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The relationship of the detection of unpredictable visual binary sequences and selected personality measures

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THE RELATIONSHIP OF THE DETECTION OF UNPREDICTABLE VISUAL BINARY SEQUENCES AND SELECTED PERSONALITY MEASURES

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APPROVED:

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THE RELATIONSHIP OF THE DETECTION OF UNPREDICTABLE VISUAL BINARY SEQUENCES AND SELECTED PERSONALITY MEASURES

By

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Currell Lee Pattie was born on September 2, 1943, in Alexandria, Virginia. He attended public and secondary schools in Alexandria. The author received his A. B., Honors in Psychology, from the College of William and Mary in June, 1964. Mr. Pattie will obtain an M.A. in Psychology from the University of Richmond in June, 1966.

CHAPTER I

INTRODUCTION

To a certain extent the everyday incidents of life occur in a chaotic and orderless fashion. But in such an unpredictable world people must predict such events even if they present themselves at random. This suggestion by Restle (1961) is especially relevant to an experiment by Pattie (1964a) in the area of human binary prediction. This study seemed to indicate that individuals search for and believe in orderly, predictable solutions in apparently orderless, random situations. Ss were given a randomized deck of 200 index cards, of which 75% displayed an easily discriminable symbol with the remaining 25% bearing another symbol. Ss were instructed that the deck was well-shuffled. After attempting to anticipate each card, it was found that over half the Ss admitted that they thought some sort of pattern existed in the sequence of the cards.

It seemed that the Ss were imposing their own order in an orderless situation. This was coined by the author "subject generated patternization" (SGP), or might be called "false insight." The term "patternization" was employed to fit data generated by the Pattie (1964b) study. E operated a box with two horizontally spaced lights, green on the left, red on the right, to present Ss a series of patterned, predictable, binary sequences and unpredictable, unstructured, random sequences. An example of a

patterned sequence would be 1 8 9 2, i.e., 1 flash on the red, 8 on green, 9 on red, 2 on green, and then with no pause a repetition of this pattern, then another repetition, and so on. An unpredictable sequence might also consist of 4 runs, such as 1, 8, 9 and 2, but would contain no repeating pattern, and thus might be considered unstructured. Ss were instructed to stop the E when they were reasonably sure the sequence observed was patterned or unpredictable. Under this condition Ss confused unpredictable sequences for patterns in 52 cases out of 100. On the other hand, these same Ss called patterned sequences orderless, somewhat similar to a Type II error, only 10% of the time. The large magnitude of the difference between these figures indicated that the error of calling unpredictable sequences patterns could not be reduced to mere normal, expected error.

Attempts to relate this SGP phenomenon to variables inherent in the binary sequences have been unsuccessful. The aforementioned 1964b study, primarily designated to examine the effect of run heterogeneity on incidence of SGP, failed to find covariance in either the predicted or in any meaningful manner. Pattie (1964c) demonstrated that the SGP error was not a function of number of different runs in the unpredictable sequences or the average size of the run. A 1965 study by the same author implied that immediate feedback of decision correctness following each sequence had no effect on SGP incidence. The prediction that a group receiving feedback would make the fewest SGP errors was refuted by data which actually showed

a statistically insignificant reversal; i.e., the feedback group made the SGP error 53% of the time as opposed to 49% for a group receiving no feedback. Both groups perceived patterned sequences as unpredictable only 24% of the trials, again significantly smaller than 49% or 53%. The procedure was altered slightly in this experiment since E discontinued pattern presentation after 4 repetitions, and after an equivalent number of runs for the unpredictable sequences. All prior studies allowed the S to stop the sequence whenever he desired. Still, the data conformed closely to the previously mentioned results of the 1964b and 1964c studies. Although its functional relationships with other variables were not found, it might be generally stated that the prior studies, with the possible exception of the 1964c study, at least demonstrate the existence of SGP in certain unfamiliar situations.

Garner, in his book Uncertainty and Structure as Psychological Concepts (1962), expresses a belief that

> . . . the search for structure is inherent in behavior. People in any situation will search for meaningful relations between variables existing in the situation; and if no such relations exist or can be perceived, considerable discomfort occurs. . . This search for structure is so dominating a characteristic that it will be created if none exists.

The similarity and applicability of this line of thought to the demonstrated SGP effect is striking. Garner also mentions that psychologists involved in psychophysical experiments where minimal or ambiguous stimulus differences exist have noticed that Ss will find any cue at all to which they can apply their own responses. If by chance a small extraneous and artifactual cue

exists, the S will nonetheless adjust his responses to that artifactual cue.

Garner calls attention to an important distinction between internal and external structure. The internal structure of, say, a set of dots refers to relations between the dots themselves; on the other hand, external structure involves a relationship between the dots and some external object or event. Although the dynamics of the projection of external structure are more relevant to real life behavior, problems of quantification limit any study of structuring to the internal sphere. In addition, it must be realized that while structure is not the only kind of existing meaning, it must remain the focus of attention for similar reasons. The SGP test therefore mirrors only imposition of internal structure.

The imposition of structure and order has its perceptual parallels in Gestalt concepts such as closure, levelling, sharpening, and the like. Nevertheless, Garner feels that this ordering behavior is a "general characteristic" and should be considered unrelated to the particular problem of visual pattern perception. Also, it is the present author's contention that the Gestalt frame of reference fails to serve as a foundation for research utilizing the current experimental methodology.

Blackman's (1962) study of factors affecting perception of events as chance determined might be reinterpreted from a "search for structure" point of view. A sample of 108 Ss was exposed to a series of red and green lights which appeared with equal frequency. The series were such that three independent variables, sequence length, number of sequences, and

patterning, were arranged factorially so that their effects could be considered singly and in all combinations. The criterion measure used was the effect of these variables on extinction. The extinction period commenced when the red light ceased to go on. The dependent variables under study were the number of red responses during extinction, the expectancy of success associated with these red responses, and the number of trials necessary to reach an extinction criterion.

Utilizing previous research, it was predicted that Ss who received long sequences or patterned sequences would, when the red light stopped coming on, have a lower expectancy and thus faster extinction rate than would Ss who received short sequences or non-patterned sequences. The patterns used were 3 2 2 3 and 3 2 1 1 2 3. Ss receiving either pattern, or the long sequence, or both in combination, were hypothesized to perceive the experimental task as one involving predictability, and accordingly, a certain degree of skill. The results showed that while sequence length and number of sequences had a significant effect on number of red responses in extinction and the expectancy associated with them, the patterning variable proved non-critical. Although it was not discussed by Blackman, it is possible that Ss viewing the non-patterned sequences actually "perceived" some sort of pattern taking place, as did Ss of Pattie's (1964a) study. Unfortunately, Blackman failed to discuss the randomization procedure involved in generation of the non-patterned sequences. Although the patterned sequences actually used were of a recurring, fixed nature as were those of

the Pattie studies, Ss viewing the non-patterns may have sought for and believed in geometric progression patterns and the like. The idea of patterning and structure, in agreement with Gibson (1951), is most certainly extremely subjective and subject to individual interpretation.

In review, it seems justifiable to conclude that a search for and often an imposition of order and meaning is a frequent response to ambiguous, uncertain stimuli. At least two investigators have informally discussed the phenomenon and at least one researcher has demonstrated its existence via orderless visual binary sequence presentation. The latter has established that some Ss find structure in unstructured situations, i. e., make the SGP error rather consistently, while others rarely make the wrong decision. Perhaps the most immediate step would be an attempt to establish the construct validity of the SGP test.

The underlying dynamics of SGP are probably most easily understood as under the domain of either perception or problem solving, or even perhaps an issue with more Gestalt overtones than anything else. However, it is the purpose of this study to determine the relationship(s) of the SGP test with what are commonly known as personality or at least quasi-personality variables. It is possible that this behavior involves more than could be gleaned from a problem solving, cognitive, perceptual, or Gestalt viewpoint.

A thorough check of present standardized measurement indices yields the following tests that, from a face validity standpoint, may display a

significant positive correlation with the SGP tendency. The tests are:

(1) Couch and Keniston's Short Scale for Agreeing Response Tendency (15 items)

(2) Edwards Personal Preference Scale for Order (28 items)

(3) Gough-Sanford Rigidity Scale (22 items)

(4) Rokeach's Dogmatism Scale (40 items, revised)

(5) Watson-Glaser Critical Thinking Appraisal (Form Am, Parts 1 and 2, 36 items)

The reasons for choosing these particular tests are mainly subjective. The paucity of knowledge that surrounds the psychology of uncertainty of course limits any theorizing concerning personality correlates to cautious speculation.

Rationale for Employing Tests:

(1) Couch and Keniston's Short Scale for Agreeing Response Tendency (15 items)

Couch and Keniston (1960) initiated their research with the conviction that an agreeing-disagreeing tendency was contaminating the answer patterns to certain items on objective personality tests. This called for development of a valid measure of this response set that would be relatively free of any determinant content. A 360 item Over-all Agreement Scale that met this criterion was obtained. This test showed high internal reliability,

test-retest reliability, and generality over tests. The tendency to acquiesce was also found significantly related to "true-saying" and "yes-saying" on other standard tests. Such "yeasaying" Ss accept stimuli by admitting them into consciousness ". . . without censorship, alteration, or assimilation, and by agreeing with, acting out and otherwise yielding to the pressures of stimuli exerted on (them)."

In general, Couch and Keniston believed that they had demonstrated the all-pervasiveness of response set in psychological testing and the support of the hypothesis that the tendency to agree is an extension of a "central" personality syndrome. In the same article, the authors present the 15 items with the highest positive relationship to the Over-all Agreement Scale. This list is considered by Couch and Keniston the "best" short measure of the agreeing response tendency.

The tendency to call unpredictable sequences patterns in the SGP test may very well be related to acquiescence as measured by the Short Scale. Responses on the SGP test seem in one sense a form of acquiescence since Ss often verbalize their answers in the form of "Yes, I see a pattern" or "No, I don't." In addition, follow-up clinical interview data (1960) built around a sentence completion test showed that, among other things, the yeasayer accepts impulses without restraint and agrees and easily respond to stimuli presented to them. This too appears, at least superficially, to be similar to the behavior of the "structure imposer" of the SGP test.

(2) Edwards Personal Preference Scale for Order (28 items)

This scale was devised to gauge the relative strengths of 15 needs extracted from Murray's need system. Nine statements represent each need. A total of 225 items comprise the test by pairing a statement from each need with one from every other need. The alternatives are closely matched for social desirability, thus reducing or eliminating a response set which offsets much personality measurement. One of the main criticisms that has been levelled at the PPS is Edwards' inability to demonstrate that his test actually does measure the manifest needs posited by Murray (Gustad, 1959). Although this has created some question concerning the use of the PPS as a personnel selection device (Barron, 1959), its research potential and utility is generally accepted (Shaffer, 1955; Radcliffe, 1965).

The PPS scale for order is purportedly an indicant of a neatness-organization syndrome. It is possible that neat, orderly Ss also "order" and rearrange their perceptual experiences; i.e., they would exhibit a tendency to make the SGP error.

(3) Gough-Sanford Rigidity Scale (22 items)

This scale is included in the California Psychological Inventory and is labelled the Fx (Flexibility) scale. The items are scored in reverse in the CPI, so that a high score indicates nonrigidity. The questionnaire, along with 44 "buffer" items and 9 perserveration items, is also included in

Part 3 of the Test of Behaviorial Rigidity. The TBR in general is designed to measure rigidity, defined by its author Warner Schaie as "a tendency to perseverate and resist conceptual change, to resist and acquisition of new patterns of behavior, and to refuse to relinquish old and established patterns." The Scale itself is the main component of the "personality-perceptual rigidity" factor, which is defined as an ability to "perceive and adapt to new situations." Expressed in this terminology, it is not difficult to parallel the dynamics of rigidity and SGP error making; mistaking chaotic light flashes for an orderly, recurring series may indeed incorporate perseveration and resistance of conceptual change. Further, an inability to perceive and adjust to novel surroundings and situations seems much a part of SGP. (For the present experiment the Rigidity Scale will be used in unaltered form. Since only "yes" responses are tallyed for the total rigidity score, it is possible that a "yeasaying" or "neasaying" tendency may contribute to a sizeable portion of the overall scoring variance. The author is aware of this inherent weakness.)

(4) Rokeach's Dogmatism Scale (40 items, revised)

The Dogmatism Scale is considered by Rokeach as ". . . first and foremost a measure of the extent to which the total mind is an open mind or a closed one." Rokeach has demonstrated that those who score very high on his scale differ significantly from those who score very low in the capacity to accept new belief systems. Such systems include the conceptual,

esthetic, and perceptual spheres. The dogmatic individual is also described as highly resistant to change (Rokeach, 1960). He tends to create hypotheses based on only a portion of the total sensory information to which he is exposed. The concomitant fixated behavior pattern and intolerance to ambiguity seems analogous to the strategy certain Ss employ when observing unpredictable sequences in the SGP test. A majority of Ss report paying particular attention to, i.e., focus upon, certain portions of the sequences. If the sequence began with 3 flashes on red and followed with 6 on green, and then was followed by 5, 2, 4 and 1, the typical S could remember the 3 and 6 but would rely on "feeling," as it is usually reported, for retention of the 5, 2, 4 and 1. Since a constrained randomization procedure employed in generation of the unpredictable sequences insures the consecutive repetitions of the 3 and 6, this could be construed as the start of a possible repetition of the pattern. However, this is certainly not a totally accurate signal that the sequence observed actually is a pattern. If 5, 2, 4 and 1 do not follow in that order, then, as defined in instructions read beforehand, the sequence is unpredictable.

The S who relies wholly upon this focussing, fixated behavior, apparently displaying a "closed" as opposed to "open" problem solving strategy, may also possess an elevated dogmatism score. Dogmatism, or "closemindedness," may explain a significant portion of, as Garner put it, the tendency to "emphasize" or "elaborate" on only a small amount of structure. Dogmatism seems a prime example of incorrect

Specifically, Watson and Glaser define the concept of critical thinking as the following:

> (a) An attitude of wanting to have supporting evidence for opinions or conclusions before assuming them to be true.
> (b) Knowledge of the methods of logical inquiry which help determine the weight of different kinds of evidence and which help one to reach warranted conclusions.
> (c) Skill in employing the above attitude and knowledge.

In general, the critical thinker ". . . effectively examines beliefs or proposals in the light of supporting evidence, of the relevant facts in the case, instead of jumping prematurely to a conclusion." Taking this into consideration, the Inference and Recognition of Assumptions subtests seem to be testing a performance which has possible perceptual parallels in SGP. In the Inference subtest each exercise consists of a statement of facts which the S is to regard as true. After each statement there are several inferences which might be drawn from the stated facts. Each inference is to be examined separately in order to make a decision. The five possible responses are Definitely True, Probably True, Insufficient Data, Probably False, and Definitely False. Similarly, the ability to discriminate unpatterned binary sequences seems again an "effective examination of relevant facts" and a tendency to steer clear of "jumping prematurely to a conclusion." Part 2 consists of one sentence statements followed by several proposed assumptions. Ss are instructed to decide for each assumption whether it necessarily is taken for granted in the statement. Persons who manifest high SGP scores may also, in a sense,

creating assumptions that do not necessarily follow. Although the CTA is a linguistic as opposed to a perceptual medium, it is possible that both the CTA and the SGP test are exemplifications of a central "inferential" ability.

It is the purpose of this paper to investigate the relationship of the SGP test to the aforementioned measures. It is not predicted that significant correlations or differences will be borne out in all four cases. However, the considerable heterogeneity of the tests may lead to an overlapping of the dynamics of subject generated patternization and of perhaps one of the tests.

CHAPTER II

METHOD

Subjects: Ss were 37 female and 8 male undergraduates of the University of Richmond. All Ss were run as a group.

Apparatus: The binary sequences were produced by means of a box with two circular lights, green on the left, red on the right. The lights were 1" in diameter with the centers horizontally spaced 6" apart. Either light could be manually operated by E by means of microswitches. A metronome served as an auditory stimulus to insure presentation constancy. At this rate each stimulus had an "on" latency of approximately .56 seconds; also, latency between "on" intervals approximated .56 seconds. (See Fig. I.)

Procedure: The personality questionnaire was administered on the first day of experimentation. The first section consisted of a randomized natural order listing of items from the Short Scale for Agreeing Response Tendency, the Dogmatism Scale, and the Rigidity Scale. This list totalled 77 items. The second portion was the 28 item Personal Preference Scale for Order. Ss were told to read the instructions carefully (see Appendix).

The SGP visual binary sequence test was given on the second day. The binary sequence box was displayed in a prominent place at the head

of the room. Following inquiries from the E concerning possible visual difficulties, the following instructions were read to Ss:

> This box has a green and red light. (E blinks lights.) I'm going to blink these lights at you; after watching them for a while the pattern of flashes may seem predictable to you. Such a pattern might be long or short. We'll run through a few of these pattern. (E shows the patterns 3 5 2 6 and 2 3 3 4 5 2. Each pattern is flashed once with one repetition. E explains the predictable nature of each.)
>
> During the experiment I might flash to you sequences that are unpredictable. I'll show you what I mean by an unpredictable sequence. (E generates the following unpredictable sequence: 3 6 6 2 2 6 3 6 2 3 6 6 3 6 3 6 6 2. E points out the unpredictable nature of this sequence.)
>
> I'm going to flash certain sequences to you. They may or may not be predictable; i.e., they may be like the patterns you saw in the first demonstration, or perhaps a little longer, or they may be unpredictable, non-patterned, if you will, something like the last sample. Now, when I use the term pattern, I mean a sequence of blinks that occur in the same way over and over again, never changing, like 466546654665, etc. How, that rules out any sequence of a geometric or arithmetic progression; thus, sequences of such a nature aren't to be considered patterns.
>
> Here's your job: I have a number of sequences, predictable and unpredictable, somewhat like the ones you just saw, all unrelated to one another, which I'm going to flash to you, one at a time, of course. At a certain point I'll stop and ask: "Was what you just observed patterned or non-patterned?" I might stop at any time, right in the middle of a pattern, at the end, or anywhere during an unpredictable sequence. That is all that I ask of you. You don't have to remember what the pattern or the unpredictable sequence was, or what it was not. Just tell me whether what you saw was of a patterned or unpatterned nature. No writing or counting aloud is permitted during sequence presentation. Please don't look at your neighbor's responses. Put your answers at the end of the questionnaire in the provided spaces. Any questions?

E then generated 13 sequences, of which 9 were unpredictable and 4 patterned. Each pattern was flashed once and then repeated three times. All unpredictable sequences were flashed for a similar number of runs as the patterned sequences. Ss were allowed a short rest session following the sixth sequence.

The Watson-Glaser Critical Thinking Appraisal (Parts 1 and 2) was given two class sessions following the SGP test. Those chosen for the test were 6 Ss who made only one or two incorrect decisions on the unpredictable sequences and 6 Ss who missed on six unpredictable sequences. One absence reduced this latter group to 5 Ss. Ss were told to read the instructions carefully and answer the first two parts.

Experimental Design: The patterns used were the following:

P1/ 1 8 9 2

P2/ 4 5 6 5

P3/ 3 2 3 5 2 4

P4/ 2 1 3 4 5 2 4 3

The unpredictable sequences used were:

U1/ 8 9 1 2 1 2 8 9 9 1 2 8 8 9 2 1

U2/ 6 5 4 5 4 6 6 5 4 5 6 5 4 5 5 6

U3/ 8 5 7 3 5 8 7 3 8 5 3 7 8 3 7 5

U4/ 8 5 7 2 7 2 8 5 7 8 5 2 7 2 8 5

U5/ 7 5 3 4 4 3 7 5 3 4 4 7 7 5 3 4

U6/ 7 3 5 3 2 4 5 4 7 3 2 3 5 2 7 3 3 4 3 5 2 4 7 3

U7/ 3 5 2 3 4 2 3 2 3 5 2 4 3 2 3 5 2 3 4 3 2 3 2 5

U8/ 2 3 4 2 1 3 2 3 4 2 3 1 2 3 4 2 3 1 4 3 2 3 1 2

U9/ 3 1 4 5 4 2 3 2 3 1 4 2 3 5 4 2 3 1 4 5 2 3 2 4
3 1 4 2 3 4 2 5

Each unpredictable sequence was randomized in blocks of four. For example, the unpredictable sequence containing the runs 1, 8, 9 and 2 consisted of four segments of these four runs. In order to capitalize on the previously discussed focusing strategy Ss sometimes employ, E would repeat the first two or three runs from the beginning somewhere in the remaining portion of the sequences. In many cases this procedure was unnecessary since chance factors provided the desired manipulation.

Listed below are the items which made up the selected personality measures. The numbers refer to the item position as presented on the randomized questionnaire (see Appendix).

(1) Couch and Keniston's Short Scale for Agreeing Response Tendency (15 items): 1, 2, 11, 25, 27, 28, 35, 44, 45, 51, 54, 57, 61, 68, 77.

(2) Gough-Sanford Rigidity Scale (22 items): 5, 6, 7, 13, 16, 18, 19, 22, 29, 34, 36, 41, 46, 49, 50, 53, 58, 62, 63, 69, 72, 76.

(3) Rokeach's Dogmatism Scale (40 items, revised): (Asterisk (*) refers to Stanley and Martin's revised version of the item. All even numbered items presented in Rokeach's original test were revised, except the original #20, due to a typographical error. The original Rokeach

statements appear below the item numbers). 3, 4*, 8, 9*, 10, 12*, 14, 15*, 17, 20*, 21, 23*, 24, 26*, 30, 31*, 32, 33*, 37, 38, 39, 40*, 42, 43*, 47, 48*, 52, 55*, 56, 59*, 60, 64*, 65, 66*, 67, 70*, 71, 73*, 74, 75*.

2. The highest form of government is a democracy and the highest form of democracy is a government run by those who are most intelligent.

4. It is only natural that a person would have a much better acquaintance with ideas he believes in than with ideas he opposes.

6. Fundamentally, the world we live in is a pretty lonesome place.

8. I'd like it if I could find someone who would tell me how to solve my personal problems.

10. There is so much to be done and so little time to do it in.

12. In a discussion I often find it necessary to repeat myself several times to make sure I am being understood.

14. It is better to be a dead hero than to be a live coward.

16. The main thing in life is for a person to want to do something important.

18. In the history of mankind there have probably been just a handfull of really great thinkers.

22. Of all the different philosophies which exist in this world there is probably only one which is correct.

24. To compromise with our political opponents is dangerous because it usually leads to the betrayal of our own side.

26. In times like these, a person must be pretty selfish if he considers primarily his own happiness.

28. In times like these it is often necessary to be more on guard against ideas put out by people or groups in one's own camp than by those in the opposing camp.

30. There are two kinds of people in this world: those who are for the truth and those who are against the truth.

32. A person who thinks primarily of his own happiness is beneath contempt.

34. In this complicated world of ours the only way we can know what's going on is to rely on leaders or experts who can be trusted.

36. In the long run the best way to live is to pick friends and associates whose tastes and beliefs are the same as one's own.

38. If a man is to accomplish his mission in life it is sometimes necessary to gamble "all or nothing at all."

40. Most people just don't know what's good for them.

The criterion measure for SGP tendency was the total number of incorrect decisions on the unpredictable sequences. This value could range from 0 to 9. The scores on the acquiescence, rigidity, and dogmatism measures were reconverted to a standard 7-point scale. Scores on the order and critical thinking measures were simply totals of the approximate keyed responses.

A Pearson r correlation coefficient was computed to determine the relationship between the SGP binary sequence test and the selected personality measures. Male and female Ss were treated separately. In addition, extreme group t-tests (one-way) were computed for 6 Ss who missed one or two unpredictable sequences and 7 Ss who made six errors on unpredictable sequences. Absences in the latter group reduced the high error extreme group to 5 Ss for the Watson-Glaser CTA analysis.

The .05 level of significance was used in all instances.

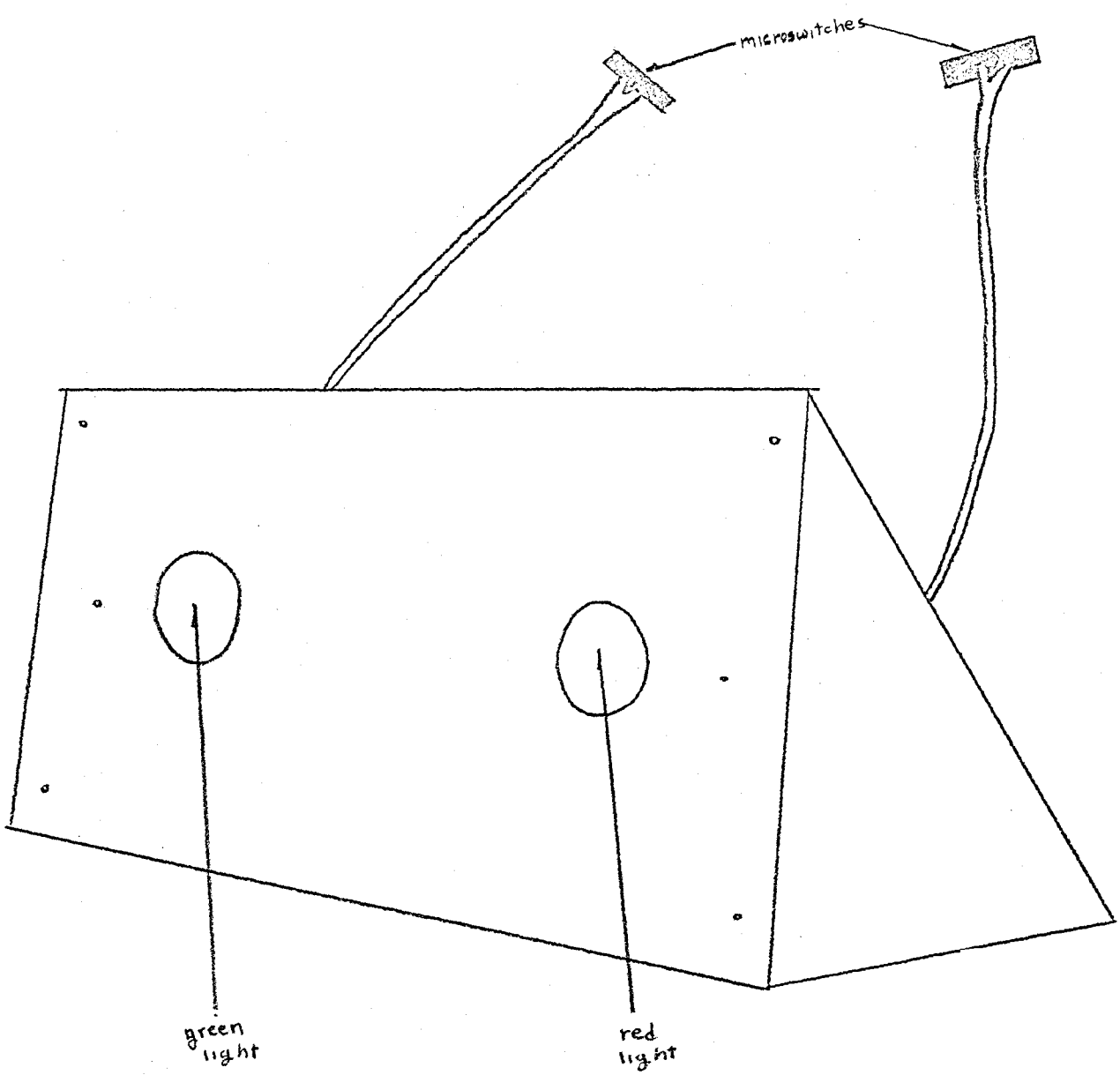

FIGURE I

ILLUSTRATION OF BINARY SEQUENCE BOX

CHAPTER III

RESULTS

The Pearson r correlation coefficients signifying the relationship between the SGP test score and the four personality measures for female Ss are reported in Table I. None of the coefficients reached significance at the .05 level. Table II depicts similar information for the male Ss. Again, none of the figures exceeded the prechosen level of significance.

Table III summarizes t-test data for extreme female groups (high vs. low SGP responders). None of the differences met the .05 criterion; however, the mean differences on the acquiesence and rigidity measures did exceed the .20 level. Table IV represents t-test data for extreme female groups on the Watson-Glasser CTA. The observed t score is insignificant.

Table V presents F test data for differences between variances for extreme female groups. This difference exceeded the .01 on the CTA measure, and approached the .05 level on the Rigidity Scale.

TABLE I

PEARSON R CORRELATION COEFFICIENTS OF SGP TEST SCORE WITH PERSONALITY MEASURES (N = 37 FEMALES)

	SGP Test
Short Scale for Agreeing Response Tendency	.075
Personal Preference Scale for Order	.091
Rigidity Scale	-.173
Dogmatism Scale	-.003

*p <.05

TABLE II

PEARSON R CORRELATION COEFFICIENTS OF SGP TEST SCORE WITH PERSONALITY MEASURES (N = 8 MALES)

	SGP Test
Short Scale for Agreeing Response Tendency	-.432
Personal Preference Scale for Order	-.086
Rigidity Scale	.543
Dogmatism Scale	.169

*p <.05

TABLE III

EXTREME GROUP ONE TAILED T-TEST ANALYSIS
(N = 13 FEMALES)

	High SGP Responders		Low SGP Responders		
	M	SD	M	SD	t
Acquiescence	57.9	11.5	50.7	12.6	1.08
Rigidity	86.7	9.5	94.8	19.1	-.99
Dogmatism	144.7	11.8	148.0	16.7	-.42
Order	9.7	3.3	9.8	3.9	-.06

*$t_{.95(11)} = 1.80$

TABLE IV

EXTREME GROUP ONE TAILED T-TEST ANALYSIS FOR WATSON-GLASER CRITICAL THINKING APPRAISAL
(N = 11 FEMALES)

	High SGP Responders		Low SGP Responders		
	M	SD	M	SD	t
CTA	28.6	1.1	26.7	5.2	-.815

*$t_{.95(9)} = 1.83$

TABLE V

EXTREME GROUP F TEST FOR DIFFERENCES BETWEEN VARIANCES
(N = 13 FEMALES)

	High SGP Responders		Low SGP Responders		
	S	S^2	S	S^2	F
Acquiescence	11.5	132.25	12.6	158.76	1.20
Rigidity	9.5	82.81	19.5	364.81	4.41
Dogmatism	11.8	139.24	16.7	278.89	2.00
Order	3.3	10.89	3.9	15.21	1.40
Critical Thinking[1]	1.1	1.21	5.2	27.04	22.35**

*F .95 (6, 5) = 4.95
**F .99 (5, 4) = 15.5
[1](N = 11)

CHAPTER IV

DISCUSSION

The correlation coefficients depicted in Table I suggest that the tendency for female Ss to impose predictability upon unpredictable sequences is insignificantly related to each of the five selected measures. Two personality measures, the Edwards PPS for Order and the Couch and Keniston ARS, yielded correlations in a positive direction. The male sample, considerably less meaningful due to restricted sample size, also displayed correlations below the .05 level of significance. However, it is interesting to observe that in each of the four cases the direction of relation of the personality measure to the SGP test was reversed (Table II). Whether this trend is an indication of sex differences in personality dynamics or merely an artifact of the small (N = 8) male sample is difficult to determine.

The extreme female group one tailed t- test analysis also showed no significant differences at the .05 level. The acquiescence score, significant at the .20 level, also displayed the second highest positive correlation. Similarly, the negative t value for rigidity ($p < .20$) matched the lowest negative Pearson r coefficient. Except for a small negative t value for the order measure, both the correlational and t-score technique yielded generally similar findings.

The inability to discover significant correlations or differences between means in this study forces the author to make a number of hypotheses concerning both the imposition of structure and the present experiment. The easiest statement to posit is that the selected personality dynamics tested are unrelated or at best non-critical determinants of SGP. It is possible that no personality characteristic determines SGP behavior; rather, the SGP error is perhaps related to some perceptual, intellectual, or problem solving ability. However, the Critical Thinking Appraisal, often thought of as a part-personality, part-intellectual measure, could not significantly discriminate high from low SGP responders (Table IV). In addition, an informal, small sample survey of female College Board Verbal and Quantitative scores yielded insignificant information. Thus, the initial investigations of SGP as an intellectually determined behavior have been negative.

On the other hand, it is not entirely unreasonable to say that the search for structure may still be significantly related to one of the personality or intellectual characteristics tested. The difficulty in mirroring such a relationship may have been a fault of some aspect of the visual binary sequence procedure itself. This suggests a lack of true discriminatory power of the sequences. One cannot discount the possibility that the entire SGP concept is too insensitive to discriminate what Garner might call the "structure creator." Additionally, the personality measures themselves could have been at fault. Nevertheless,

the fact exists that the tests were chosen in a highly selective manner and that the author must accordingly accept their validity with the degree of confidence as before actual experimentation.

An unexpected trend of the data, portrayed in Tables III and IV, warrants a refocusing of an original interest in correlation coefficients and differences between means to measures of variability. For each of the five personality measures, the low SGP responders group possessed a higher standard deviation score than did the group that made many SGP errors. An F test (Table V) yielded a significant difference for the critical measure. The rigidity measure approached significance. In other words, Ss that performed poorly on the SGP test tended to exhibit a more similar rigidity and critical thinking score when compared to the relatively heterogeneous scores of the group that accurately perceived the unpredictable sequences.

To account for these data, a partial reliance upon an already established frame of reference seems necessary. A promising explanation of these results would characterize the low SGP error group as "content" responders to their perceptual world. They recognized unpredictability as such and may be said to have reacted in an accurate fashion to their environment. On the personality measures, they continued to respond in an equally accurate if qualitatively different fashion. That is, they responded mainly to the content, or meaning, of the questions and behaved

accordingly. The tasks at hand are conceptualized and reacted to at face value. In this manner individual differences cause a relatively high amount of variation. On the other hand, the high SGP error group responded to the SGP test under at least a partial "set" or "expectancy" condition. Perhaps these Ss felt that the ability to discern the patterned sequences was expected of them; hence, they acted in what they thought was an appropriate fashion. Similarly, the high error S fails to react strictly to the content of the paper-and-pencil measures. Instead, this individual possesses some sort of predisposition governing her own way of responding on the tests.

Burke's (1966) study of estimates of the average college student's degree of dogmatism by dogmatic versus nondogmatic Ss yielded a situation statistically comparable to that of the present experiment. Highly dogmatic Ss tended to share a more similar perception of the average college student's dogmatism than did the low dogmatics. That is, the estimates of the low dogmatics were more variable and ". . . did not appear to be as clearly a function of their own score." It was hypothesized that individuals ". . . with higher dogmatism scores usually limited their intake of information by maintaining their own conceptual system." This type of interpretation perhaps applies equally well to the high SGP error group. It is possible that these Ss stereotyped a self-concept which controlled their own pattern of responding. This might appear more valid for the rigidity than the critical thinking measure, but it must be realized

that many "personality colored" variables interact with the more apparent reasoning ability to determine overall test performance.

Rabinowitz' (1956) study of estimated authoritarianism scores by Ss after a brief social interaction, in many respects similar in scope to the Burke study, also yielded lower variation of estimation by the high authoritarianism group. The author believed that the estimates " . . . reflected the assumptions of the judges, not the perceived characteristics of the person being judged." This viewpoint appears fertile for yet another analogy: The high SGP responder likewise mirrored their own assumptions concerning how they should best respond rather than their own "true" characteristics.

Witkin (1959), in a study of perception, presented Ss a conflict between cues used in perception of verticality. Verticality, or "uprightedness," was indicated by a room which could be tilted to any degree left or right and thus to varying disagreement with gravity. The S, seated in an independently tiltable chair inside the room, was challenged to adjust the chair to an upright position. In this manner Witkin's Ss could utilize either of the standards when the two were in disagreement: The pull of gravity and its effects on bodily sensations, or vertical and horizontal lines comprising the visual field. Since the effects of the force of gravity could not be manipulated, Ss who oriented themselves mainly as a function of bodily sensations as opposed to perceptual cues were more successful in approximating the vertical.

Witkin thus proposed a "field-independence-dependence" dichotomy to account for the strategies employed. For example, the "field-independent" individual would rely on the pull of gravity over a confusing visual world; the opposite would be true of the "field-dependent" S.

This independence-dependence distinction of Witkin, if not directly analogous, fits much of the previous theorizing concerning the variability differences of the present study. Moreover, a parsimonious and efficient terminology is made available. The low SGP error S seems independent of set or expectancy variables; in all phases of the experiment she responds to the most meaningful cues in the environment. She depends primarily on the face content of the task at hand. As the visual conceptual system is disregarded by "field-independent" Ss in Witkin's research, a stereotyped or predisposed response tendency is either not relied upon or relatively nonexistent.

The imposition of structure remains a peculiar behavior that is seemingly highly characteristic of some individuals while practically nonexistent in others. To those genuinely interested, the now ancient cliche pleading the "need for additional research" sounds not as idle as it usually seems.

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CHAPTER V

SUMMARY

Recent research by the author has suggested that some individuals search for and believe in orderly, predictable solutions in orderless situations. This imposing of order in chaotic, unpredictable situations might be called "subject generated patternization" (SGP). In the prior studies E operated a box with two horizontal lights to flash Ss a randomized series of predictable, recurring, patterned binary sequences and unpredictable, unstructured sequences. After presenting a number of repetitions of each pattern and an equivalent number of flashes for the orderless sequences, Ss were asked whether each sequence observed was patterned or unpredictable. Usually, Ss displayed SGP by making far more decision errors on the unpredictable sequences than on the patterns.

It was the purpose of the current study to establish the construct validity of SGP by investigating the relationship of error incidence on the unpredictable sequences with scores from selected personality measures. The questionnaires employed were Couch and Keniston's Short Scale for Agreeing Response Tendency, Edwards' Personal Preference Scale for Order, the Gough-Sanford Rigidity Scale, Martin and Stanley's revised Rokeach Dogmatism Scale, and the Watson-Glaser Critical Thinking Appraisal (Parts 1 and 2). Ss were 37 females and 8 males. Using both

a correlational and one-way t-test analysis, no significant ($p < .05$) relationships were found with SGP error rate and the various tests. However, an extreme group analysis of high versus low SGP error groups revealed higher variances for the low SGP responders of each of the personality measures. This difference exceeded the .01 level on the Critical Thinking Appraisal and approached the .05 level on the Rigidity Scale. A number of interpretations were presented to account for the results.

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Number____ Sex M F

SOCIAL AND PERSONAL REACTION SURVEY

Instructions: The following is a study of what the general public thinks and feels about a number of important social and personal questions. The best answer to each statement below is your personal opinion. We have tried to cover many different feelings and points of view; you may find yourself agreeing strongly with some of the statements, disagreeing just as strongly with others, and perhaps rather uncertain about others. Whether you agree or disagree with any statement, you may be sure that many people feel the same as you do.

Mark each statement in the left margin according to how much you agree or disagree with it. Please mark each statement. Write +1, +2, +3, or -1, -2, -3, depending on how you feel in each case.

+3: I AGREE VERY MUCH, AGREE STRONGLY

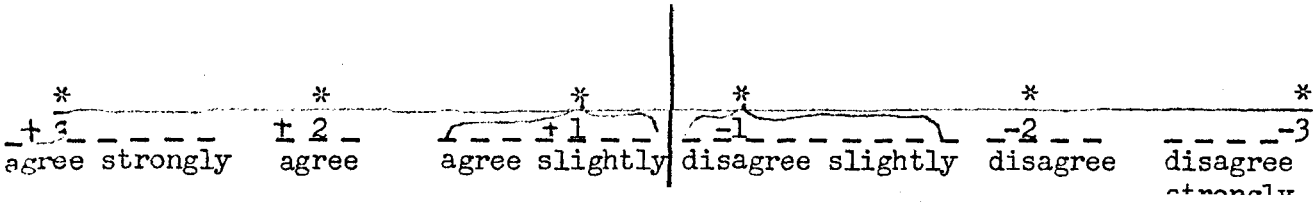
+2: I AGREE ON THE WHOLE

+1: I AGREE A LITTLE, AGREE SLIGHTLY

-3: I DISAGREE VERY MUCH, DISAGREE STRONGLY

-2: I DISAGREE ON THE WHOLE

-1: I DISAGREE A LITTLE, DISAGREE SLIGHTLY



____1. Novelty has a great appeal to me.

____2. I crave excitement.

____3. The United States and Russia have just about nothing in common.

____4. You cannot have a democracy in which one section of the community has the most power.

____5. I am often the last one to give up trying to do a thing.

____6. There is usually only one best way to solve most problems.

____7. I prefer work that requires a great of attention to detail.

____8. Even though freedom of speech for all groups is a worthwhile goal, it is unfortunately necessary to restrict the freedom of certain political groups.

____9. When a man believes something he must make himself familiar with all the arguments against it.

___10. Man on his own is a helpless and miserable creature.

___11. It's a wonderful feeling to sit surrounded by your possessions.

___12. The world is full of warm human relationships.

___13. I often become so wrapped up in something I am going that I find it difficult to turn my attention to other matters.

___14. Most people just don't give a "damn" for others.

___15. I would resent assistance with my personal problems.

___16. I dislike to change my plans in the midst of an undertaking.

___17. It is only natural for a person to be rather fearful of the future.

___18. I never miss going to church.

___19. I usually maintain my own opinions even though many other people may have a different point of view.

___20. What isn't done today can equally well be done tomorrow.

___21. Once I get wound up in a heated discussion I just can't stop.

___22. I find it easy to stick to a certain schedule, once I have started it.

___23. In discussions people generally don't have much diffuculy in understanding what I say.

___24. In a heated discussion I hardly ever pay careful attention to arguments of others.

___25. There are few things more satisfying than really to splurge on something- books, clothes, furniture, etc.

___26. It is not worth sacrificing your life to become a hero.

___27. Only the desire to achieve great things will bring a man's mind into full activity.

___28. Nothing is worse than an offensive odor.

___29. I do not enjoy having to adapt myself to new and unusual situations.

___30. While I don't like to admit this even to myself, my secret ambition is to become a great man, like Einstein, or Beethoven, or Shakespeare.

___31. Doing important work is not the main thing in life.

___32. If given the chance I would do something of great benefit to the world.

___33. A great proportion of the best thinkers have not had their achievements recorded in history.

___34. I prefer to stop and think before I act even on trifling matters.

___35. In most conversations, I tend to bounce from topic to topic.

___36. I try to follow a program of life based on duty.

___37. There are a number of people I have come to hate because of the things they stand for.

___38. A man who does not believe in some great cause has not really lived.

___39. It is only when a man devotes himself to an ideal or some cause that life becomes more meaningful.

___40. All of the philosophies which exist in this world have some truth in them and probably not one is totally correct.

___41. I usually find that my own way of attacking a problem is best, even though it doesn't always seem to work in the beginning.

___42. A person who gets enthusiastic about too many causes is likely to be a pretty "wishy-washy" a person.

___43. It is always best to meet our political opponents half-way.

___44. I really envy the man who can walk up to anybody and tell him off to his face.

___45. I could really shock people if I said all of the dirty things I think.

___46. I am a methodical person in whatever I do.

___47. When it comes to differences of opinion in religion we must be careful not to compromise with those who believe differently from the way we do.

___48. In these present days everyone should look to their own happiness.

___49. I think it is usually wise to do things in a conventional way.

___50. I always finish tasks I start, even if they are not very important.

___51. There are few more miserable experiences than going to bed night after night knowing you are so upset that worry will not let you sleep.

___52. The worst crime a person could commit is to attack publicly the people who believe in the same thing he does.

___53. I often find myself thinking of the same tunes or phrases for days at a time.

___54. I tend to make decisions on the spur of the moment.

___55. It is never necessary to be on guard against ideas no matter where they originate.

___56. A group which tolerates too much differences of opinion among its own members cannot exist for long.

___57. Little things upset me.

___58. I have a work and study schedule which I follow carefully.

___59. Truth is so elusive that no one can say when he has it.

___60. My blood boils whenever a person stubbornly refuses to admit he's wrong.

___61. Drop reminders of yourself whereever you go and your life's trail will be well remembered.

___62. I usually check more than once to be sure that I have locked a door, put out the light, or something of the sort.

___63. I have never done anything dangerous for the thrill of it.

___64. I think none the worse of a person for being concerned chiefly with his own pleasure.

___65. Most of the ideas which get printed nowadays aren't worth the paper they are printed on.

___66. To know the truth about what is going on we cannot rely simply on experts or leaders.

___67. It is often desirable to reserve judgment about what's going on until one has had a chance to hear the opinions of those one respects.

____68. I like nothing better than having my breakfast in bed.

___69. I believe that promptness is a very important personality characteristic

___70. The best way to live is to make friends and associates whose tastes and beliefs are different to one's own.

___71. The present is all too often full of unhappiness. It is only the future that counts.

___72. I am always careful about my manner of dress.

___73. If a man is to accomplish his mission in life he should never take chances.

___74. Unfortunately, a good many people with whom I have discussed important social and moral problems don't really understand what's going on.

___75. Most people show a lot of foresight when it comes to something which affects them personally.

___76. I always put on and take off my clothes in the same order.

___77. My mood is easily influenced by the people around me.

This schedule consists of a number of pairs of statements about things that you may or may not like; about ways in which you may or may not feel. There are 28 pairs overall, with each statement paired with either an A or B. Which of the two statements is more characteristic of what you like or how you feel? For each item draw a circle around the A or B to indicate the more characteristic statement. You may feel both A and B are characteristic. In this case choose the one that it the more appropriate. If neither statement is accurate, please pick the one that is least inaccurate.

Your choice, in each instance, should be in terms of what you like and how you feel at the present time, and not in terms of what you think you should like or how you think you should feel.

There are no right or wrong answers, of course. Please do not skip any pair of statements.

1. A Any written work that I do I like to have precise, neat, and well organized.
   B I would like to be a recognized authority in some job, profession, or field of specialization.

2. A I like to plan and organize the details of any work that I have to undertake.
   B I like to follow instructions and to do what is expected of me.

3. A I would like to be a recognized authority in some job, profession, or field of specialization.
   B I like to have my work organized and planned before beginning it.

4. A I like to find out what great men have thought about varous problems in which I am interested.
   B If I have to take a trip, I like to have things planned in advance.

5. A I like to finish any job or task that I begin.
   B I like to keep my things neat and orderly on my desk or workspace.

6. A I like to tell other people about adventures and strange things that have happened to me.
   B I like to have my meals organized and a definite time set aside for eating.

7. A I like to be independent of others in deciding what I want to do.
   B I like to keep my things neat and orderly on my desk or workspace.

8. A I like to have my life so arranged that it runs smoothly and without much change in my plans.

   B I like to tell other people about adventures and strange things that have happened to me.

9. A I like to keep my letters, bills, and other papers neatly arranged and filed according to some system.
   B I like to be independent of others in deciding what I want to do.

10. A Any written work that I do I like to have precise, neat, and well organized.
    B I like to make as many friends as I can

11. A I like to have my meals organized and a definite time set aside for eating.
    B I like to study and to analyze the behavior of others.

12. A I like to have my life so arranged that it runs smoothly and without much change in my plans.
    B I like my friends to feel sorry for me when I am sick.

13. A I like to keep my letters, bills, and other papers neatly arranged and filed according to some system.
    B I like to be one of the leaders in the organizations and groups to which I belong.

14. A I like to plan and organize the details of any work that I have to undertake.
    B When things go wrong for me, I feel that I am more to blame than anyone else.

15. A I like to make a plan before starting in to do something difficult.

    B I like to do small favors for my friends.

16. A I like to have my work organized and planned before beginning it.
    B I like to travel and to see the country.

17. A If I have to take a trip, I like to have things planned in advance.
    B I like to keep working at a puzzle or problem until it is solved.

18. A I like to keep my things neat and orderly on my desk or workspace.
    B I like to be in love with someone of the opposite sex.

19. A I like to have my life so arranged that it runs smoothly and without much change in my plans.
    B I get so angry that I feel like throwing and breaking things.

20. A I like to share things with my friends.
    B I like to make a plan before starting in to do something difficult.

21. A I like to understand how my friends feel about various problems they have to face
    B If I have to take a trip, I like to have things planned in advance.

22. A I like my friends to treat me kindly.
    B I like to have my work organized and planned before beginning it.

23. A I like to be regarded by others as a leader.
    B I like to keep my letters, bills, and other papers neatly arranged and filed according to some system.

24. A I feel that the pain and misery that I have suffered has done me more good than harm.
    B I like to have my life so arranged that it runs smoothly and without much change in my plans.

25. A I like to be generous with my friends.
    B I like to make a plan before starting in to do something difficult.

26. A I like to meet new people.
    B Any written work that I do I like to have precise, neat, and well-organized.

27. A I like to finish any job or task that I begin.
    B I like to keep my things neat and orderly on my desk or workspace.

28. A I like to be regarded as physically attractive by those of the opposite sex.
    B I like to plan and organize the details of any work that I have to undertake.

29. A I like to tell other people what I think of them.
    B I like to plan and organize the details of any work that I have to undertake.

MARK PATTERN (P) OR UNPREDICTABLE (U)

1.___ 8.___

2.___ 9.___

3.___ 10.___

4.___ 11.___

5.___ 12.___

6.___ 13.___

7.___