PERSONAL VALUES AS SELECTIVE FACTORS IN PERCEPTION *

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WHAT one sees, what one observes, is inevitably what one selects from a near infinitude of potential percepts. Perceptual selection depends not only upon the "primary determinants of attention" but is also a servant of one's interests, needs, and values.

Can one lean on the slender reed of "the limited span of attention" and its primary determinants to explain the selectivity of perception? That there is a limited span can hardly be denied. But to invoke it in explanation of itself leaves unexplained the differences in the perceptions of individuals faced with the same stimuli and all hampered by a "limited span of attention" and governed by common primary determinants.

The properties of the stimulus field as they affect the range and fluctuation of attention have been amply investigated: "intensity, quality, repetition, suddenness, movement, novelty, congruity with the present contents of consciousness are one and all [primary] determinants of attention" (13, p. 270). Yet, however far one pushes such research, half of the question remains unanswered: what does the individual contribute to perceptual selection over and above a healthy pair of eyes and the appropriate response mechanisms? The concepts of secondary and derived primary attention are merely restatements of the problem, affirming that the organism can and does attend to things in spite of the absence of primary determinants (13). To say that there are "individual differences" in perceptual behavior is merely another way to restate the problem and to dismiss one of the most fruitful sources of psychological research.

Psychologists have in recent years been increasingly concerned with what may be called organismic or adjustive determinants in perception. Professor E. G. Boring has, for example, pointed out that "the purpose of perception is economy of thinking. It picks out and establishes what is permanent and therefore important to the organism for its survival and welfare" (2). In general, however, "survival and welfare" have been treated as synonymous with the "primary biological needs" of the organism. The supposed utility of perceptual constancies described in terms of "regression to the real object" illustrates well this generalized organismic approach to the problem.

But survival and welfare obviously encompass more than purely biological needs. There remains the evanescent

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residual category of "personality," at once too broad to be operationally useful to the student of perception and too ubiquitous to be neglected. What is required are dimensions of variation in personality which are both measurable and intrinsically important, and which can be related to individual differences in perception.

One such dimension of variation in personality is personal interest or value. It is with this dimension of personality in its relation to perceptual selectivity that the present study is concerned. Our hypothesis, briefly, is that personal values are demonstrable determinants of what the individual selects perceptually from his environment.

THE EXPERIMENT

Perceptual selectivity may be investigated in different ways. A subject may be faced with a complex field from which he selects this or that item or configuration. This type of selection may be called *spatial selection*. Or, a subject may be presented with a series of items one at a time, each well within his span of attention, and the *speed* with which the various items are correctly recognized may be compared. This type of selection may be called *temporal selection*. These two forms of selectivity are alike in that they both reflect differential tuning of the individual to stimulus objects in the environment. In the experiment here reported temporal selection was studied.

Twenty-five subjects, students at Harvard and Radcliffe, were shown 36 words, one at a time, in a modified Dodge tachistoscope. The words, typed in capital letters, were chosen to represent the six values measured by the Allport-Vernon Study of Values—theoretical, economic, aesthetic, social, political, and religious. These words were unanimously chosen by three independent judges familiar with the Spranger value classification from a preliminary list of 96 words equally distributed among the six values. The final list, comprising six words for each value, was balanced for length of words by using an equal number of six- and seven-letter words for each value. Insofar as possible, an attempt was made to choose words of equal familiarity. The stimulus words are listed by value category in Table 1.[1]

TABLE 1

STIMULUS WORDS REPRESENTING THE SIX SPRANGER VALUE CATEGORIES

THEORETICAL	ECONOMIC	AESTHETIC	SOCIAL	POLITICAL	RELIGIOUS
theory	income	beauty	loving	govern	prayer
verify	useful	artist	kindly	famous	sacred
science	wealthy	poetry	devoted	compete	worship
logical	finance	elegant	helpful	citizen	blessed
research	economic	literary	friendly	politics	religion
analysis	commerce	graceful	sociable	dominate	reverent

The 36 words were shown to the sub-

[1] A word should be said in explanation of the Spanger values. In some cases, titles of value categories do not fully correspond to common usage. *Theoretical* refers to a dominant interest in the discovery of truth. *Economic* value is focused on usefulness and practicality. The *aesthetic* value emphasizes form and harmony. Love of people and sympathy characterize those high in *social* value. Interest in power is the defining property of *political* value which transcends interest in the narrow field of politics as ordinarily understood. Finally, *religious* value denotes an urge for unity, a desire to identify with some larger and more comprehensive totality. Here again the definition of religious value goes beyond the narrower meaning of religious practice. A full discussion of these values may be found in Spranger (12), and Vernon and Allport (14).

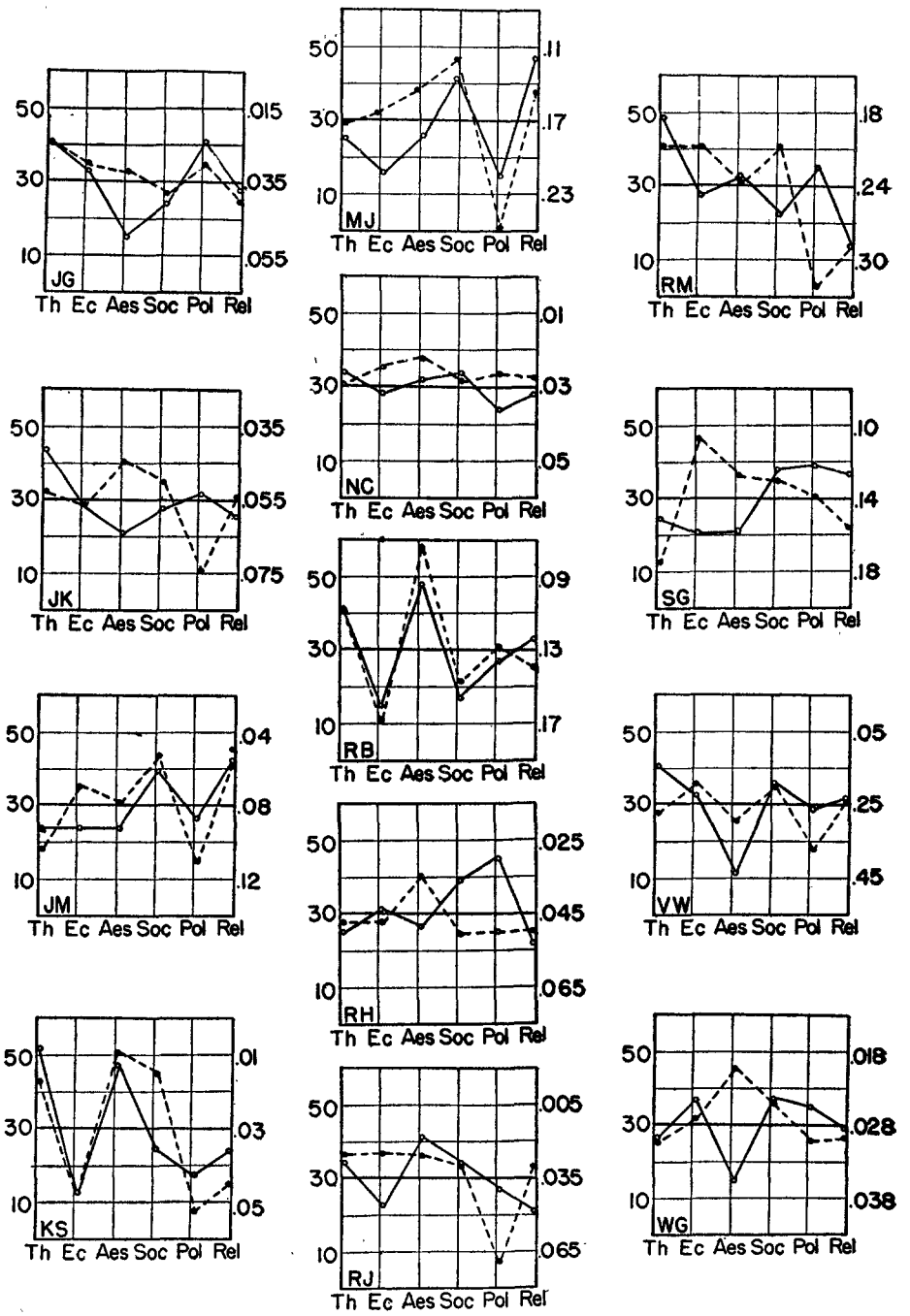
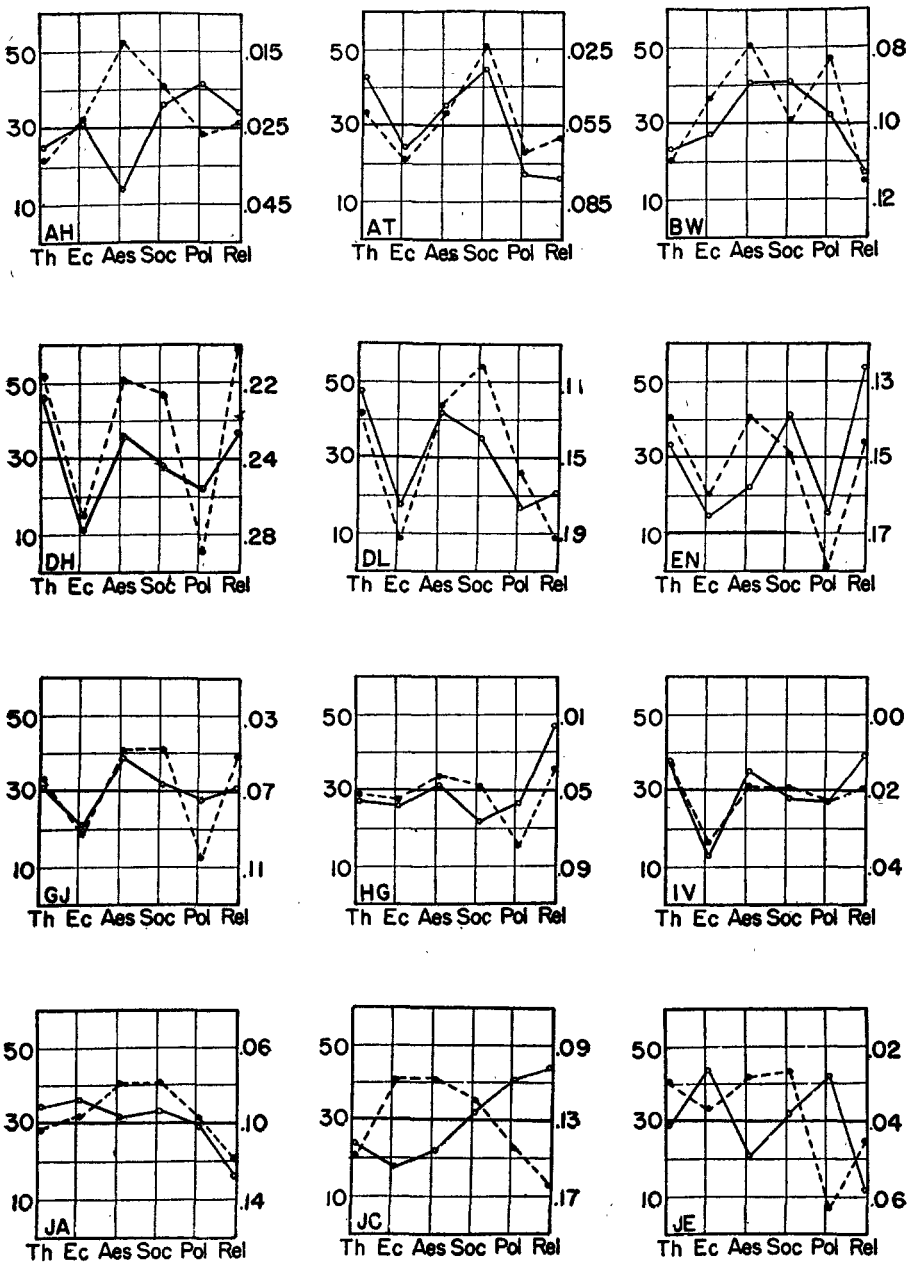


FIG. 1. VALUE PROFILES AND TIME-OF-RECOGNITION PROFILES OF THE INDIVIDUAL SUBJECTS
The values tested by the Allport-Vernon Study are indicated along the abscissa. Value



scores are plotted against the left-hand ordinate. Average recognition times for the words representing these values are plotted against the right-hand ordinate. Solid lines represent value scores, dotted lines represent times of recognition.

ject in random order. Each word was exposed three times for .01 second. If the subject failed to recognize the word, three exposures were then given at .02, .03 second, etc., at exposure times increasing in even steps of .01 second until recognition occurred. A full record was kept of all the subject's pre-recognition responses. Subjects were instructed simply to report everything that they saw or thought they saw.

To obtain an independent measure of personal value orientation, the Allport-Vernon Study of Values (1) was administered individually to each subject. The test was given either some weeks in advance of the perceptual experiment or after the experiment.

In summary, then, the following records were obtained for each subject:

1. Time of recognition for 36 words representing the six Spranger values.
2. Attempted solutions preceding recognition of the actual words.
3. Score profiles on the Allport-Vernon test, which could be evaluated against population norms.

RESULTS OF THE EXPERIMENT

Analysis of Recognition Thresholds. Is time of recognition significantly influenced by the value which a given stimulus word represents? Each subject's value profile was compared with his "time-of-recognition profile." The value profile is a type of psychograph on which the subject's scores in the six Spranger values as measured by the Allport-Vernon Study are plotted. The average times of recognition for the sets of six words representing each of the value areas constitute the time-of-recognition profile. The two profiles for each of the 25 subjects are presented in Figure 1. Along the baseline the value-areas are indicated. Allport-Vernon scores are plotted against the left-hand ordinate and average times of recognition against the right-hand ordinate.[2] Inspection of these profiles at once reveals considerable variability but

TABLE 2

CHI-SQUARE TEST OF SIGNIFICANCE OF ASSOCIATION BETWEEN VALUE PREFERENCE AND TIME OF RECOGNITION

(Theoretical Frequencies are in Italics.)

TIME OF RECOGNITION	VALUE SCORES: Above Mean	VALUE SCORES: Below Mean	
Above Mean	156	216	
	181.40	*190.55*	372
Below Mean	283	245	
	257.56	*270.45*	528
	439	461	

$\chi^2 = 11.87$ $P = < .01$

[2] Since according to our hypothesis a high-value word should be recognized more quickly than a low-value one, time values on the ordinate of the time-of-recognition profile are plotted in descending rather than in ascending order. This arrangement makes value profiles and time-of-recognition profiles directly comparable.

also a marked tendency for high-value words to be recognized at shorter time exposures than low-value ones. In a few cases there is virtually one-to-one correspondence between the two profiles (e.g., the profiles of RB and IV). Such striking relationships are not, of course, the rule. One isolated case (JC) shows what appears to be a reversal, high-value words requiring, on the whole, a longer exposure time than less-valued words. Certainly visual inspection indicates that, for the sample as a whole, time of recognition varies as a function of value.

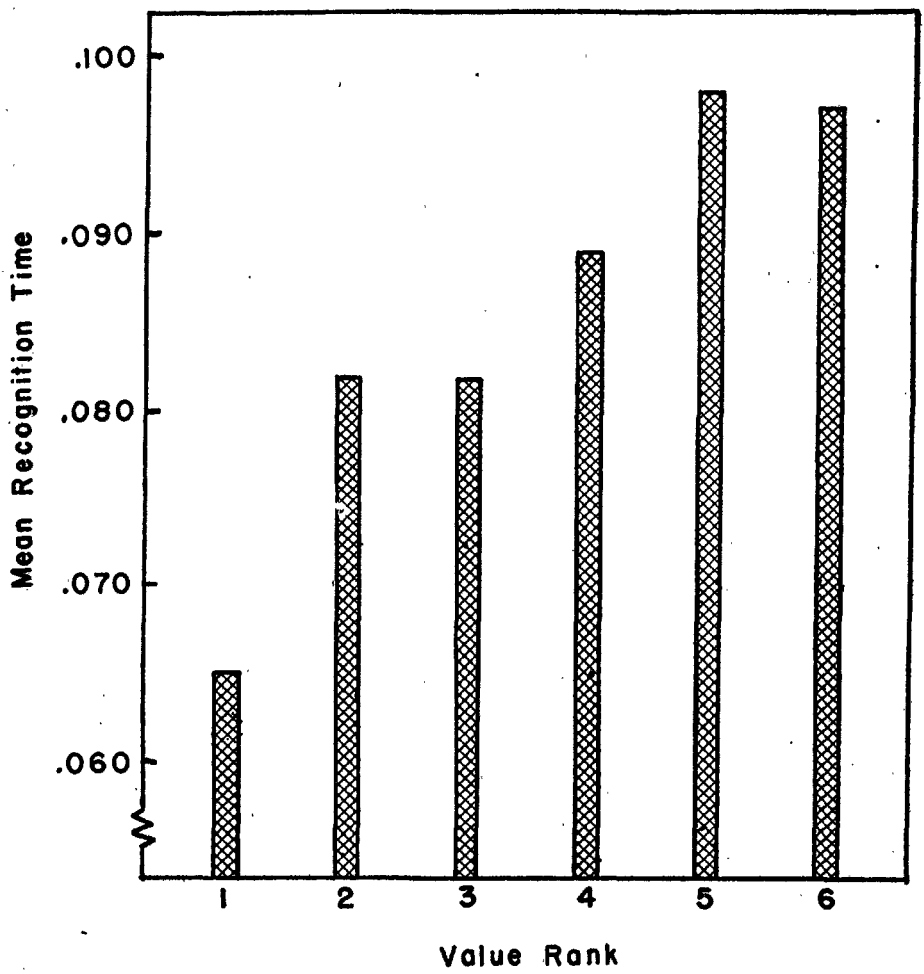


FIG. 2. AVERAGE TIMES OF RECOGNITION FOR THE WORDS REPRESENTING THE SIX VALUES OF THE ALLPORT-VERNON STUDY ARRANGED IN RANK ORDER

Statistical analysis confirms this impression. The value scores of each subject were classified as falling above or below the population mean (30) for the Allport-Vernon test. His time-of-recognition scores were similarly divided into those falling below or above

his own mean time of recognition. Combining the results for all subjects into a two-by-two contingency table (Table 2), a chi-square test of independence was performed. The obtained chi-square value of 11.87 indicates, at a high level of confidence, that the association between value orientation and time of recognition is not random.[3]

An analysis in terms of a two-by-two table, though useful, can do little more than indicate that a general relationship does exist. For purposes of more detailed analysis, each subject's value scores were, therefore, ranked from highest (Rank 1) to lowest (Rank 6). For the group as a whole, the average time of recognition was computed for each of the six ranks. Note that the analysis here is in terms of *rank of value* rather than in terms of *specific* value areas. That is to say, Rank 1 could be any one of the six values for a given subject, and so on down for the remaining ranks. The mean times of recognition for the six value ranks are presented numerically in Table 3 and graphically in Figure 2. The significance of the difference between the mean times of recognition of stimulus words was tested for all possible combinations of value ranks. As Table 4 shows, the words symbolizing the subjects' highest ranking value are recognized at exposure times significantly shorter than those required for words symbolizing their lowest ranking value. A comparison of the highest ranking and second lowest value (Ranks 1 and 5) yields a similar result. All other differences fail to reach statistical significance although they are predominantly in the expected direction.

TABLE 3

MEAN TIMES OF RECOGNITION AS A FUNCTION OF INDIVIDUAL VALUE RANKS REPRESENTED BY THE STIMULUS WORDS

VALUE RANK	MEAN TIME OF RECOGNITION IN SECONDS
1	.075
2	.082
3	.082
4	.089
5	.098
6	.097

The great majority of subjects, then, conform to a general pattern. *The higher the value represented by a word, the more rapidly is it likely to be recognized.*

Analysis of Attempted Solutions. Statistical analysis shows that value acts as a *sensitizer,* lowers the perceptual threshold. But value orientation does more than that. It is an active, selective disposition which in many subtle ways affects the hypotheses and attempts at solution which precede the actual recognition of a stimulus word. Much can be learned about the role of value as an organizing factor in perception from an analysis of pre-solution behavior.

Each subject's perceptual behavior forms an individualized pattern and our preceding analysis of group data inevitably sacrifices a great deal of highly suggestive information about individual "styles" of perceiving. As a first approximation to a more intensive investigation of perceptual behavior, we have examined carefully and sought to classify individual pre-solution responses. Our effort has been to find categories of classification which might throw into relief the directive influence of value orientation on perception.

The following categories for the

[3] Our findings are congruent with the results of earlier research carried out by A. G. Woolbert as reported by Cantril and Allport (6). Woolbert found that subjects perceived preferentially those items in a dummy newspaper which were most closely related to their dominant values as measured by the Allport-Vernon Study of Values.

analysis of pre-solution responses or hypotheses have emerged:

1. *Covaluant responses:* This category comprises responses which can be unambiguously classified as representing the same value area as the stimulus word. The subject who saw the word *Easter* when the stimulus word was *sacred* illustrates the covaluant category.

2. *Contravaluant responses:* In some cases, the words reported in the pre-solution period were opposite in meaning to the stimulus word or served to derogate it. An instance is provided by a subject who saw *scornful* upon presentation of the stimulus word *helpful.* Or *revenge* instead of *blessed.*

3. *Structural responses:* Under this heading fall the very frequent incorrect hypotheses based on the structural characteristics of the stimulus word. An illustrative sequence of hypotheses given by one subject in response to the word *loving* was: *movies, mowing, moving, lowing,* and finally *loving.* A frequent stimulus-bound, structural hypothesis was the response *turkey* for *theory.*

4. *Nonsense responses:* Two types of responses are included here: *(a)* nonsense words, such as *linone* for *income,* or *weelby* for *wealthy;* and *(b)* partial responses in which the subject's hypothesis consisted of an enumeration of parts of a word or individual letters.

TABLE 4

SIGNIFICANCE OF DIFFERENCES BETWEEN MEAN RECOGNITION TIMES FOR ALL COMBINATIONS OF VALUE RANKS

Entries in the Table Represent Values of t, and P (in italics).

	1	2	3	4	5	6
1						
2	.83 *.40*					
3	.80 *>.40*	.07 *>.90*				
4	1.64 *.10*	.76 *>.40*	.87 *.40*			
5	2.32 *.02*	1.52 *>.10*	1.62 *.10*	.84 *.40*		
6	2.42 *<.02*	1.54 *>.10*	1.67 *.10*	.80 *>.40*	.09 *>.90*	

5. *Unrelated responses:* This is our residual category. All responses which could not be related to the stimulus word in terms of any of the above categories were provisionally classified as unrelated. Responses such as *upper* and *carol* to a word like *useful* may serve as an illustration. We do not for a moment believe that they are haphazard responses. The fact that this category turned out to be the most numerous is a commentary on the inadequacy of existing analytic categories in the study of pre-solution behavior in perception.

Table 5 represents the mean frequency with which each of these kinds of pre-solution hypotheses occurred per stimulus word in the subjects' high-value (Ranks 1, 2, and 3) and low-value (Ranks 4, 5, and 6) areas. Table 5 also shows the significance of the differences in the mean frequency of the various response categories when high- and low-value areas are compared.

We are ready to grant at the outset that the categories of classification used in the analysis of pre-solution hypotheses are tentative. Their reliability has not as yet been demonstrated. The categories, moreover, are not always mutually exclusive. Without claiming any high degree of precision in our measurements, we nonetheless present the results of our classification as the simplest and most convenient description of general trends.

That several of our categories did discriminate between pre-solution responses to high- and low-value words may be taken as a presumptive demonstration of their validity. Covaluant hypotheses occur with significantly higher frequency in response to high-value words than they do in response to low-value words. A complementary finding is that both contravaluant and nonsense hypotheses appear more prominently among responses to low-value words. There is a similar tendency for structural hypotheses to be associated more frequently with high-value words, though the difference falls short of statistical significance. Our residual category, unrelated hypotheses, favors neither high- nor low-value stimulus words, nor is there any particular reason why it should.

TABLE 5

MEAN FREQUENCY PER WORD OF DIFFERENT PRE-SOLUTION HYPOTHESES FOR HIGH-VALUE AND LOW-VALUE WORDS

TYPE OF HYPOTHESIS	ALL WORDS	HIGH-VALUE WORDS	LOW-VALUE WORDS	SIGNIFICANCE OF DIFFERENCES *
Covaluant	.13	.16	.10	2.04 ($<.05$)
Contravaluant	.03	.02	.05	2.0 ($<.05$)
Structural	.44	.49	.40	1.35 ($>.10$)
Nonsense	.13	.09	.16	2.05 ($<.05$)
Unrelated	.56	.56	.57	.10 (.92)

* Entries represent values of t, entries in parentheses are values of P.

THE ROLE OF VALUE ORIENTATION IN PERCEPTUAL SELECTION

Selection is one of the three basic adaptive processes that operate in perception. Inextricably linked with selection are accentuation and fixation. Once selected, a percept may be accentuated,

i.e., certain of its features may be emphasized (3, 4, 5). Fixation denotes the persistence and preferential retention which value orientation becomes a determinant of selection.

Our results lead us to propose three

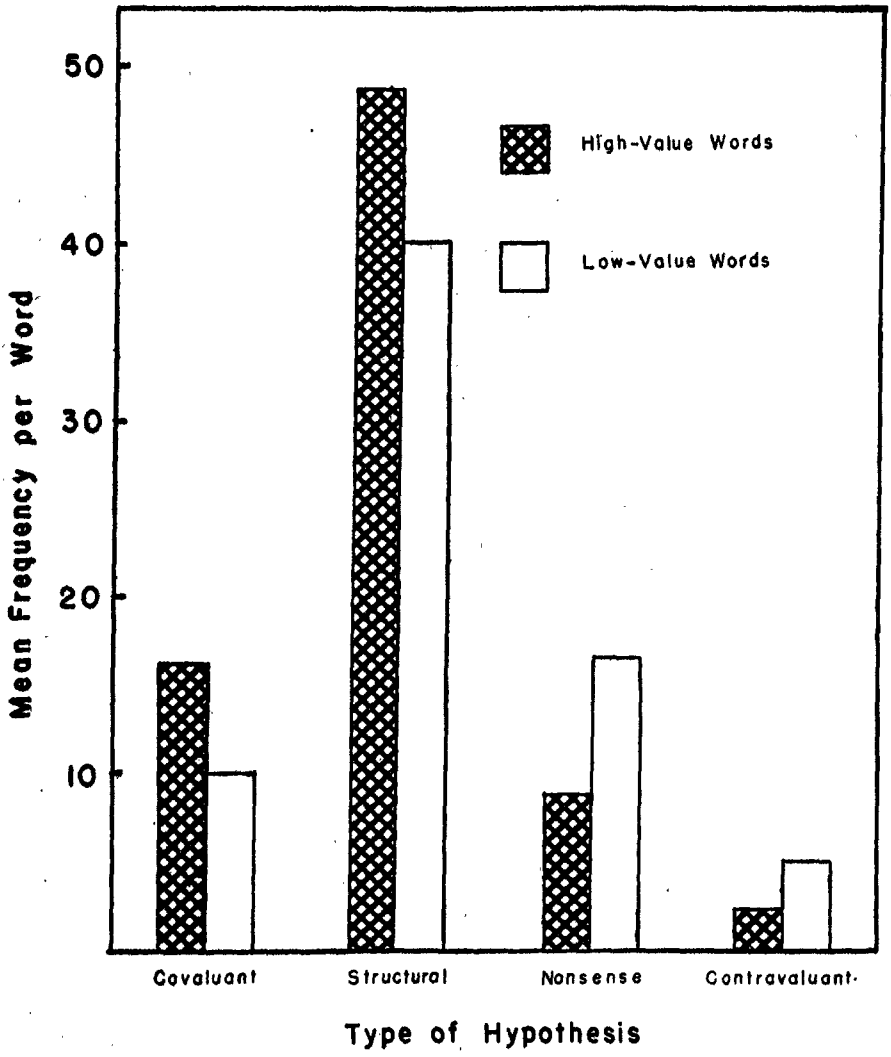


FIG 3. MEAN FREQUENCY WITH WHICH VARIOUS TYPES OF PRE-RECOGNITION HYPOTHESES WERE GIVEN IN RESPONSE TO HIGH-VALUE AND LOW-VALUE WORDS

of certain selected percepts. Any perceptual behavior exhibits the three processes. The experiments reported here focus upon one aspect of this tripartite process which as a whole constitutes perception: the mechanisms through complementary selective mechanisms. Value orientation acts as a sensitizer, lowering thresholds for acceptable stimulus objects. Let us call this mechanism *selective sensitization.* Value orientation may, on the other hand, raise

thresholds for unacceptable stimulus objects. We shall refer to this mechanism as *perceptual defense*. Finally, the perceiver, whatever the nature of the stimulus, favors the pre-solution hypotheses which reflect his value orientation. He will, therefore, perceive more readily stimulus objects which lie within the same value area as his preferred pre-solution hypotheses. This third mechanism we shall term *value resonance*.

Selective Sensitization. The primary evidence supporting this concept is provided, as we have indicated, by the significantly lower thresholds of recognition for high-value words. Selective sensitization may well be a specific case of a more general phenomenon. Lashley has proposed, for example, that one of the mechanisms through which "instinctive" or "drive" behavior operates is perceptual sensitization (9). The organism's threshold is lowered for objects which may serve to reduce drive. We should like to emphasize here that such a process of perceptual sensitization is not limited to the types of behavior commonly regarded as instinctive. Value orientation too, the result of a long process of socialization, may serve as a sensitizer in much the same way.

That value orientation significantly affects the threshold time for the recognition of words leads to a reconsideration of the parameters which must be taken into account in the measurement of any threshold. It is not always sufficient to state the stimulus conditions and instructions to the subject under which threshold measurements are made. The words representing the six value areas were all equated as far as possible in terms of such physical properties as length, size, degree of illumination, and all responses were given under the same general instruction. Yet widely different thresholds are obtained when the subjects' "set" or orientation toward the stimulus materials is taken into account. Had we failed to consider the subjects' *predisposition* to respond to some values more readily than to others, we should probably have ascribed these individual differences merely to "chance fluctuations in the measurement of the span of attention"! If the concepts of threshold and sensitivity are to be extended to types of perceptual phenomena more complex than sheer sensory acuity, the crucial role played by such attitudinal factors as value and need must be recognized.[4]

Perceptual Defense. Value orientation not only contributes to the selection and accentuation of certain percepts in preference to others, it also erects barriers against percepts and hypotheses incongruent with or threatening to the individual's values. We suggest that a defense mechanism similar to repression operates in perceptual behavior. The high thresholds for low-value words may result in part from such perceptual barriers. Not only do low-value words fail to benefit from selective sensitization, their recognition is also blocked by perceptual defense mechanisms. The clearest evidence for the operation of such perceptual defenses comes from the analysis of pre-solution responses.

Pre-solution responses to low-value words appear to take the form of avoidance of meaning. As indicated in Table 5, subjects have a pronounced tendency to see nonsense words when low-value stimulus words are presented for recognition. Such nonsense hypotheses take either the form of meaningless words or incomplete segments of words. Avoidance of meaning mani-

[4] As our experiments indicate, the utility of the *threshold* concept far transcends the measurement of sensory acuity where, it is true, such factors as value orientation are expressly minimized by the investigator.

fests itself even more accurately in the greater incidence of contravaluant hypotheses preceding the recognition of low-value words. Consider some examples. A subject, with little interest in religious values, when confronted with the word *sacred* gives the following sequence of hypotheses: *sucked, sacked, shocked, sacred.* Another, lacking in aesthetic values, sees *hypocrisy* for *elegant.*

Still another manifestation of perceptual defense is a frequent failure to use such available cues as word structure in forming hypotheses. Fewer pre-solution responses based on letter structure were given to low-value words than to high-value. Reluctance to use structural hypotheses fits well into perceptual defense behavior. Formation of an hypothesis based on structure too easily leads to recognition of the word being avoided. One may inquire at this point, "How does the subject 'know' that a word should be avoided? In order to 'repress' he must first recognize it for what it is." We have no answer to propose. What mediates the phenomena of hysterical or hypnotically induced blindness (8, 10)? Of only one thing we can be fairly sure: reactions do occur without conscious awareness of what one is reacting to. Psychological defense in perception is but one instance of such "unconscious" reaction.

Value Resonance. The nature of pre-solution hypotheses, no less than recognition itself, reflects value orientation. "Guesses" are not haphazard. As frequently as possible and as long as possible perceptual guesses are made in congruence with prevailing value orientation. This congruence between "guesses" and dominant values accounts, we believe, for the significantly greater number of covaluant responses to high-value words.

When stimulus words reflecting the same values as the subject's preferred hypotheses are presented to him, they are recognized more rapidly since they conform to, or are resonant with, his general set to respond in terms of his major values. That a generalized set lowers the recognition threshold for specific stimuli within its compass, has, of course, been known since the early work of the Würzburg School (7, 11). Thus, covaluant responses and sensitization work, as it were, hand in glove. Covaluant responses, reflecting the person's major values, help to prepare him for recognition of stimuli symbolizing these same major values. Consider, for example, the responses of a religious subject to a religious stimulus word, *reverence,* at the low exposure time of .01 second; *divinity, sentiment, reverence.* The first two responses, structurally unrelated to the stimulus, are clearly covaluant responses. That the subject recognized the correct word on the third exposure at .01 second illustrates the sensitizing action of a generalized set.

If the subject's typically preferred hypotheses reflect a value different from that symbolized by the stimulus word before him, his generalized set may serve to slow down recognition. His hypotheses, in such cases, may appear to the investigator as candidates for our "unrelated" category. An instance is provided by a subject of strongly theoretical bent who also scores high in aesthetic and social values but who is low in economic interest. Confronted with the word *income,* he gave these responses prior to recognition at .11 second: *learning, tomorrow, learning, knowledge, literature, learning, loving, income.* The exposure of .11 second required for recognition of this low-value word compares poorly indeed with his overall mean recognition time of .03 second.

Our aim in these pages has been to point to the relation of value orientation and perceptual selectivity. The experimental evidence leads us to the formulation of three mechanisms to account for the interrelationship of these phenomena in perceptual behavior. Value orientation makes for *perceptual sensitization* to valued stimuli, leads to *perceptual defense* against inimical stimuli, and gives rise to a process of *value resonance* which keeps the person responding in terms of objects valuable to him even when such objects are absent from his immediate environment. These processes of selectivity must be considered in any perceptual theory which lays claim to comprehensiveness.

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