurred during marriage, and the outcome as it has worked itself through after 18 years of marriage.

APPENDIX A

1. THE 100 CRITERION-RELATED VARIABLES INCLUDED IN THE CRITERION FACTOR ANALYSIS

1. Number living children
2. Average yearly family income
3. Feelings about sex during last 3 years - self
4. Difference between actual and preferred frequency of intercourse - self
5. Men: frequency of impotence; women: frequency of orgasm (direction reversed)
6. Considerateness of spouse of feelings about sex
7. Difference between actual size of family and original desired size
8. Spouse's physical health during 20 years
9. Tendency of spouse to emotional disturbance
10. Spouse helped or hindered in attaining goals
11. Discussion of problems with spouse
12. Overall change of self over all areas
13. Overall selfrole adequacy
14. Difference between selfrole adequacy and selfrole importance
15. Difference between selfrole adequacy and spouserole adequacy
16. Total number of areas in which differences bothered
17. Overall extent of differences over all areas
18. Spouse understands you
19. You understand spouse
20. Amount of time in speaking distance
21. Overall influence over all areas
22. Total deviation of influence from "husband and wife about same"
23. Total number of areas in which prefer different distribution of influence
24. Satisfaction with way disagreements settled
25. General satisfaction with marriage
26. If had to live over, would
27. Regretted marriage
28. Considered separation or divorce
29. Feeling of love for spouse
30. Effect of being married on goal attainment
31. Happiness of marriage - global rating
32. Happiness - 1st 2-year period

33. Happiness - 2nd 2-year period
34. Happiness - 3rd 2-year period
35. Happiness - 4th 2-year period
36. Happiness - 5th 2-year period
37. Happiness - 6th 2-year period
38. Happiness - 7th 2-year period
39. Happiness - 8th 2-year period
40. Happiness - 9th 2-year period
41. Average happiness over all above periods checked
42. Range of levels checked
43. Semantic difference for factor 1
44. Semantic difference for factor 2
45. Semantic difference for factor 3
46. Semantic difference for total
47. Physical health during past 20 years
48. Tendency to emotional disturbance
49. Semantic difference average over 3 factors
50. Importance of having close and intimate friends
51. Importance of taking part in many soical activities
52. Importance of attending church and taking part in religious activities
53. Importance of life being full of change and variety
54. Importance of values and attitudes similar to husband's
55. Importance of getting money and material wealth
56. Importance of life being free from sudden changes and unexpected events
57. Importance of you and spouse taking part in many recreational activities together
58. Importance of your life making a contribution to the betterment of community, nation, or society
59. Emotional health during last 20 years
60. Tendency toward emotional disturbances, etc.
61. Relationship with mother
62. Relationship with father
63. Relationship with spouse's mother
64. Relationship with spouse's father
65. How well closest relative understands you
66. How well you understand closest relative
67. How well closest friend understands you
68. How well you understand closest friend
69. Importance of friendship with closest friend for your happiness
70. Closeness of spouse to your closest friend
71. Extent to which discuss personal problems with closest relative
72. Extent to which discuss problems with closest friend
73. Amount of physical maintenance of house and yard - husband minus wife
74. Frequency of attending group activities - without spouse
75. Frequency of attending group activities - with spouse
76. Frequency of getting together informally with others for social reasons - without spouse
77. Frequency of getting together informally with others for social reasons - with spouse

78. Number of different people with whom get together socially
79. Frequency of getting together with spouse only for social reasons - at home
80. Frequency of getting together with spouse only for social reasons - away from home
81. Amount of housework done - wife minus husband
82. Amount of money available over bare necessities
83. Present standard of living compared with others'
84. Present standard of living compared with what would like
85. Weight given to ideas and feelings of children in making family plans
86. Frequency of getting together with children for fun - at home
87. Frequency of getting together with children for fun - away from home
88. Frequency all family recreates together - at home
89. Frequency all family recreates together - away from home
90. Total number of items reported as occurring during marriage
91. Total number of check marks (items could be checked three times)
92. Spouse's use of alcoholic beverages
93. Spouse's drinking ever a problem
94. Satisfaction with present work
95. No. of times attend church
96. Drinking of alcohol
97. Drinking ever a problem
98. Present physical health
99. Physical health during past 20 years
100. Number of common physical symptoms experienced

APPENDIX A

2. THE 72 CHANGE VARIABLES

A. Kelly Personality Ratings

	(Low = 1)	(High = 9)
1.	Dull	Brilliant
2.	Unpleasant voice	Pleasant
3.	Careless dress	Neat
4.	Narrow interests	Wide
5.	Unconventional	Conventional
6.	Boisterous	Quiet
7.	Ill natured	Good natured
8.	Very vain	Modest
9.	Unreliable	Very dependable

B. Allport-Vernon Values

(High = 1)

10. Theoretical
11. Economic
12. Aesthetic
13. Social
14. Political
15. Religious

C. Bernreuter Personality Measures

(High = 1)

16. B1-N Neurotic Tendency
17. B2-S Self Sufficiency
18. B3-I Introversion
19. B4-D Dominance
20. F1-C Lack of Self-Confidence
21. F2-S Non-Social

D. Remmers Attitudes

(favorable = 1)

22. Marriage
23. Church
24. Rearing children
25. Housekeeping
26. Entertaining
27. Gardening

E. Strong Interests

(High = 9)

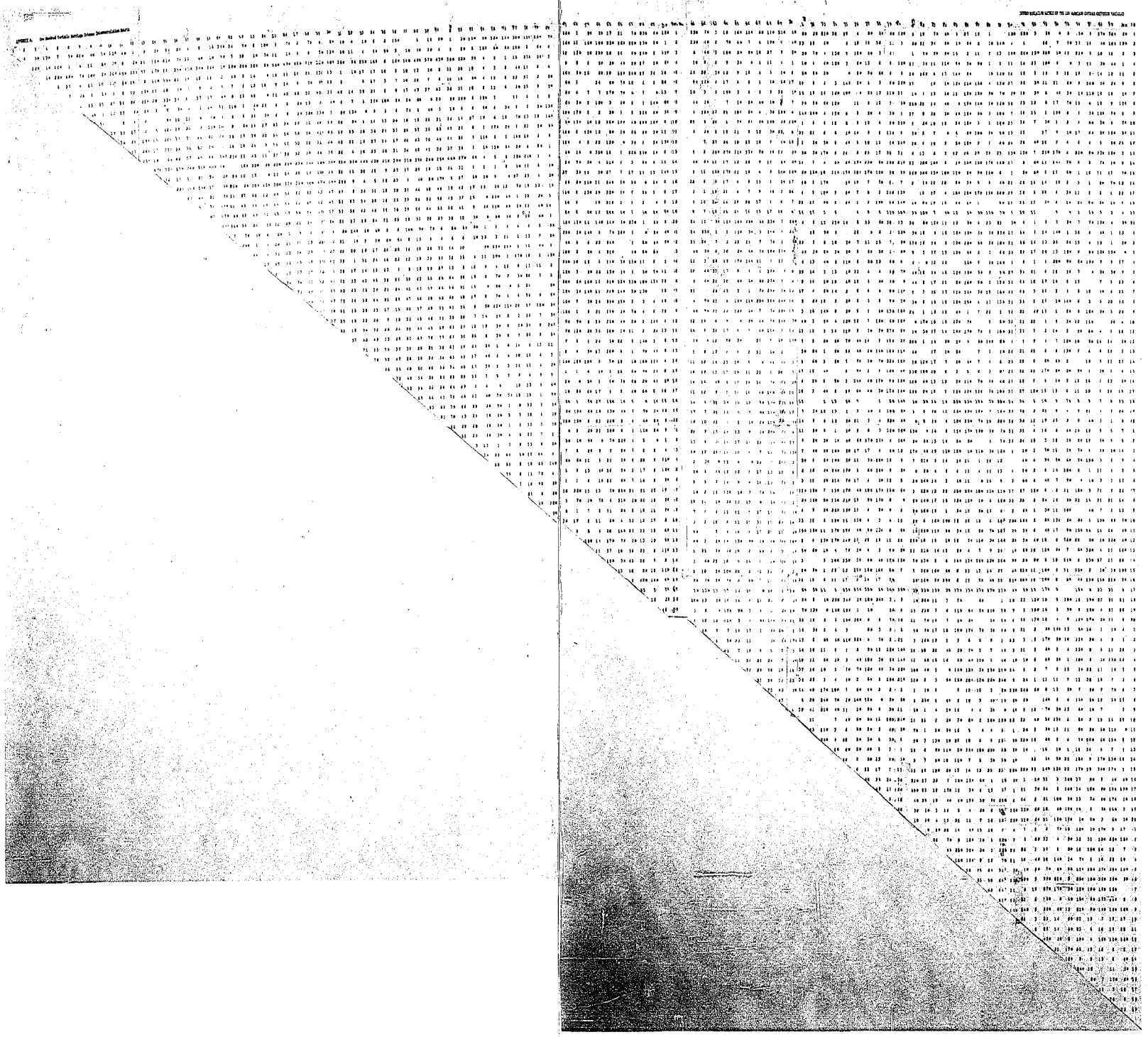
28. Artist
29. Psychologist
30. Architect
31. Physician
32. Osteopath
33. Dentist
34. Veterinarian
35. Mathematician
36. Physicist
37. Engineer
38. Chemist
39. Production Man
40. Farmer
41. Aviator
42. Carpenter
43. Printer
44. Math, Physical Science Teacher
45. Industrial Arts Teacher
46. Vocational Agriculture Teacher
47. Policeman
48. Forest Serviceman
49. Y. M. C. A. Physical Director
50. Personnel Director
51. Public Administrator
52. Y. M. C. A. Secretary
53. Social Science High School Teacher
54. City School Superintendent
55. Minister
56. Musician
57. C. P. A.
58. Senior C. P. A.
59. Accountant
60. Office Man
61. Purchasing Agent
62. Banker
63. Mortician
64. Pharmacist

E. Strong Interests-Continued

65. Sales Manager
66. Real Estate Sales
67. Life Insurance Salesman
68. Advertising Man
69. Lawyer
70. Author-Journalist
71. President Manufacturing Concern
72. Interest Maturity

APPENDIX B

ONE HUNDRED VARIABLE MARRIAGE OUTCOME INTERCORRELATION MATRIX



APPENDIX C

ROTATED FACTOR LOADINGS FOR THE 100 MARRIAGE OUTCOME CRITERION VARIABLES

Variable	Loading on Factor: I	II	III	IV	V
1	03-	08	11-	38	05-
2	07	52-	13-	21	01
3	45-	25	08	05	03-
4	19	03	08-	11-	05
5	11	04	12	23-	02
6	51	16-	08-	07-	01
7	06	12-	03-	20-	10
8	08	20-	00	01-	04-
9	25	03-	16-	21-	06-
10	60	04	17-	04-	09-
11	49	14-	14-	04	23
12	46	06-	05	08	24
13	37-	08	53-	07-	21-
14	24	00	18	03	16
15	22-	16	67	00-	01
16	59	03-	20-	14-	06
17	70	22-	04-	03	15
18	70	06	07-	03	37
19	36	07-	11	11	46
20	01-	05	23-	24-	19-
21	17	18-	06-	09-	17-
22	37	20-	09	11	29
23	54	12-	19-	03-	01
24	26	03-	15-	25-	04
25	81	08-	13-	01-	08
26	78	11-	16-	04-	03-
27	84	06-	15-	08-	09-
28	61	07-	03-	00	22-
29	58	03	29-	16-	06-
30	58	00	06-	13-	00-
31	81	05	02	06-	01-
32	40	05	24	16	04
33	56	10	18	06	01-
34	63	25	22	12	01-
35	52	36	20	11	11
36	49	16	27	05	03
37	61	09	26	12	01-
38	80	02-	19	02	00-
39	71	03	09	00-	06-
40	73	05-	05-	02-	00
41	81	08	26	13	01-
42	57	11	20	04-	01
43	19	04-	06	39-	09
44	01	09	04-	60-	02-

APPENDIX C (cont'd)

Variable	Loading on Factor I	II	III	IV	V
45	06-	05	06	52-	07
46	04	04	00-	70-	04
47	09	10	40	25-	18-
48	29	05-	22	41-	10-
49	06	02	03	70-	05
50	02-	11	09-	07	37
51	16-	15	27	11-	09
52	05-	44-	07-	00-	09
53	05-	17	02	16-	03
54	21	08-	24	02-	16
55	25-	39	11	04-	01-
56	07-	12	04-	32	11
57	02-	08	41	02-	12
58	07-	04-	17	43-	13
59	04-	01-	15	24-	04-
60	16	00	03-	06-	05-
61	17	15	06	21-	09
62	05	21	01	19-	13
63	28	05	04	08-	23
64	21	03	01-	12-	37
65	09	07	33	08-	52
66	09	08-	39	01-	60
67	00-	04	03-	16-	57
68	18-	15	06	21-	55
69	01-	08	13-	04-	44
70	16	01	05	00	00
71	15	06	11-	07	48
72	10	04	28-	00	48
73	01-	04-	14	03	09-
74	09	12	09-	32	04
75	01-	22	31-	32	02
76	04	41-	18-	13-	03-
77	03	33-	29-	08	10-
78	03	41-	13-	16	06
79	18-	14-	17-	18-	00
80	16-	08-	26-	20-	04-
81	00	18	20-	14-	06-
82	08	50-	20-	32	06-
83	34	26-	00-	20-	01
84	15	05	01	23-	11-
85	14-	14	40-	15	10
86	18-	48	41-	09	01
87	02-	37	40-	01	08-
88	05	32	46-	14-	13-
89	17-	50	33-	00-	06-
90	47	07-	13	11-	22-
91	50	15-	00	11-	22-
92	14	22	14-	07	04

APPENDIX C (cont'd)

Variable	Loading on Factor I	II	III	IV	V
93	11	62-	13	07-	10-
94	08	16-	14	05-	11
95	02	36	00-	09	07
96	11	61-	06	00	13-
97	04	02	26	12	01-
98	02	13-	59	23-	02
99	09	10	40	25-	18-
100	18	07	12	16-	02

APPENDIX D

FACTOR SCORES FOR ALL INDIVIDUALS USED IN THE ANALYSIS OF CHANGE ON THE FIRST CRITERION FACTOR, SELF-PERCEIVED HAPPINESS

MEN

Hi	Subj.	Lo	Factor Score	Hi	Subj.	Lo	Factor Score
	1		19		121		23
	2	*	38	*	124		24
	5	*	31	*	131		19
	7		24	*	132		19
	13	*	41	*	139		19
	17	*	26		141		40
	21		25		144		29
	24		35		145	*	48
*	25		13		146		27
*	35		15		147	*	31
	36	*	31		149		24
	38		20		151	*	30
	47		23		155	*	30
*	59		19	*	160		15
	60	*	33		161	*	36
*	61		13		164	*	30
*	73		21		168		20
	74		26		169		25
	75		23	*	170		20
*	77		15		171	*	31
	81	*	31		172	*	33
	86	*	33		174	*	36
*	87		18		177		23
*	88		21	*	178		16
*	89		15		179	*	40
*	90		20	*	181		20
*	92		12		182		24
	93	*	46		187	*	31
	96	*	28	*	190		19
	97	*	33	*	191		18
	98		27		192	*	36
	99	*	36		193		25
	101	*	33		198	*	32
	102	*	31		199		18
	103	*	27		201	*	32
*	104		21		208		19
*	106		19		209		24
*	107		19		213		21
	109	*	29	*	214		20
*	110		16		220		27
	116		22		221	*	42
	118		25		222		26
*	119		24		223	*	43
	120		18		227	*	30

APPENDIX D (cont'd)

FACTOR SCORES FOR ALL INDIVIDUALS USED IN THE ANALYSIS OF CHANGE ON THE FIRST CRITERION FACTOR, SELF-PERCEIVED HAPPINESS

MEN

Hi	Subj.	Lo	Factor Score
*	228		22
	229		29
	231		23
	235		21
	238		22
	240	*	30
*	241		24
*	242		15
	244	*	38
	245	*	34
	246		27
	247		26
	248		25
	252	*	28
	253		17
*	255		24
*	258		23
*	259		18
	260	*	34
*	261		20
	264		21
*	266		15
*	268		19
	271	*	27
	273		28
*	276		20
	277		34
	282		18
	283		29
	287		38
	289		22
	290	*	37
	296		23
*	297		19

APPENDIX D (cont'd)

FACTOR SCORES FOR ALL INDIVIDUALS USED IN THE ANALYSIS OF CHANGE ON THE FIRST CRITERION FACTOR, SELF-PERCEIVED HAPPINESS

WOMEN

Subj.	Factor Score	Subj.	Factor Score
276	13	116	23
259	14	121	23
297	14	144	23
25	15	181	23
35	15	191	23
160	15	222	23
258	15	273	23
268	15	287	23
74	16	7	24
119	16	24	24
170	16	73	24
193	16	235	24
214	16	283	24
61	17	209	25
220	17	238	25
89	18	247	25
132	18	248	25
139	18	282	25
261	18	289	25
266	18	98	26
21	19	109	26
87	19	141	26
88	19	177	26
131	19	246	26
229	19	47	27
255	19	145	27
1	20	146	27
90	20	198	27
178	20	199	27
228	20	102	28
104	21	149	28
107	21	182	28
124	21	213	28
242	21	227	28
106	22	264	28
110	22	17	29
168	22	60	29
190	22	101	29
241	22	120	29
277	22	169	29
296	22	171	29
59	23	179	29
77	23	187	29
92	23	208	29

APPENDIX D (cont'd)

FACTOR SCORES FOR ALL INDIVIDUALS USED IN THE ANALYSIS OF CHANGE ON THE FIRST CRITERION FACTOR, SELF-PERCEIVED HAPPINESS

	WOMEN
Subj.	Factor Score
96	30
147	30
164	30
253	30
151	31
2	32
252	32
260	32
5	33
13	33
118	34
271	34
38	35
201	35
36	36
75	36
97	36
103	36
192	36
81	37
155	37
172	37
221	37
240	37
174	38
231	39
245	40
161	41
223	41
244	42
93	43
99	44
290	44
86	48

APPENDIX E
OUTPUT FROM THE ANALYSIS OF CHANGE, ON THE 72 CHANGE VARIABLES ANALYZED FOR HIGH AND FOR LOW GROUPS ON THE FIRST MARRIAGE OUTCOME CRITERION FACTOR (SELF-PERCEIVED HAPPINESS)

The analysis of change was conducted on Michigan's IBM 650, in the following manner. First, a Time 1-Time 2 intercorrelation program was used to develop the basic Means, (and also test-retest correlations within groups). The data for all 72 variables is given in E1. In addition to the computations already mentioned, this this program tested the significance of the change made by each group, and also computed the standard deviations necessary for further tests of significance, tests that were made in the subsequent phases of the analysis.

Next, the outputs from this first program were reprocessed by the IBM 650, using two programs developed by the author. The four output cards for each variable (one each for HiMen, HiWomen, LoMen, LoWomen) were analyzed for the significance of the differences between all meaningful combinations of pairs of Means taken at the same time (that is, in 1937 or 1955). These C.R.'s are presented in Appendix E2. Thus, four Critical Ratios were developed for each of the following three contrasts: (1) at Time 1, in 1937, (2) at Time 2, in 1955, and (3) for differences between the Time 1-Time 2 correlation for Wives.)

Finally, the data was processed for an analysis of the significance of differences between the amounts of

APPENDIX E (cont'd)

OUTPUT FROM THE ANALYSIS OF CHANGE, ON THE 72 CHANGE VARIABLES ANALYZED FOR HIGH AND FOR LOW GROUPS ON THE FIRST MARRIAGE OUTCOME CRITERION FACTOR (SELF-PERCEIVED HAPPINESS)

change, between the different criterion-divided groups. This was done as follows. First, an intermediate program for the IBM computer was used to compute the changes and standard deviations of these changes for all groups. Next, the output from this program was processed in the same way as the original output from the Time-1 Time-2 correlation program, to get the Critical Ratios of the differences of the differences between the 1937 and 1955 Means. This gave the differences of change C.R.'s presented in Appendix E2 for each variable: (1) Critical ratio of the difference between HiMen change and LoMen change, (2) Critical Ratio of the difference between HiWomen change and LoWomen change, (3) Critical Ratio of the difference between Time-1 and Time-2 correlations for Women (this repeated an analysis that had already been made in the original Critical Ratio run, because it was faster to have the computer follow its regular program and make the computations than to modify instructions and leave this step out).

Appendix E3 gives an overall picture of the analyses that were made for individual variables and for trends over all variables.

1. Output from the First Phase of the Analysis of Change

Group	Var.No.	r (T1-T2)	Mean (T1)	Sigma (T1)	Mean (T2)	Sigma (T2)	CR (T1-T2)
Happy Men	1.	.72	4.83	.31	5.43	.28	2.68-
Happy Women		.42	4.18	.21	4.40	.22	.95-
Unhappy Men		.29	5.50	.26	5.35	.27	.47
UnhappyWomen		.51	4.80	.28	4.45	.28	1.27
	2.	.19	3.70	.18	4.33	.24	2.32-
		.26	3.70	.27	4.08	.27	1.15-
		.38	4.25	.26	4.58	.25	1.18-
		.16	4.50	.26	4.48	.32	.05
	3.	.54	4.58	.31	4.35	.33	.75
		.49	4.93	.32	4.48	.30	1.44
		.48	4.23	.40	4.20	.30	.08
		.43	5.45	.34	4.50	.33	2.66
	4.	.24	5.68	.30	5.58	.31	.26
		.48	4.85	.25	4.70	.29	.54
		.24	5.75	.39	5.33	.32	.94
		.46	6.08	.31	4.88	.23	4.15
	5.	.54	2.38	.32	2.55	.27	.59-
		.54	3.98	.36	3.88	.34	.29
		.32	2.83	.33	3.13	.33	.78-
		.17	2.80	.28	3.65	.30	2.27-
	6.	.52	3.73	.32	3.10	.27	2.16
		.52	3.73	.34	3.65	.29	.25
		.54	3.55	.32	3.93	.31	1.26-
		.55	3.45	.31	3.83	.31	1.29-
	7.	.42	5.45	.35	5.25	.37	.51
		.17	4.53	.32	4.40	.27	.34
		.31	5.13	.41	4.38	.30	1.75
		.33	4.73	.34	3.75	.29	2.69
	8.	.19	3.05	.34	3.45	.27	1.07-
		.44	4.00	.31	4.08	.30	.24-
		.37	3.40	.36	4.13	.32	1.91-
		.43	3.13	.34	3.80	.35	1.82-
	9.	.47	6.00	.31	6.48	.26	1.62-
		.26	5.80	.29	6.00	.30	.56-
		.56	6.28	.36	6.23	.30	.16
		.21	6.13	.35	6.30	.24	.44-

1. Output from the First Phase of the Analysis of Change (cont'd)

Var.No.	r (T1-T2)	Mean (T1)	Sigma (T1)	Mean (T2)	Sigma (T2)	CR (T1-T2)
10.	.48	3.98	.26	4.53	.23	2.54-
	.46	5.25	.29	5.50	.27	.17-
	.39	3.68	.27	4.15	.25	1.65-
	.58	5.00	.32	4.90	.30	.35
11.	.56	4.53	.29	4.50	.31	.10
	.56	5.20	.29	5.13	.28	.25
	.39	4.45	.30	4.58	.34	.36-
	.33	5.43	.32	5.88	.32	1.22-
12.	.52	6.15	.29	6.63	.29	1.70-
	.32	4.83	.19	5.70	.19	3.90-
	.54	5.50	.32	5.85	.27	1.22-
	.30	5.90	.25	4.80	.19	3.44-
13.	.58	4.63	.23	5.15	.19	2.67-
	.44	3.98	.21	4.25	.21	1.19-
	.45	4.73	.21	4.88	.24	.62-
	.42	4.58	.23	4.68	.24	.39-
14.	.53	4.33	.29	4.30	.26	.11
	.43	5.68	.25	5.80	.21	.48-
	.67	5.05	.28	4.85	.25	.92
	.65	5.30	.28	5.73	.22	2.02-
15.	.73	5.78	.40	4.40	.36	4.87
	.70	4.43	.36	3.10	.34	4.87
	.36	6.20	.33	5.20	.34	2.65
	.49	5.00	.36	3.55	.31	4.24
16.	.59	7.25	.29	7.25	.26	.00
	.56	6.08	.27	6.50	.27	1.68-
	.67	6.00	.33	6.75	.27	3.05-
	.75	5.53	.34	5.85	.34	1.33-
17.	.57	3.10	.21	3.15	.19	.27-
	.45	4.30	.21	4.13	.16	.86
	.38	3.10	.21	3.13	.18	.14-
	.39	4.10	.24	4.00	.18	.42
18.	.46	5.88	.18	5.70	.17	.96
	.45	5.33	.17	5.38	.15	.29-
	.64	5.05	.21	5.35	.14	1.87-
	.68	4.83	.21	4.95	.18	.76-
19.	.43	2.15	.22	2.35	.24	.80-
	.61	3.23	.21	3.15	.21	.43
	.64	2.65	.25	2.35	.23	1.48
	.77	3.15	.31	3.33	.27	.89-

1. Output from the First Phase of the Analysis of Change (cont'd)

Var.No.	r (T1-T2)	Mean (T1)	Sigma (T1)	Mean (T2)	Sigma (T2)	CR (T1-T2)
20.	.57	6.65	.34	6.65	.29	.00
	.51	5.05	.32	5.50	.29	1.48-
	.49	5.43	.37	5.93	.33	1.40-
	.74	4.78	.39	4.90	.37	.45-
21.	.50	4.55	.24	4.73	.21	.80-
	.55	5.20	.19	4.85	.20	1.92
	.57	4.08	.22	4.00	.23	.38
	.22	4.55	.21	4.58	.21	.11-
22.	.15	2.93	.30	2.23	.09	2.31
	.12	2.65	.24	2.25	.14	1.38
	.71	2.58	.19	2.38	.12	1.46
	.22	2.65	.15	2.53	.22	.41
23.	.41	2.23	.34	1.20	.12	3.28
	.00	1.40	.16	1.00	.03	2.38
	.34	2.65	.35	1.68	.25	2.76
	.01	1.85	.27	1.43	.22	1.20
24.	.37	2.63	.19	2.68	.23	.21-
	.30	2.40	.17	1.73	.12	3.84
	.16	2.68	.23	2.48	.20	.60
	.10	2.28	.19	2.33	.18	.19-
25.	.39	3.80	.18	4.48	.19	3.27-
	.41	2.83	.23	3.45	.21	2.56-
	.52	4.60	.25	4.68	.17	.37-
	.26	3.00	.22	3.98	.22	3.72-
26.	.18	3.05	.23	2.98	.25	.22
	.47	2.45	.21	2.38	.19	.33
	.57	3.08	.22	3.00	.22	.39
	.07	2.70	.24	2.38	.22	1.02
27.	.53	3.88	.29	3.28	.25	2.23
	.05	3.23	.24	3.40	.25	.50-
	.27	3.70	.27	3.48	.30	.63
	.34	3.43	.26	3.18	.28	.79
28.	.63	3.40	.28	2.85	.24	2.40
	.52	4.70	.23	4.03	.27	2.74
	.60	3.98	.28	3.30	.25	2.86
	.63	5.28	.26	4.78	.24	2.29
29.	.67	4.08	.33	4.75	.33	2.49-
	.64	4.13	.28	4.55	.31	1.67-
	.74	4.88	.34	4.55	.32	1.37
	.80	4.80	.37	4.88	.35	.35

1. Output from the First Phase of the Analysis of Change (cont'd)

Var. No.	r (T1-T2)	Mean (T1)	Sigma (T1)	Mean (T2)	Sigma (T2)	Cr (T1-T2)
30.	.69	3.45	.29	3.33	.28	.53
	.59	4.53	.25	3.95	.32	2.18
	.59	4.18	.30	3.75	.35	1.44
	.44	4.75	.31	4.65	.28	.31
31.	.68	4.83	.27	4.35	.28	2.18
	.48	5.73	.24	4.65	.32	3.73
	.63	5.65	.31	4.55	.32	4.07
	.54	5.95	.28	5.10	.28	3.13
32.	.54	4.90	.28	4.80	.32	.34
	.44	5.55	.27	5.03	.30	1.74
	.55	5.85	.32	5.25	.35	1.87
	.56	5.38	.31	4.70	.28	2.44
33.	.60	4.20	.25	4.08	.30	.47
	.42	5.13	.27	4.03	.32	3.39
	.58	5.23	.27	4.40	.33	2.98
	.67	5.13	.30	4.25	.29	3.65
34.	.49	2.08	.26	2.58	.32	1.68-
	.38	2.05	.28	2.25	.22	.95-
	.55	2.23	.27	2.60	.28	1.42-
	.55	2.28	.27	1.70	.23	2.39
35.	.66	2.93	.31	3.13	.31	.78-
	.48	3.35	.26	3.23	.33	.39
	.69	3.48	.34	2.83	.31	2.54
	.64	3.55	.28	3.53	.31	.07
36.	.62	2.73	.34	2.80	.34	.23-
	.56	2.08	.25	2.03	.36	.16
	.64	3.35	.38	2.73	.34	2.01
	.77	2.53	.33	2.23	.35	1.30
37.	.66	5.03	.34	5.23	.33	.72-
	.51	2.83	.20	3.13	.33	1.05-
	.64	5.20	.35	4.88	.33	1.11
	.70	3.33	.27	3.35	.26	.09-
38.	.64	4.88	.33	5.23	.33	1.25-
	.52	3.63	.26	3.20	.36	1.36
	.60	5.83	.42	5.08	.39	2.06
	.76	4.08	.35	3.48	.36	2.42
39.	.60	6.03	.31	6.15	.26	.46-
	.29	3.28	.16	3.68	.17	1.98-
	.53	5.78	.27	6.18	.25	1.57-
	.41	3.58	.20	3.73	.22	.66-

1. Output from the First Phase of the Analysis of Change (cont'd)

Var.No.	r (T1-T2)	Mean (T1)	Sigma (T1)	Mean (T2)	Sigma (T2)	CR (T1-T2)
40.	.70	5.28	.27	5.90	.29	2.88-
	.65	4.68	.31	4.75	.32	.26-
	.57	5.23	.29	5.53	.29	1.10-
	.74	4.65	.29	4.30	.34	1.49
41.	.54	5.10	.35	5.88	.31	2.45-
	.45	2.85	.26	2.88	.30	.10-
	.58	5.45	.30	5.50	.32	.17-
	.76	3.38	.28	3.00	.30	1.91
42.	.83	3.38	.34	3.48	.37	.48-
	.49	2.88	.27	2.65	.31	.77
	.70	3.38	.36	3.43	.36	.17-
	.83	2.73	.33	2.50	.30	1.23
43.	.43	5.85	.27	5.85	.24	.00
	.48	5.98	.24	5.70	.23	1.16
	.53	6.15	.28	6.05	.31	.35
	.56	5.80	.25	5.45	.30	1.33
44.	.58	5.70	.26	6.00	.24	1.29-
	.31	5.63	.27	5.33	.25	.98
	.63	5.95	.31	5.53	.29	1.64
	.69	5.28	.31	4.73	.33	2.20
45.	.74	2.20	.32	3.28	.32	4.63-
	.50	1.30	.25	1.93	.25	2.48-
	.75	2.60	.37	3.18	.36	2.26-
	.77	1.40	.22	1.75	.27	2.02-
46.	.66	2.98	.35	4.15	.33	4.18-
	.58	2.45	.34	3.68	.28	4.28-
	.61	2.73	.31	3.63	.29	3.39-
	.70	2.23	.26	2.78	.31	2.44-
47.	.67	4.45	.27	4.95	.28	2.23-
	.38	3.68	.24	3.75	.19	.29-
	.72	4.50	.30	4.60	.26	.47-
	.68	3.60	.28	3.23	.27	1.70
48.	.61	3.93	.25	4.10	.24	.78-
	.45	2.90	.24	2.30	.20	2.56
	.44	4.05	.24	3.95	.25	.38
	.78	2.83	.26	2.30	.26	3.05
49.	.68	4.90	.32	4.80	.35	.36
	.28	5.48	.25	5.05	.31	1.25
	.68	5.15	.28	4.58	.31	2.43
	.64	5.28	.34	4.18	.34	3.79

1. Output from the First Phase of the Analysis of Change (cont'd)

Var.No.	r (T1-T2)	Mean (T1)	Sigma (T1)	Mean (T2)	Sigma (T2)	CR (T1-T2)
50.	.21	5.35	.27	5.93	.34	1.49-
	.47	4.53	.29	4.93	.30	1.31-
	.59	5.75	.25	5.93	.25	.79-
	.59	4.30	.35	4.98	.36	2.12-
51.	.40	6.18	.22	6.68	.30	1.71-
	.46	5.05	.27	5.73	.29	2.31-
	.49	6.35	.26	6.80	.28	1.64-
	.65	5.23	.36	5.85	.32	2.16-
52.	.56	3.88	.28	3.95	.35	.23-
	.32	4.95	.22	5.18	.31	.72-
	.64	3.75	.27	3.93	.28	.78-
	.61	4.28	.33	4.38	.27	.37-
53.	.64	5.20	.28	5.18	.34	.07
	.22	6.38	.23	6.53	.29	.45-
	.60	5.50	.30	5.28	.25	.88
	.67	5.80	.32	5.90	.29	.40-
54.	.64	3.38	.28	3.55	.35	.61-
	.30	4.40	.21	4.63	.29	.75-
	.74	3.73	.28	3.48	.23	1.32
	.79	4.25	.29	4.33	.29	.42-
55.	.70	3.70	.35	3.60	.38	.35
	.43	5.68	.27	5.85	.36	.49-
	.66	4.33	.35	3.83	.37	1.68
	.76	5.53	.35	5.13	.34	1.68
56.	.61	5.00	.34	4.48	.30	1.83
	.34	7.63	.18	7.15	.24	1.92
	.53	5.58	.29	4.73	.32	2.86
	.17	7.58	.20	6.78	.23	2.86
57.	.71	4.35	.28	4.03	.32	1.39
	.44	4.53	.24	4.18	.22	1.42
	.54	4.33	.28	3.85	.28	1.79
	.60	4.00	.26	4.38	.31	1.47-
58.	.57	5.55	.30	6.25	.22	2.79-
	.44	4.85	.24	5.10	.26	.95-
	.50	5.50	.26	5.73	.27	.85-
	.62	4.18	.27	4.63	.29	1.83-
59.	.67	4.93	.34	4.80	.29	.50
	.67	4.30	.28	4.33	.26	.13-
	.44	4.38	.27	4.70	.29	1.06-
	.56	3.38	.26	4.10	.29	2.76-

1. Output from the First Phase of the Analysis of Change (cont'd)

Var.No.	r T1-T2	Mean (T1)	Sigma (T1)	Mean (T2)	Sigma (T2)	CR (T1-T2)
60.	.70	5.60	.31	5.53	.29	.30
	.59	6.15	.26	6.18	.25	.13-
	.80	5.13	.27	5.33	.27	1.17-
	.62	5.03	.28	5.53	.29	2.00-
61.	.76	4.85	.32	4.73	.29	.56
	.59	3.35	.21	3.75	.23	2.01-
	.62	4.10	.31	4.68	.31	2.14-
	.68	3.00	.26	3.78	.31	3.35-
62.	.62	4.15	.21	4.08	.19	.39
	.61	4.35	.22	4.90	.26	2.55-
	.57	3.35	.24	4.10	.25	3.32-
	.66	3.68	.22	4.40	.22	3.89-
63.	.55	4.18	.24	4.25	.29	.27-
	.56	4.65	.20	5.68	.28	4.33-
	.55	3.78	.28	4.13	.26	1.35-
	.65	4.05	.25	4.48	.28	1.93-
64.	.45	4.23	.24	4.55	.25	1.26-
	.59	4.65	.23	5.55	.24	4.28-
	.51	4.20	.26	4.40	.26	.77-
	.21	4.35	.24	4.60	.27	.78-
65.	.64	4.98	.23	4.63	.28	1.56
	.52	3.70	.21	4.55	.28	3.41-
	.57	4.15	.31	4.60	.35	1.46-
	.56	3.73	.24	4.10	.31	1.38-
66.	.39	5.63	.21	5.28	.20	1.54
	.54	5.40	.19	5.75	.24	1.65-
	.61	5.28	.25	5.30	.27	.08-
	.74	5.70	.24	5.68	.27	.10
67.	.45	4.55	.23	4.18	.24	1.49
	.63	4.85	.23	5.25	.31	1.66-
	.63	4.23	.28	4.18	.33	.18
	.68	4.80	.24	4.95	.29	.70-
68.	.64	4.98	.20	4.83	.19	.89
	.65	5.53	.21	5.75	.22	1.21-
	.62	5.18	.24	5.00	.21	.90
	.70	5.98	.25	6.03	.21	.27-
69.	.82	4.88	.31	4.30	.25	3.26
	.49	4.98	.24	4.73	.23	1.04
	.69	5.15	.23	4.43	.26	3.64
	.80	5.40	.22	5.15	.28	1.50

1. Output from the First Phase of the Analysis of Change (cont'd)

Var.No.	r (T1-T2)	Mean (T1)	Sigma (T1)	Mean (T2)	Sigma (T2)	CR (T1-T2)
70.	.66	4.93	.22	4.38	.19	3.21
	.64	5.50	.18	5.45	.17	.33
	.61	5.20	.19	4.83	.17	2.30
	.74	6.13	.21	5.95	.20	1.21
71.	.53	4.90	.24	4.68	.25	.92
	.18	3.88	.23	4.40	.21	1.81-
	.58	4.68	.29	4.93	.29	.94-
	.61	3.88	.18	4.03	.18	.95-
72.	.41	4.00	.18	4.15	.17	.78-
	.25	4.25	.13	4.38	.16	.73-
	.44	4.05	.13	4.28	.14	1.62-
	.49	4.28	.24	4.55	.24	1.11-

* Data for the four groups on each variable is presented in the same order as for variable number 1.

2. Output from the Second and Third Phases of the Analysis of Change

Var. No.	MHi-FHi	MHi-MLo	FHi-FLo	MLo-FLo	Change # Hi-Lo
1. T1	1.74	1.66-	1.77-	1.83	1.93-
T2	2.89	.21	.14-	2.31	1.57-
r	1.64	2.27	.45-	1.07-	.45-
2. *	.00	1.74-	2.13-	.68-	.77-
*	.69	.72-	.96-	.25	.79-
*	.32-	.88-	.45	1.02	.45
3.	.79-	.69	1.11-	2.32-	.41
	.29-	.34	.04-	.67-	1.05-
	.26	.31	.30	.25	.30
4.	2.13	.14-	3.09-	.66-	.55-
	2.07	.56	.49-	1.14	2.60-
	1.15-	.00	.10	1.04-	.10
5.	3.32-	.98-	2.59	.07	.27
	3.06-	1.36-	.51	1.17-	1.89
	.00	1.08	1.78	.69	1.78
6.	.00	.40	.61	.22	2.42
	1.39-	2.02-	.42-	.23	1.08
	.00	.10-	.16-	.05-	.16-
7.	1.94	.59	.43-	.75	.95-
	1.86	1.83	1.64	1.51	1.60-
	1.17	.52	.73-	.09-	.73-
8.	2.11-	.75-	1.89	.55	.57
	1.56-	1.62-	.61	.70	1.21
	1.17-	.83-	.05	.29-	.05
9.	.47	.59-	.73-	.30	1.23-
	1.21	.63	.78-	.18-	.06-
	1.00	.46-	.23	1.71	.23
10.	3.52-	.53	.58	3.15-	.47-
	2.17-	1.12	.99	1.92-	.37-
	.10	.44	.62-	.97-	.62-
11.	1.63-	.19	.53-	2.23-	.35
	1.51-	.17-	1.76-	2.78-	1.14
	.00	.86	1.14	.28	1.14

2. Output from the Second and Third Phases of the Analysis of Change (cont'd)

Var. No.	MHi-FHi	MHi-MLo	FHi-FLo	MLo-FLo	Change # Hi-Lo
12.	3.81	1.51	2.96	3.94	.32-
	2.68	1.97	3.35	3.18	.09
	.98	.10-	.09	1.18	.09
13.	2.09	.32-	1.93-	.48	1.18-
	3.18	.88	1.35-	.59	.51-
	.72	.67	.10	.15	.10
14.	3.53-	1.79-	1.01	.63-	.49-
	4.49-	1.52-	.23	2.64-	.93
	.50	.78-	1.16-	.12	1.16-
15.	2.51	.81-	1.12-	2.46	.81
	2.63	1.82-	.98-	3.59	.28-
	.19	2.00	1.16	.64-	1.16
16.	2.95	2.85	1.27	.99	2.12
	2.00	1.33	1.50	2.07	.29-
	.16	.46-	1.12-	.50-	1.12-
17.	4.04-	.00	.63	3.14-	.07-
	3.95-	.08	.54	3.42-	.22
	.62	.96	.29	.05-	.29
18.	2.22	3.00	1.85	.74	1.99
	1.41	1.59	1.84	1.75	.30
	.05	.96-	1.24-	.24-	1.24-
19.	3.55-	1.50-	.21	1.26-	1.56-
	2.51-	.00	.53-	2.76-	.94
	.94-	1.11-	.98-	.81-	.98-
20.	3.43	2.43	.54	1.21	1.07
	2.80	1.64	1.28	2.08	.82-
	.32	.42	1.32-	1.42-	1.32-
21.	2.12-	1.44	2.00	1.56-	.83-
	.41-	2.54	.93	1.86-	1.18
	.26-	.37-	1.60	1.71	1.60
22.	.73	.99	.00	.29-	1.53
	.12-	1.00-	1.07-	.60-	.79
	.15	2.88-	.45-	2.54	.45-
	.15	2.88-	.45-	2.54	.45-

2. Output from the Second and Third Phases of the Analysis of Change (cont'd)

Var. No.	MHi-FHi	MHi-MLo	FHi-FLo	MLo-FLo	Change # Hi-Lo
23.	2.21	.86-	1.45-	1.81	.13
	1.62	1.73-	1.94-	.75	.05-
	1.89	.33	.04-	1.50	.04-
24.	.90	.17-	.47	1.34	.68-
	3.66	.66	2.77-	.56	2.34
	.35	.97	.91	.27	.91
25.	3.32	2.60-	.53-	4.80	2.02-
	3.64	.78-	1.74-	2.52	1.00
	.10-	.65-	.71	1.26	.71
26.	1.93	.09-	.78-	1.17	.03-
	1.91	.06-	.00	1.99	.67-
	1.37-	1.90-	1.88	2.42	1.88
27.	1.73	.45	.57-	.72	.87
	.34-	.51-	.59	.73	.91-
	2.29	1.27	1.32-	.32-	1.32-
28.	3.59-	1.46-	1.67-	3.40-	.39-
	3.27-	1.30-	2.08-	4.27-	.51
	.60	.17	.60-	.17-	.60-
29.	.12-	1.69-	1.44-	.16	2.77-
	.44	.44	.71-	.70-	1.00-
	.18	.44-	1.02-	.42-	1.02-
30.	2.82-	1.75-	.55-	1.32-	.83-
	1.46-	.94-	1.65-	2.01-	1.17
	.58	.58	.78	.78	.78
31.	2.49-	1.99-	.60-	.72-	1.78-
	.71-	.47-	1.06-	1.29-	.58
	1.09	.29	.31-	.49	.31-
32.	1.67-	2.23-	.41	1.05	1.16-
	.52-	.95-	.80	1.23	.39-
	.51	.05-	.61-	.05-	.61-
33.	2.53-	2.80-	.00	.25	1.89-
	.11	.72-	.51-	.34	.55
	.93	.11	1.33-	.51-	1.33-
34.	.08	.40-	.59-	.13-	.33-
	.85	.05-	1.73	2.48	2.45-
	1.04-	.31-	.73	.00	.73

2. Output from the Second and Third Phases of the Analysis of Change (cont'd)

Var. No.	MHi-FHi	MHi-MLo	FHi-FLo	MLo-FLo	Change # Hi-Lo
35.	1.04-	1.20-	.52-	.16-	2.31-
	.22-	.68	.66-	1.60-	.25
	.97	.18-	.86-	.30	.86-
36.	1.54	1.22-	1.09-	1.63	1.60-
	1.55	.15	.40-	1.02	.66-
	.33	.11-	1.25-	.81-	1.25-
37.	5.58	.35-	1.49-	4.23	1.29-
	4.50	.75	.52-	5.64	.78-
	.82	.12	1.06-	.36-	1.06-
38.	2.98	1.78-	1.03-	3.20	2.41-
	4.16	.29	.55-	3.01	.42-
	.65	.23	1.40-	.97-	1.40-
39.	7.88	.61	1.17-	6.55	.78
	7.95	.08-	.18-	7.56	.82-
	1.55	.57	.57-	.60	.57-
40.	1.46	.13	.07	1.41	.92-
	2.66	.90	.96	2.75	1.21-
	.30	.75	.55-	1.00-	.55-
41.	5.16	.76-	1.39-	5.04	1.72-
	6.95	.85	.28-	5.70	1.14-
	.46	.21-	1.75-	1.08-	1.75-
42.	1.15	.00	.35	1.33	.14-
	1.72	.10	.35	1.98	.00
	2.05	.90	2.05-	.90-	2.05-
43.	.36-	.77-	.52	.93	.25-
	.45	.51-	.66	1.39	.20-
	.25-	.50-	.41-	.16-	.41-
44.	.19	.62-	.85	1.53	2.07-
	1.93	1.25	1.45	1.82	.63-
	1.35	.28-	1.99-	.35-	1.99-
45.	2.22	.82-	.30-	2.79	1.44-
	3.32	.21	.49	3.18	.93-
	1.37	.07-	1.57-	.14-	1.57-
46.	1.09	.53	.51	1.24	.69-
	1.09	1.18	2.15	2.00	1.84-
	.45	.29	.69-	.53-	.69-

2. Output from the Second and Third Phases of the Analysis of Change

Var. No.	MHi-FHi	MHi-MLo	FHi-FLo	MLo-FLo	Change # Hi-Lo
47.	2.13	.12-	.22	2.19	1.32-
	3.55	.92	1.58	3.65	1.35-
	1.53	.31-	1.59-	.25	1.59-
48.	2.97	.35-	.20	3.45	.79-
	5.76	.43	.00	4.57	.24
	.84	.89	1.89-	1.94-	1.89-
49.	1.43-	.59-	.47	.30-	1.30-
	.53-	.47	1.89	.87	1.50-
	2.07	.00	1.83-	.24	1.83-
50.	2.07	1.09-	.51	3.37	.88-
	2.21	.00	.11-	2.17	.64
	1.23-	1.87-	.63-	.00	.63-
51.	3.24	.50-	.40-	2.52	.13-
	2.28	.29-	.28-	2.23	.15-
	.29-	.44-	1.02-	.86-	1.02-
52.	3.00-	.33	1.69	1.24-	.29
	2.65-	.04	1.95	1.16-	.31-
	1.19	.44-	1.47-	.17	1.47-
53.	3.26-	.73-	1.47	.68-	.54-
	3.02-	.24-	1.54	1.62-	.12-
	2.11	.23	2.29-	.40-	2.29-
54.	2.91-	.88-	.42	1.29-	1.27-
	2.38-	.17	.73	2.30-	.42-
	1.73	.61-	2.70-	.34-	2.70-
55.	4.48-	1.27-	.34	2.42-	.97-
	4.30-	.43-	1.45	2.59-	1.37-
	1.46	.24	1.85-	.63-	1.85-
56.	6.84-	1.30-	.19	5.68-	.80-
	6.95-	.57-	1.11	5.20-	.85-
	1.37	.43	.78	1.73	.78
57.	.49-	.05	1.50	.86	.45-
	.39-	.42	.53-	1.27-	2.06
	1.48	.97	.83-	.32-	.83-
58.	1.82	.13	1.85	3.52	1.28-
	3.38	1.49	1.21	2.78	.55
	.67	.37	.94-	.64-	.94-

2. Output from the Second and Third Phases of the Analysis of Change (cont'd)

Var. No.	MHi-FHi	MHi-MLo	FHi-FLo	MLo-FLo	Change # Hi-Lo
59.	1.43	1.27	2.41	2.67	1.13
	1.21	.24	.59	1.46	2.03
	.00	1.23	.62	.61-	.62
60.	1.36-	1.14	2.93	.26	.94
	1.70-	.50	1.70	.50-	1.38
	.64	.67-	.17-	1.14	.17-
61.	3.92	1.68	1.05	2.72	2.05
	2.65	.12	.08-	2.05	1.25
	1.02	.86	.52-	.35-	.52-
62.	.66-	2.51	2.15	1.01-	2.81
	2.55-	.06-	1.47	.90-	.60
	.06	.27	.29-	.50-	.29-
63.	1.50-	1.08	1.87	.72-	.76
	3.55-	.31	3.03	.92-	1.84-
	.05-	.00	.50-	.55-	.50-
64.	1.26-	.08	.90	.42-	.33-
	2.89-	.42	2.63	.53-	1.70-
	.73-	.30-	1.87	1.44	1.87
65.	4.11	2.15	.09-	1.07	2.10
	.20	.07	1.08	1.07	1.30-
	.65	.39	.21-	.05	.21-
66.	.81	1.07	.98-	1.21-	1.14
	.30-	.06-	.19	1.00-	1.31-
	.75-	1.13-	1.16-	.78-	1.16-
67.	.92-	.88	.15	1.55-	.87
	2.73-	.00	.71	1.75-	.77-
	.95-	.95-	.29-	.29-	.29-
68.	1.90-	.64-	1.38-	2.31-	.11-
	3.18-	.60-	.92-	3.47-	.67-
	.06-	.11	.30-	.47-	.30-
69.	.26-	.70-	1.29-	.79-	.53-
	1.27-	.36-	1.16-	1.88-	.00
	1.98	.88	1.83-	.73-	1.83-
70.	2.01-	.93-	2.28-	3.28-	.77
	4.20-	1.77-	1.90-	4.27-	.61-
	.12	.29	.61-	.78-	.61-

2. Output from the Second and Third Phases of the Analysis of Change

Var. No.	MHi-FHi	MHi-MLo	FHi-FLo	MLo-FLo	Change # Hi-Lo
71.	3.07	.58	.00	2.34	1.30
	.86	.65-	1.34	2.64	1.15-
	1.68	.27-	2.13-	.16-	2.13-
72.	1.13-	.23-	.11-	.84-	.34
	.99-	.59-	.59-	.97-	.47
	.75	.15-	1.15-	.25-	1.15-

* The CR'S on each variable are presented in the same order as for variable number one.

\# The CR's for change are presented in the following order for each variable:
(1) change HiM vs. change LoM.
(2) change HiW vs. change LoW.
(3) r(HiW vs. LoW).

Note: All CR's are computed to two decimals.

3. An Example of the Overall Analysis of Change Design: (R's and Trends Analysis obtained for Variable 1, Self-Perceived Intelligence)

Contrast:	Obtained from:			
A. Time 1 (1937)	First Phase	Second Phase	Third Phase	Trends Analysis
1. HiM vs. LoM		-1.66		
2. HiW vs. LoW		-1.77		
3. HiM vs. HiW		1.74		
4. LoM vs. LoW		1.83		
B. Time 2 (1955)				
1. HiM vs. LoM		.21		
2. HiW vs. LoW		-.14		
3. HiM vs. HiW		2.89		
4. LoM vs. LoW		2.31		
C. Change (T1-T2)				
1. HiM 37-55	-2.68			
2. HiW 37-55	- .95			
3. LoM 37-55	.47			
4. LoW 37-55	1.27			
D. Difference in changes (T1-T2)				
1. change HiM vs. LoM			-1.93	
2. change HiW vs. LoW			-1.57	
3. change HiM vs. HiW				M more, plus
4. change LoM vs. LoW				W more, minus
E. Difference in H-W Differences				
1. H-Wdiff His vs. Los, 1937				Los more
2. H-Wdiff His vs. Los, 1955				His more
3. H-Wdiff His, 1937 vs. 1955				1955 more
4. H-Wdiff Los, 1937 vs. 1955				1955 more

APPENDIX F

A NOTE ON THE MEANING OF THE DERIVED MEANS

It is possible to compute changes in two different ways; for several reasons only one of these ways was used here. Both signed and unsigned changes can be computed. Signed changes gives a measure of the direction of change and the magnitude of any directional change that takes place. Unsigned change gives a measure of the absolute amount of change, no matter in what direction the change went. These two types of change give information pertinent to two different questions. Signed change tells us in what direction the group changed, and how much. Unsigned change tells us how much change has occurred, regardless of the direction of this change. The Mean difference computed from the group Means in the analysis employed here is the index of signed change (unsigned changes must be computed for each individual and then the absolute values of these changes summed). Pretests of selected changes indicated that signed change was the type of change more likely to be related to marriage outcomes. A look at the psychological meaning of these changes would seem to confirm and explain these results. A positive change on the sort of variable under consideration in this study - for example a

change in Theoretical Values or Neuroticism or Artistic Interests - is a very different thing from a negative change. To the extent that we would expect to find psychologically meaningful changes related to the outcome of the marriage, we would be interested in measuring directional change over the entire criterion group.

There was also the possibility of computing two types of difference scores: for signed and for unsigned differences. As was the case for change, Mean signed differences can be computed by getting the difference between means, as was done in the analytic design used. The question of the meaning of signed as opposed to unsigned Husbands-Wives differences, however, brings up a number of new considerations.

The Mean of unsigned Husbands-Wives differences would give us a measure of the absolute mean distance between Husbands and Wives in each of the criterion-divided groups. If the analysis were directed toward a test of theories of assortive mating - for example of Winch's hypotheses as to complementarity of needs (56) as opposed to Kelly's preliminary results suggesting a low but significant degree of similarity (31), the absolute distance between husband and wife would be the most appropriate measure. On the other hand, to the extent that there are overall group differences between husbands and wives in the variables under consideration, the Mean of the signed differences will, in a rough fashion, approximate the Mean of the unsigned differences. This can be made clear with an example. If all husbands are

higher than wives in Theoretical Values, then the accumulation of signed differences is identical with the accumulation of unsigned differences. If the overall tendency is for husbands to be higher than wives in Theoretical Values, then the occasional reversals will blur the data but the results will still approximate the results that would have been obtained for absolute, unsigned differences.

As will be seen when we come to the analysis of the results, the Husbands-Wives group differences are appreciable enough (they are significant at the 5% level or better on over half the change variables) for the accumulation of signed data to give a rough indication of the absolute differences between Husbands and Wives.

The accumulation of signed Husbands-Wives differences made possible by the analytic design employed, which allows for the derivation of Mean differences, is most relevant to a test of a problem somewhat different from that of absolute Husband-Wife differences. For the group of 72 change variables taken as a whole, it gives us a measure of absolute group differences - e.g. the similarity of Happy Husbands and Happy Wives - and allows for comparisons between groups - e.g. the similarity of Happy Husbands and Happy Wives as contrasted with the similarity of Unhappy Husbands and Unhappy Wives. Of more direct concern for the present study of changes, it allows for comparisons of changes in similarity of the Happys as contrasted with the the Unhappys. We will return to this in the discussion of Convergence-

Divergence.

Finally, in the detailed examination of individual change variables, the information supplied by the Means of Husband-Wife signed differences will help to set changes in a larger context and allow for further comparisons between the criterion-divided groups. This data for signed differences will be relevant to the question "How much more, or less in variable x (e.g. Neuroticism, Attitudes Toward Marriage) are HappyMen than HappyWomen?" Only to the extent that there are appreciable differences between the groups of Men and Women will it give an approximation of the results from the treatment of unsigned differences, which would bear on the question, "How different are HappyMen from HappyWomen?"

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