

This is to certify that the  
thesis entitled  
SITUATIONAL ANXIETY AND BIRTH ORDER  
AS DETERMINANTS OF DOGMATISM  
AND AUTHORITARIANISM

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Jacob Jacoby

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## ABSTRACT

### SITUATIONAL ANXIETY AND BIRTH ORDER AS DETERMINANTS OF DOGMATISM AND AUTHORITARIANISM

by Jacob Jacoby

The purpose of this study was to determine the effects of anxiety and ordinal birth position on dogmatism and authoritarianism. Two multiple hypotheses were proposed:

Hypothesis I: Individuals placed in threatening, anxiety evoking situations: (a) will manifest a constriction of their belief systems and this contraction will vary with increasing threat; and (b) will become more authoritarian and this increase in authoritarianism will vary with increasing threat.

Hypothesis II: As anxiety is introduced into a situation and its level increased, compared to later born individuals, first and only born individuals will become: (a) more dogmatic; and (b) more authoritarian.

A 3x2x2 factorial study, involving 120 Michigan State University undergraduates, was conducted to test the hypotheses. The three factors employed were sex (male vs. female), ordinal birth position (first and only borns vs. later borns), and treatments (hi-threat, mild-threat, and controls). The subjects in the hi-threat condition were led to believe that they were going to receive painful electric shocks, while the subjects in the



mild-threat condition believed they were going to receive mild, pleasurable electric shocks.

The subjects were run in a randomized, counterbalanced order. Using two matched Dogmatism and Authoritarianism Scales especially constructed for this study, each subject's level of dogmatism and authoritarianism was measured prior and subsequent to undergoing the treatment effect.

Analyses indicated that the threat manipulations were highly successful (i.e., at statistically significant levels). However, no support was found for any of the hypothesized relationships.

Several possible explanations for the failure to confirm the hypotheses were examined. The most likely explanation entailed a distinction made by some investigators between fear and anxiety. Predicated upon this distinction, procedural modifications were suggested for future tests of the hypotheses.

SITUATIONAL ANXIETY AND BIRTH ORDER  
AS DETERMINANTS OF DOGMATISM  
AND AUTHORITARIANISM

by Jacob Jacoby

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## Chapter I: Introduction

When considered from a heuristic standpoint, the now classic volume The Authoritarian Personality (Adorno, Frenkel-Brunswik, Levinson, and Sanford, 1950) must be regarded as one of the most important contributions to social psychology in the past two decades. Reference to both the theory and the resulting personality inventory, the Authoritarian Personality or F-Scale, are to be found in all current introductory texts which attempt to cover the breadth and scope of social psychology. The fundamental concept underlying the F-Scale is essentially a very simple one. Namely, that an individual possessing a particular cluster of deep-rooted personality characteristics is predisposed to respond in a prejudicial manner to certain social situations, i.e., at least some social attitudes are a function of certain basic personality traits. A more recently developed scale which also links personality factors to social attitudes is the Rokeach Dogmatism Scale (Rokeach, 1956, 1960). As will be described below, the Dogmatism Scale is, theoretically speaking, a more broadly based scale which was developed in response to certain limitations inherent in the Authoritarian Personality Scale.

The rationales developed for the Dogmatism and F-Scales have several factors in common. One such communality involves the way in which developmental factors are believed to be responsible for authoritarianism and dogmatism. Both Rokeach and Adorno et al. would agree that certain types of experiences during childhood are more likely than others to culminate in either authoritarianism or dogmatism.



As will be elaborated below, a primary concern of the present study is to focus upon these developmental factors from a somewhat different perspective than the one normally adopted in the past.

A second major concern involves the effect(s) that different degrees of situational threat have upon an individual's level of dogmatism and authoritarianism. Based primarily upon theory in the case of dogmatism, and both theory and the results of empirical studies in the case of authoritarianism, a position is adopted which predicts changes in both the amount of dogmatism and authoritarianism as a function of increases in situational threat.

It is these two concerns which form the basis for the present study. When appropriately translated, they furnish the hypotheses which guided this research. Consequently, the brief overview presented above will now be more fully elaborated and placed in terms of historical and theoretical perspective.

In The Authoritarian Personality (Adorno, et al., 1950) the authors present the theory and results of a series of investigations which were conducted over a period of seven years. Originally the focus of these investigations was anti-Semitism, an issue of major concern in 1943. For these early studies a questionnaire — the Anti-Semitism (AS) Scale — was devised which would fairly accurately represent each respondent's position with respect to anti-Semitism. Interest then shifted to the study of ethnocentrism, or from a specific prejudice (i.e., anti-Semitism) to more general prejudice involving intolerance of all outgroups. Another scale was developed, the Ethnocentrism (E) Scale, to accurately index each subject's level of general ethnic prejudice.

In the course of these investigations, data relating to the underlying personality structure of the individuals were also collected. On the basis of these data the investigators were able to isolate a cluster of personality characteristics which was positively correlated with high scores on the A-S and E Scales. This personality cluster was labeled the authoritarian personality and, in order to get at it more directly and without mentioning the names of specific minority groups, a third scale was devised. This was the Authoritarian Personality or 'F' (for fascism) Scale. Thus, these researchers were able to relate more or less overt social attitudes to deeper underlying personality traits.

Within a short period of time The Authoritarian Personality established itself as a major landmark in the field of social psychology. The F-Scale has now been employed in literally hundreds of investigations (cf., Christie and Cook, 1956; Titus and Hollander, 1957) and its underlying tenets have usually been supported. Of course, The Authoritarian Personality has also stirred up much controversy and criticism. One of the most basic criticisms is that, as a function of the theory that guided its research and the measuring instruments involved, The Authoritarian Personality focused specifically on "right" or fascist authoritarianism and not on the general properties held in common by all forms of authoritarianism (Shils, 1954; Rokeach, 1956, 1960). Rokeach (1960, p.14) has proposed instead that we "pursue a more theoretical ahistorical analysis of the properties held in common by all forms of authoritarianism regardless of specific ideological, theological, philosophic, or scientific content."

The sentiment underlying this proposal led Rokeach, over a period of years, to develop his own theoretical treatment of general authoritarianism (1954, 1956) culminating in The Open and Closed Mind (1960). Presented in this volume is a theoretical description of specifically what is involved, structurally and dynamically, when an individual is characterized as being either "open" or "closed" minded.<sup>1</sup> Coupled with this presentation was an instrument -- the Rokeach Dogmatism Scale -- which has enabled investigators to treat open and closed mindedness empirically. In the six years since publication of The Open and Closed Mind both the theory and the instrument have been utilized by many independent investigators to study a variety of different variables. In the main, these studies have lent considerable support to Rokeach's theoretical treatment of dogmatism.

In brief and simplified version, the conceptual foundation upon which the theory rests may be presented as follows. According to Rokeach, all individuals have at least five different kinds of beliefs about the world which they continuously come into contact with and experience. These five kinds of beliefs form a system in which, in terms of the individual's cognitive functioning, some beliefs are more important than others. In decreasing order of importance, they are as follows: primitive beliefs of 100% consensus; primitive beliefs of 0% consensus; authority beliefs; peripheral beliefs; and, inconsequential beliefs.

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1. In the treatment below, general (as opposed to "right") authoritarianism, closed mindedness, and being high in dogmatism are phrases used synonymously.



Starting from the assumption that for each and every belief held by an individual there is (usually implicitly) associated with it a second belief representing that person's estimate of how many other people he feels there are who also hold the first belief, Rokeach defines a primitive belief of 100% consensus as "any belief that virtually everyone [in a position to know] is believed to have also" (1960, p. 41). That is, the individual's second belief is that all those in the total population who are in a position to know about the first belief do know, and believe as he does. Thus, if we were to approach anyone who knew me personally and asked him whether he believed my last name to be Jacoby rather than Smith, we would expect that this individual (and all others like him, i.e., all those in the position of having access to the information) would share my belief about my name.

Rokeach defines a primitive belief of 0% consensus as the converse of the above.

Instead of virtually everyone serving as external referents or authorities, there is no one. Suppose I suffer from claustrophobia. I have been told many times that my fear is groundless, unrealistic. But it does not help. I go on believing that dreadful things will happen to me in closed rooms. The belief is a primitive one because there exists no external reference persons or authorities who [are in a position to know and who] can disconfirm it (1960, p. 42).

With respect to the third level of beliefs — the intermediate or authority beliefs — Rokeach reasons as follows. As it is virtually impossible for any one person to know all that he needs to know in order to have meaningful commerce with the rest of the world, much of the individual's information, of necessity, must come from authorities. The third level of beliefs contains those beliefs one holds concerning the authorities (both positive and negative) that one refers to

for this information.

The fourth level, called the peripheral level, contains:

each and every (nonprimitive) belief and disbelief emanating from positive and negative authority, regardless whether such beliefs are perceived consciously as being thus derived by the person himself. For example, favorable or unfavorable beliefs about such things as birth control, the New Deal, and the theory of repression would be considered peripheral beliefs because they are deriveable from the formal content of one's beliefs about the Catholic Church, Roosevelt, and Freud. The latter according to our view, would be presented as part of the intermediate region rather than the peripheral region (1960, p. 47).

Lastly, in the inconsequential region are to be found all those beliefs which are essentially just that -- inconsequential. More specifically, they are inconsequential in terms of the way they relate to and affect the rest of the beliefs in the person's belief-disbelief system. "I would rather take a bath than a shower" might be an example of such a belief.

All individuals possess essentially the same belief system dimensions. The distinguishing feature of an open system as opposed to a closed system has been described by Rokeach as follows:

A basic characteristic that defines the extent to which a person's system is open or closed is the extent to which the person can receive, evaluate, and act on relevant information received from the outside on its own intrinsic merits, unencumbered by irrelevant factors in the situation arising from within the person or from the outside. Examples of irrelevant internal pressures...are...the need to allay anxiety...By irrelevant external pressures we have in mind most particularly the pressures of reward and punishment arising from external authority; for example, as exerted by parents, peers, other authority figures, reference groups, social and institutional norms, and cultural norms. Will the information received about a situation from such external sources be evaluated and acted upon independently or in accord with expectations about how the external source wishes us to evaluate and act upon this information? The more open one's belief system, the more



should evaluating and acting on information proceed independently on its own merits, in accord with the inner structural requirements of the situation....

Conversely, the more closed the belief system, the more difficult it should be to distinguish between information received about the world and information received about the source (1960, pp. 57-58).

In other words, the fundamental basis for a distinction between open and closed systems is predicated upon the cognitive functioning of the individual involving specifically his "ability (or inability) to discriminate substantive information from information about the source, and to assess the two separately" (1960, p. 60). The less the ability to do so, the more dogmatic or closed minded the individual. The greater the ability, the less dogmatic or more open minded the individual.

## Chapter II: The Relationship of Anxiety and Birth Position to Dogmatism and Authoritarianism

### A. Anxiety as a Determinant of Dogmatism and Authoritarianism

With respect to the etiology of open and closed mindedness, Rokeach has suggested that the "more closed the belief-disbelief system, the more we do conceive it to represent, in its totality, a tightly woven network of cognitive defenses against anxiety" (1960, p. 69). This suggestion was then translated into "the simple hypothesis that those with relatively closed systems should manifest more anxiety than those with relatively open systems" (Rokeach and Kemp, 1960, p. 347), and evidence was adduced in its support (see Table 1). A study by Fillenbaum and Jackman (1961) yielded further corroboration. These authors report finding positive significant relations (cf., Table 1) between scores on the Dogmatism Scale and scores on a 39-item anxiety scale developed by Welsh (1956) from the MMPI. Factorial studies by

Table 1

#### Correlations between Dogmatism and Anxiety

<u>Study</u>	<u>Anxiety measure</u>	<u>N</u>	<u>r</u>	<u>Significance</u>
Rokeach and Kemp (1960)	Welsh (1952)			
Mich. State U. I sample		202	.44	p = .01
New York colleges sample		207	.58	p = .01
Mich. State U. II sample		153	.64	p = .01
Mich. State U. III sample		186	.57	p = .01
English colleges I sample		137	.52	p = .01
English colleges II sample		80	.47	p = .01
English workers sample		60	.36	p = .01
Fillenbaum and Jackman (1961)	Welsh (1956)	42	.49	p < .01
Rokeach and Fruchter (1956)	factor loading	207	.46	
Fruchter, Rokeach and Novak (1958)	factor loading	153	.68	

Rokeach and Fruchter (1956), and Fruchter, Rokeach, and Novak (1958) have also indicated the Dogmatism Scale to load highly on an anxiety factor.

The relationship between dogmatism and anxiety takes on additional meaning when considered in the context of the following passage

(Rokeach, Toch, and Rottman, 1960, pp. 376-77):

to a large extent the shape of a person's belief-disbelief system is relatively enduring, "carried around" within his personality from one situation to another and accounting for many of the uniformities we can observe in his actions. But this does not mean that the situation itself cannot influence a person's behavior. Nor does it mean that a person's belief system is open or closed to the same degree at different times. We think of a person's belief system as possessing not only enduring properties, but also more open, or more closed, in response to a specific situation in which the person finds himself. We assume that the more threatening a situation is to a person, the more closed his belief system will tend to become. Just as threat or anxiety built into the personality as a result of early experience can lead to closed systems that endure, so should situational threats lead to similar effects that should last at least as long as the person experiences threat.

Some evidence for this hypothesized relationship between situational threat and dogmatism does exist. Assuming that what "holds true of people considered in isolation should also apply to people who hold beliefs in common and form groups, movements, or institutions" (Rokeach, Toch, and Rottman, 1960, p. 377), these authors analyzed the responses made by the Catholic Church to some of the major crises it has faced since its inception. The calling of an ecumenical council was operationally considered to be indicative of some sort of crisis in the Church's history and the canons issuing from these councils (i.e., the actions taken in response to the threat) were independently rated to gauge both the amount of punishment prescribed for violators,

and the amount of absolute authority implied in it. To ascertain the degree of situational threat, historical accounts of the ecumenical councils were broken down into those events judged to be directly responsible for the convening of the council, and those judged to be merely contributing to it. Two judges independently rated those events on a 7-point scale for degree of situational threat. The reliability coefficient between the two judges was .95. Situational threat was then correlated with punitiveness ( $r = .52$ ) and absolutism ( $r = .66$ ). Both correlations were statistically significant, thereby providing empirical support for the hypothesis that as situational threat increases there will be a corresponding increase in institutional dogmatism. However, the relationship between situational threat and dogmatism has yet to be demonstrated on the individual level. It therefore, seems reasonable to suggest the following hypothesis: Individuals placed in threatening, anxiety evoking situations will manifest a constriction of their belief systems and this contraction will vary with increasing threat.

The relationship of anxiety to authoritarianism is also an interesting one. Adorno et al. report that the High Authoritarian, in contrast to the Low Authoritarian, tends to perceive the outside world primarily as being threatening (1950, p. 411, 420). Somewhat in contrast are the factorial studies by Rokeach and Fruchter (1956), and Fruchter, Rokeach, and Novak (1958) which indicate that, as opposed to the Dogmatism scale, the F-Scale loads negligibly on an anxiety factor (see Table 2). In line with this finding, Melikian (1956), in a cross-cultural study involving American and mid-Eastern samples, states that "no relationship between authoritarianism and anxiety was found in either



group" (p. 247).

Table 2

Correlations between Authoritarianism and Anxiety

<u>Study</u>	<u>Anxiety measure</u>	<u>N</u>	<u>r</u>	<u>Significance</u>
Melikian (1956) <sup>a</sup>	Elizur (1949)	187 <sup>b</sup>	.06	N.S.
Davids (1955)	Taylor (1953)	20	.69	p < .01
Davids (1956)	Taylor (1953)	22	.25	N.S.
Singer and Feshbach (1959)	Taylor (1953)	147	.34	p < .01
Siegel (1954)	Taylor (1953)	99	.25	p < .02 <sup>c</sup>
Rokeach and Fruchter (1956)	factor loading	207	.27	
Fruchter, Rokeach, & Novak (1958)	factor loading	153	.38	

a. Employed only 19 of the 29 F-Scale items.

b. Ninety subjects were Arabs and 97 were white, anglo-saxon, Protestant Americans.

c. As calculated by the present writer.

Davids (1955, 1956) reports conflicting results in two attempts at relating the F-Scale to the Taylor Manifest Anxiety Scale (TMAS) (Taylor, 1953). In the first study (Davids, 1955) the correlation between the two was found to be +.69 and this was significant at beyond the .01 level. In the second study (Davids, 1956) a non-significant correlation of +.25 was found.

Singer and Feshbach (1959) have also studied the relationship between the F and Taylor Scales. In discussing the problem these authors note that:

Studies dealing with the relationship between authoritarian tendencies and psychopathology have yielded conflicting results...and the issue has elicited considerable controversy....It is rather fruitless to argue what the correlation should be since it is apparently possible to draw diverse inferences regarding the nature and extent of the relationship, depending upon which statements made by the authors of the Authoritarian Personality... one chooses to stress.

Masling (1954, p. 316) contends that there is a bias in favor of seeing the equalitarian personality as being "a fairly well adjusted individual" and the authoritarian as "nasty fellow." However, Frenkel-Brunswik (1954) points out that while high scorers may suffer from strong repressive tendencies, the low scorer may engage in excessive self-criticism and introspection as well as manifest other neurotic features.

The question, then, of the connection between authoritarian tendencies and variables usually associated with various states of mental health becomes an empirical issue that can only be resolved by the accumulation of pertinent data (p. 404).

The pertinent data presented by Singer and Feshbach indicates a significant ( $p < .01$ ) correlation of  $+.34$  between scores on the two scales.

Lastly, based upon a comprehensive treatment of the cultural determinants of authoritarianism, Siegel (1954) arrived at the following rudimentary hypothesis: Anxiety is a correlate of authoritarianism. Involved in the formulation of this hypothesis is a consideration of the combined works of Campbell (1952), Centers (1949, 1952), Davis (1952), Dollard, et al. (1939), Fromm (1941), Horney (1937), Kardiner (1936), Lynd and Lynd (1929, 1937), and May (1950). In summary form, Siegel has postulated the following sequence of events:

(a) Anxiety and hostility are aroused by the socialization process (Kardiner, Fromm, Horney, May, Davis). (b) The mechanism of conformity is employed to allay the anxiety (Kardiner, Fromm, the Lynds, Davis). (c) This conformity leads to a retrenchment into more rigid and conservative economic and social ideologies (the Lynds, Centers, Fromm).

(d) The anxiety caused by repressed hostility may cause displacement of this hostility onto minority or socially disapproved groups (Campbell, Dollard, et al.). (e) The more "socialized" the individual, the more anxiety may be expected in him, and therefore, the more conformity, rigidity, displacement, and in general the more manifestations of authoritarianism may be expected from him (Davis, Kardiner, Fromm). (p. 197).

Both F and Taylor Anxiety Scales were administered to 99 female undergraduates at Stanford University. This sample was broken at the median into high and low scorers on the TMAS. The mean difference between the scores of these two groups on the F-Scale was very significant ( $t = 3.00$ ,  $p < .01$ ). Furthermore, the correlation between scores on the TMAS and F-Scale was,  $r = .25$ . According to the formula given by Edwards (1960, p. 78), the present writer has calculated this coefficient to be significant at better than the .02 level.

Siegel's theoretical analysis and results would appear to positively implicate anxiety as a correlative antecedent of authoritarianism. An examination of the apparent inconsistencies evidenced in the literature (see Table 2) indicates that one of the two studies yielding a non-significant correlation between authoritarianism and anxiety (Davids, 1956) is based on a very small sample, while the other study (Melikan, 1956) utilized the none-too-reliable Elizur (1949) anxiety items and only 19 of the 29 F-Scale items. In contrast, the studies reporting significant correlations are, for the most part, based upon substantially larger samples and utilize the more reliable Welsh (1952, 1956) and Taylor (1953) Scales. Inspection of Table 2 thus suggests the likely possibility that the "true" correlation between authoritarianism and anxiety is in the order of .30 and that with repeated sampling of sufficient size, this parameter would be approached.



Notwithstanding Singer and Feshbach's (1959, p. 404) contention that one is able to draw diverse inferences "depending upon which statements made by the authors of The Authoritarian Personality ... one chooses to stress," on the basis of Siegel's (1954) extension it would seem that anxiety is directly linked in a causative way to authoritarianism. Thus we may hypothesize that individuals placed in threatening, anxiety evoking situations will become more authoritarian and this increase in authoritarianism will vary with increasing threat.

The strength of the hypothesized relationship, however, will probably be less for authoritarianism than for dogmatism. The basis for this assertion is that whereas anxiety is theorized to be the primary causative agent of dogmatism, it is only one of several factors implicated in the etiology of authoritarianism. Support for the assertion comes from observing that the average correlation between anxiety and authoritarianism hovers around .30 (see Table 2) while the corresponding average correlation obtained between anxiety and dogmatism is in the order of .50 (See Table 1). Generally speaking, anxiety thus appears to explain only 9% of the authoritarianism variance while explaining 25% of the dogmatism variance. Furthermore, as Rokeach and Fruchter (1956; as well as Fruchter, et al., 1958) have pointed out, although the F and Dogmatism Scales are highly intercorrelated ( $r = .64$ ), F is relatively independent of anxiety while Dogmatism is not.

B. Birth Order as a Determinant of Dogmatism and Authoritarianism

In seeking to explicate the precise nature of the relationship between dogmatism and anxiety, Rokeach and Kemp (1960) provide data "which suggest at least partly that threat and its effects on the closing up of belief systems has its origin in childhood experiences" (p. 403). These childhood experiences are assumed to be similar to those described by Frenkel-Brunswik (1948) and more fully described in The Authoritarian Personality. Essentially, the research conducted on these determinants involved extensive interviews of female subjects who scored at the extremes on the F-Scale. An important part of the interview schedule focussed upon the individual's childhood role relationships with her parents. Among other things, High Authoritarian subjects typically tended to overtly glorify their parents and to manifest greater submission to their parents than did the Low Authoritarian subjects. Furthermore, High Authoritarians manifested a qualitatively different sort of dependence upon their parents than did Low Authoritarians. Adorno, et al., described this difference as follows:

not being self-reliant, they need support and comfort, first from the parents and then from parent-substitutes. This dependence, however, is neither focussed nor conscious; it is rather a need for help of others in getting things; the person from whom things may be gotten may equally well be parents, or the "leader," or anyone else who seems capable of offering tangible support. The kind of dependence on the parents expected to be characteristic of unprejudiced subjects, on the other hand, is the kind of dependence which people with an ability to love direct toward those for whom an object cathexis has been established (1950, p. 353).

The interview data presented in The Authoritarian Personality is predicated upon what may be termed a cross-familial approach. That is

to say, these authors isolated two different modal patterns of childhood milieus and experiences, and the High Authoritarians were typically found to have had one pattern of familial role relationships whereas the Low Authoritarians usually had the other. However, in light of the plethora of recent empirical studies sparked by Schachter's work on n-Affiliation (1959) and involving ordinal birth position, it seems reasonable to speculate that childhood milieus might also manifest consistent patterns of intra-familial variation. That is to say, all first-born children might develop certain role relationships with their parents which are not developed in the cases of second and laterborn children. As an apropos example, Stone and Church (1957) report that:

Parental resistance to the child's growing up may stem from unwillingness to relinquish authority built up over a decade and a half. We should point out that parental resistance is often greatest against the oldest child, who in many areas has to break trail for his younger siblings (p. 278).

In the volume by Schachter (1959) alluded to above it was found that first and only-born individuals were more anxious in stress situations and, with anxiety held constant, more dependent upon other persons as "sources of approval, support, help, and reference" (p. 82). (Witness the similarity in the type of dependence behavior described here as being characteristic of first and only-borns and that noted above by Adorno, et al., as being characteristic of High Authoritarians.) Schachter attributed the first or only-born's need to affiliate to "child rearing practices as related to ordinal position and of the different consequences of having older or younger siblings around" (p. 79). He concludes as follows:


Influencibility, which is assumed to be in part a function of dependence, is demonstrated to be related to ordinal position. It is anticipated that other dependency-linked behaviors will eventually prove to be related to ordinal position (p. 89).

Becker, Lerner, and Carrol (1964) provide the following interpretation of Schachter's findings:

It makes sense to suggest as Schachter does, that the more anxious first-born child may have learned to seek out others for support; but it is also reasonable to assume that the later-born child may have had more experience in turning to others, especially peers, as reliable sources of information about the environment. This line of reasoning follows from the fact that the later-born child, having had the presence of an older child as a major agent of his socialization, has characteristically relied upon a comparative peer as a source of validation concerning his beliefs and ideas ... Apparently the older child, through direct teaching or example, characteristically provides the younger child with the "facts of life" and techniques of how to make one's way in the world. The first-born child, on the other hand, does not have this relative peer as a model or source of information (pp. 318-19).

In other words, later born children may have a relatively peer oriented model of belief evaluation and validation whereas first and only-born children may have a more authority oriented model (cf., Warren, 1966, p. 39). Or, as Stotland and Walsh (1963) have aptly put it, as adults "the later borns may react as if they were still in a family of peers, which was their initial experience in life" (p. 614). Becker, et al. (1964), continue as follows:

If this analysis is valid, and if it is also correct that these early patterns tend to be continued in later life, then it should be possible to demonstrate differences between first-born and later-born persons in terms of the way in which they respond to social pressures in group situations. Because of his greater dependence upon others for emotional support, the first-born person should be more amenable to "normative" influence (Deutsch & Gerard, 1955). That is, he should have a greater need to meet the expectations of other people.



On the other hand, the later-born persons should be equally or more amenable to social influence if the content of the suggestion is apparently worthwhile information about the environment. It is our hypothesis that the first- or later-born person might appear to be more or less "dependent" as a function of which type of influence, normative or informational, is operating in a social situation (p. 319).

Observe how nearly identical this description is to Rokeach's distinction, presented earlier, of the fundamental difference between open and closed minded individuals. Little meaning would appear to be lost if one substituted open minded for the psychological processes and states characterizing the later born, and closed minded for the psychological processes and states characterizing the first born in either of the descriptions. Rokeach's distinction has been amply supported by both his own research and that of others (e.g., Rokeach, 1960; Powell, 1962; Vidulich and Kaiman, 1961). Becker, et al.'s description has been supported by their own investigations (1964, 1966) as well as by a recent study conducted by Schachter (1964) on the sociometric choice patterns manifested by first and later borns. To a significant extent, Schachter found that first borns tended to establish their friendship relationships on the relatively trivial basis of what other people thought of the "friend" they had selected rather than upon more relevant criteria such as those offered by their own personal needs and interests.

Additional evidence which may be interpreted as supporting Becker et al.'s. (1964) formulations is forthcoming from studies by Dittes (1961) and Radloff (1961). In Dittes' study, later born subjects were found to be virtually unaffected by variations in the degree of peer acceptance, whereas first borns proved to be very sensitive to such

manipulations. First borns were more likely to show "blind conformity" and "impulsive judgments" when they experienced only moderate or less-than-highest peer acceptance. Radloff (1961) reports finding that when uncertain about an opinion for which there exists no objective criteria by which to evaluate its correctness, first borns seek affiliation with others in order to evaluate such opinions via social comparison whereas later borns do not.

Apparently then, it seems reasonable to speculate that one possible developmental determiner of the openness or closedness of an individual's belief system might be his birth position. As a preliminary and tentative statement, the following hypothesis may thus be articulated: First and only-born subjects will tend to be relatively closed-minded whereas later born subjects will tend to be relatively open-minded.

And what about the possible existence of a direct relationship between birth order and authoritarianism? In concluding their section on "family patterns", Adorno et al. (1950, p. 384) remark that their data "give evidence that the presence or absence of extreme ethnic prejudice in individuals of our culture tends to be related to a complex network of attitudes within, and relating to, the family". We have already described this research in some detail and noted that its approach was cross-familial rather than intra-familial. In light of the results of the recent investigations by Schachter and others, it would also appear reasonable to hypothesize that first and only borns will tend to be, relatively speaking, more authoritarian than later borns.

The evidence currently available, however, tends to disconfirm the hypothesized existence of a direct relationship between birth order and either dogmatism or authoritarianism. A pilot study by the present author furnishes us with the only empirical data concerning the hypothesized relationship between birth order and dogmatism. In this study, the Pannes (1962) version of the Rokeach Dogmatism Scale (see Appendix A) was administered on an individual class basis to seven (7) sophomore and seven (7) junior English classes at Mason High School (Mason, Michigan) during the week of March 22, 1965. The Pannes version was specifically developed for use with junior and senior high school students. It consists of 15 items taken verbatim from the Rokeach Dogmatism Scale Form E, and 25 items with modified wording but identical meaning to the remaining 25 items of Form E. The Modified wording resulted from discussions with, and pre-testing on samples in the junior and senior high school age group. After extensive analysis of these pre-tests, Pannes (p. 110) reports that based "upon the internal consistency, stability, and discriminatory ability of the instrument to reveal differences in degree of dogmatism, it may be said that Dogmatism Scale E for Junior-Senior High School is reliable."

In addition, Pannes cites several reasons for believing that the validity of her version is also high. Among the reasons given are the following: (a) The items in the revised form have face validity. (b) "Rokeach has stated that the children - revised statements express exactly the same meaning as the original statements gathered or originated by him, used in the original Dogmatism Scale E" (p. 118). (c) Item "analysis showed that thirty-nine of the forty statements were

very significant in their ability to discriminate between high and low dogmatic responses; the phi coefficient test revealed that thirty-four of the items proved significant at the .05 level or better in ability to discriminate between high and low dogmatic responses; tetrachoric  $r$  values showed that thirty-six of the forty items indicated a significant relationship between the individual score and the total score. These tests contribute to validity". (p. 118).

Three subjects (Ss) from the Mason High School sample were eliminated because their teachers had identified them as being incapable of reading and comprehending even the revised Pannes items. Eight more forms were excluded from the analysis because the Ss had neglected to respond to some of the items. The data presented are based on the remaining 370 high school students. The mean score obtained by these subjects on the Pannes version of the Dogmatism Scale was 168.284 and the S.D. was 25.251. A Pearson-Product Moment correlation between Dogmatism Scale score and birth rank yielded a non-significant  $r$  of .0887. This is in the opposite direction to that predicted as it indicates a tendency for the later (rather than the first) borns to be higher in Dogmatism.

With respect to the hypothesized relationship between ordinal position and authoritarianism, a search of the literature reveals only two studies in which both variables were employed concurrently.

In the only reported test for a possible relationship between the two, Greenberg, et al. (1963), gave a battery of tests to 264 Fairleigh Dickinson University evening students. The subjects ranged in age from 18 to 62 and were tested in groups ranging in size from 18 to 40.



No breakdown according to sex was provided. The subjects were broken down into four groups — only, youngest, middle and oldest — and the authors reported that the "F-Scale showed virtually no difference between the four groups". (p. 227).

The second study (Stotland and Dunn, 1962) provides only indirect evidence concerning the postulated relationship. The sample was composed of 298 freshmen and sophomore volunteers at the University of Washington, 43% males and 57% females. In the first experimental session the subjects were assembled in groups of 70 to 80 and were administered the F-Scale. In the second session, groups of 20 to 30 same-sexed subjects were exposed to experimental manipulations designed to determine the extent to which each subject identified with a hypothetical model individual presented by the experimenters. These investigators report that Low Authoritarians tended to identify with the model whereas High Authoritarians did not (thus confirming other results obtained previously by Stotland and his associates). Furthermore, a breakdown of the subjects according to ordinal birth position revealed that the later borns also tended to identify with the model whereas the first and only borns did not. Although no direct analytical comparison was made between ordinal birth position and authoritarianism, the parallel trends indicating that both Low Authoritarians and later borns responded similarly are suggestive. It should also be noted that Stotland and Dunn interpret the trend evidenced in their monograph to be somewhat at odds with Schachter's finding that first and onlies were more dependent upon others than were later borns. They attribute this difference to "be an outcome of the fact that Schachter was dealing

with highly anxiety arousing situations, while the conditions of the present study were relatively benign" (p. 20).

We might imply from the Stotland and Dunn results that ordinal birth position findings will fluctuate as emotional factors, especially anxiety, enter into the experimental situation. This implication seems to find support in the literature. Staples and Walters (1961), using 64 University of Toronto undergraduates in an autokinetic situation, report finding that first and only borns were more suggestible than later borns under anxiety conditions (i.e., threat of electric shock), but manifested virtually no difference under control conditions of no anxiety. However Moore (1964), using 80 male undergraduates in the autokinetic situation, all under non-anxiety inducing conditions, found no significant birth order effects related to suggestibility.

Schachter's original (1959) studies indicated that in the absence of anxiety, first and later borns manifest virtually no difference in their respective desires to affiliate. However, under conditions of anxiety first borns are significantly more desirous of affiliation than are later borns. Sarnoff and Zimbardo (1961) report essentially the same results using a sample of males. Wrightsman (1960) reports that "waiting together" as compared to "waiting alone" effectively reduced anxiety for first borns but made no appreciable difference with later borns. Weller (1962), however, in an attempted exact replication of Schachter's studies, found no birth order effect among 234 females due to the experimental manipulation of anxiety.

Other emotional states directly associated with anxiety have also been manipulated producing differential behavior on the part of first

and later borns. Radloff (1961) varied the need for social evaluation and found that "the results of the present experiment complement Schachter's (1959) findings that early and later borns do not differ in overall affiliate tendencies; they only differ when dependency-related needs are aroused" (p. 583). One can assume that the arousal of such needs induces a certain amount of anxiety in the first borns. Dittes and Capra (1962) report that first borns who are made to feel uncertain about their reaction(s) to emotion arousing threat situations demonstrate greater affiliative tendencies than do other firstborns who are informed of the similarity of their reactions to others. This result was reversed for later born subjects. Dittes (1961) also reports that "Experimental manipulation of acceptance by peers produced highly significant differences among firstborn subjects in counter-rejection of group, conformity to norms of group, and impulsive closure on cognitive tasks. Later born subjects appeared invulnerable to differences in acceptance" (p. 358). The association between "feeling uncertain about reaction(s) to threat" (Dittes and Capra, 1962), or "experiences of acceptance and rejection by peers" (Dittes, 1961), and anxiety is readily apparent.

Lastly, Gerard and Rabbie (1961) employed 29 male and 71 female undergraduates at Brooklyn College in an experiment involving affiliation and social comparison. Two levels of fear (i.e., threat of strong or weak shock) were employed and the findings, across all birth positions, indicated that the higher the fear the greater the desire to affiliate. When the data were analyzed across both fear treatments, a significant difference was revealed supporting Schachter's finding

that first and onlies have greater affiliative tendencies than later borns. When the data were examined separately for males and females, it was found that first and only born women had higher affiliative scores than later born women (thereby supporting Schachter, 1959), but that first and only born males had lower affiliative scores than later born males (thereby contradicting Sarnoff and Zimbardo, 1961). This interesting sex reversal will be more closely examined below.

Generally speaking, although some negative evidence exists (viz., Weller, 1962), there does appear to be some degree of consistency in the ordinal birth position literature when emotional states are involved. Especially in those studies which employ anxiety as the independent variable, differences between first and later borns on the dependent variable typically will not be manifested under control (i.e., no anxiety) conditions but will be manifested under experimental (i.e., anxiety) conditions. Of course, it might be argued that first and later borns differ on the level of general anxiety that they bring to the experimental situation. However, Sampson (1965), in reviewing this aspect of the literature, concludes as follows:

If we put together these data...two studies indicate that the firstborn have higher anxiety than the later (Schachter, 1959; Yaryan and Festinger, 1961); three indicate that the second born have higher anxiety than the first (Rosenfeld, Unpub.; Sampson and Hancock, Unpub.; Weller, 1962); and two indicate no difference (Moore, 1964; Weller, 1962). On this basis, it appears that there is no clear conclusion one may reach about the relationship between ordinal position and initial level of general anxiety (p. 196)

It is interesting to note that in addition to the Gerard and Rabbie (1961) study (which found that first born women were more affiliative than later born women, but first born males were less affiliative than

than later born males), other investigators employing subjects of both sexes have also reported interesting interaction effects. Sampson (1962), for example, has reported that first born males conform more than later born males, but first born females conform less than later born females. These results were repeated in another study by Sampson and Hancock (Unpub.). Schooler (1964) reports that among female schizophrenics admitted to a mental institution in Maryland during a seven year period there were significantly more last borns than first borns. However, no overall relationship between birth order and hospitalization was found among the male patients. Lastly, as was noted above, while Staples and Walters (1962) found (anxious) female subjects to be more suggestible in the autokinetic phenomenon situation, Moore (1964), also employing the autokinetic situation, reports finding no difference in suggestibility between (non-anxious) first and later born males.

In attempting to delineate the possible causal factors which might be responsible for these apparently confusing interactions most authors resort to an interpretation involving differences in socio-cultural child-rearing practices.<sup>2</sup> Thus Sampson (1962) suggests that the role

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2. Relevant here, in terms of cultural differences, is a study by Becker and Carroll (1962). These authors report finding n-Affiliation and conformity to be related to birth rank in a sample of American boys but not in a sample of Puerto Rican boys. Their explanation is as follows: "If, as Schachter (1959) assumes, the relation between birth order and need Affiliation is due to conditioning procedures specifically related to being the first or only born child in a family group, and since child rearing practices are not common to all cultures, it is not surprising to find such a relationship lacking in children of another culture" (p. 131). However, Varela (1964), employing a sample of 66 male and female Uruguayan high school students, does report cross-cultural confirmation (p. <.10) of Capra and Dittes' (1962) (cont'd.)



training given to the female child in our culture is closer to the adult role she will play later than is the role training given to the male child, particularly in the early adoption of responsible and independent behavior. A somewhat contradictory interpretation has been offered by Gerard and Rabbie (1961, p. 592):

The parent conveys society's norms to the child. One set of norms that is communicated is how a male or female should behave. In interacting with her male child the mother treats him as a male, rewarding male-like behavior to the exclusion of female-like behavior. The reverse is true for females. The behavior of first born and only children in our experiment exemplified the Victorian norms of the stalwart male and dependent woman which still probably characterize the ideal man and woman in contemporary western culture.

Schooler (1964) reports one unsuccessful attempt at specifying the causal factors by an analysis involving information about the behavior of working and middle-class parents towards children of different ranks and sexes. Perhaps, then, in some as yet unspecified way, the sex of the subject also operates as an important mediator of behavior as a function of ordinal birth position. It would thus seem to make good methodological sense for studies involving birth rank to treat the male and female sub-populations separately.

In concluding his exhaustive (as of mid-1964) review of the literature, Sampson (1965) has drawn a composite portrait of the first vs. the later born individual. The picture that emerges is the following:

The first born child's initial experiences in life are of being alone in an awesome and confusing world. To contend with this world

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(cont'd) finding that first borns volunteer in greater numbers for small group experiments than later borns (as predicted from Schachter's, 1959, findings).

he turns to the most readily available source, his parents, and uses them as his model for coping with the complexities that he daily encounters. However, in very many ways, his parents loom large and distant.

The second and subsequent children are born into a much different physical and social milieu. Compared to the first born, the second and later born children find a model which is closer, more manipulable, less powerful, to use in grasping the complexities of their own worlds.

Thus:

The second child grows up looking outward upon a world of peers and learns those skills required for coping with similars. The first child grows up looking inward, for without there lies a world of still powerful adults, a more difficult breed to handle, a breed requiring a different set of skills. (p. 221)

However, in certain situations, what appears like a reversal of roles seems to emerge.

The inner oriented firstborn turns outward to seek union and agreement with others when his world becomes difficult to handle or issues of choice arise. The outer oriented second born turns inward to seek isolation within himself when difficulties and decisions arise. The power and distance of his parents not only give the first a reduced sense of personal autonomy, but also direct him more toward others as useful figures for providing structure, setting direction, and handling problems. On the other hand, the closer model which exists for the second not only permits him to develop a stronger sense of self-confidence, but also instructs him in the more autonomous manipulation of others; these turn him back upon his own skills when problems and issues of choice arise. (pp.221-222)

Note also a similar interpretation suggested by Stotland and Walsh (1963), namely, that for anxious first borns "the reaction of turning to others may be a socially oriented defense against anxiety, while identification, empathizing, and sympathy [i.e., socially oriented



behavior] may be the typical reaction of later borns when they are not personally threatened" (p. 614).

On the basis of Sampson's evaluation and interpretation of the available data, it would appear that certain behavioral characteristics (e.g., patterns of reaction to stress) of first and only born children which are developed as a result of early childhood experiences typically remain latent in the adult. It is only when "difficulties and decisions" arise that these characteristics come to the fore. Consonant with this interpretation, the two simple hypotheses presented earlier (i.e., relating dogmatism and authoritarianism to birth rank) may be combined and reformulated as follows: As anxiety is introduced into a situation and its level increased, compared to later born individuals, first and only born individuals will become more dogmatic and more authoritarian.

One final point should be noted concerning the relationship postulated to obtain between birth rank on the one hand, and dogmatism (or authoritarianism) on the other. Though we have conceptualized the former as being a determiner of the latter, consideration of the real world suggests that the relationship cannot be too large. If it were it would mean that a sizeable proportion of only and first born individuals would be highly dogmatic (or authoritarian) while a corresponding segment of the later born population would be very low in dogmatism (or authoritarianism), and this does not appear to be likely. Rather, it seems more reasonable to assume that variations in birth rank are responsible for only a small proportion of the dogmatism (or authoritarianism) variance. Other factors, such as personality of the parents,

child-rearing practices, etc., are probably more important determiners. The only point we would like to suggest is that, in addition to these other previously indentified variables, ordinal birth position plays some role in the etiology of dogmatism and this will be more readily apparent in the presence rather than in the absence of situational anxiety.

C. Summary of Hypotheses and Purposes of this Study

By way of summary, this investigation is concerned with the following hypotheses:

Hypothesis I: Individuals placed in threatening, anxiety evoking situations: (a) will manifest a constriction of their belief systems and this contraction will vary with increasing threat; and (b) will become more authoritarian and this increase in authoritarianism will vary with increasing threat.

Hypothesis II: As anxiety is introduced into a situation and its level increased, compared to later born individuals, first and only born individuals will become: (a) more dogmatic; and (b) more authoritarian.

Two additional purposes of the study are the following: (1) To investigate, without any a priori hypotheses, the potential effect of sex differences upon the relationships hypothesized above. (2) To help resolve an issue in the literature by providing additional data pertaining to the level of general anxiety first and only borns vs. later borns possess upon initial entry into the experimental situation.

### Chapter III - Methodology

A Brief Overview - A 3x2x2 factorial design was employed to test the hypotheses. There were three treatment levels (one control and two experimental groups), two levels of sex (male vs. female), and two levels of birth position (first and only borns vs. later borns). The subjects (Ss) were first administered measures of dogmatism and authoritarianism. The experimental manipulations, in which the two groups of experimental Ss were made differentially anxious, were conducted and all Ss were then tested again for increases in dogmatism and authoritarianism. Pre and post measures of anxiety were obtained to check on the efficacy of the manipulations.

Subjects - One hundred twenty students enrolled in Introductory Psychology at Michigan State University during the summer of 1965 served as Ss in the experiment. All Ss were motivated to participate for at least two reasons: (a) they received credit towards their final grade for each hour they served as Ss in psychology experiments, and (b) the experimenter personally visited each class at the beginning of the term and asked the students to participate in this experiment rather than others because "it means my Ph.D." These Ss could not be considered "volunteers" in the truest sense, however, as most of the instructors made a minimum of 3 hours participation in experiments a requisite for the course. The sample was equally divided into groups of males vs. females, and first and only borns vs. later borns.

Randomization Procedures - The 30 Ss in each of the four combinations (i.e., male first and only borns, male later borns, female first and only borns, female later borns) were randomly assigned to one of

the three treatment conditions (i.e., High Anxiety, Mild Anxiety, Control). This yielded  $3 \times 2 \times 2 = 12$  cells, with 10 Ss to a cell. Two equivalent shortened forms of the Dogmatism and F-Scales (hereafter referred to as Form A and Form B) were constructed (as described below) and five Ss in each cell were randomly pre-assigned to take the A form first and give to take the B form first. Thus, since the individual Ss were run successively, given knowledge of an S's sex and birth rank all subsequent procedures were determined. For example, supposing student X was the sixth male later born to arrive for the experiment. The flow chart would show that he was to take Form A first and then be exposed to high anxiety manipulations, after which he was to take Form B. The sequence for the seventh male later born, however, would be to take Form B first, be exposed to mild anxiety manipulations, and then take Form A. (These procedures will be described shortly in greater detail.)

The Authoritarianism and Dogmatism Measures - In late 1964, Kerlinger had both the F and Dogmatism Scales administered to a sample of 537 Introductory Psychology students at Michigan State University. The students responded to each item on a seven point scale ranging from +3 (Agree very strongly) to -3 (Disagree very strongly), with the neutral 0 value being omitted. The mean and standard deviation were computed for each item on the two scales and, in general, the values obtained for the Dogmatism items closely correspond to those reported by Rokeach (1956). The Kerlinger data, made available to this author by Rokeach, were used in the present study as the basis for constructing two matched F and Dogmatism sub-scales. The procedure was as follows.

For both the F and Dogmatism Scales, individually, the means were ordered according to magnitude and then paired (e.g., the Dogmatism items with the two highest means formed one pair, the next two highest formed the second pair, etc.). Since the final form of the Dogmatism Scale (Form E) contains 40 items, this procedure yielded 20 pairs for the Dogmatism Scale. However, since the final form of the F-Scale (Forms 40 - 45) contains 29 items, one F-Scale item had to be eliminated. Since we hypothesized an increase in score resulting from the introduction of anxiety, it was reasoned that an item allowing for greater increase in score should be preferred over an item allowing for little increase, as the latter might tend to introduce a ceiling effect. Consequently, since "Human nature being what it is, there will always be war and conflict," was the item with the largest mean ( $\bar{X} = 5.03$ ), it was eliminated.

Two matched F and Dogmatism sub-scales were then formed by assigning the larger mean of each pair to one sub-scale, with the smaller mean of each pair being assigned to the other sub-scale. This was done in an ABBA order. By way of explanation, let us denote the first sub-scale by the letter A and the second sub-scale by the letter B. Now consider only the larger means in the following four hypothetical pairs: 5.0 and 4.9; 4.7 and 4.5; 4.2 and 4.1; 3.9 and 3.8. The larger mean of the first pair (i.e., 5.0) would be assigned to sub-scale A; the larger mean of the second pair (i.e., 4.7) to sub-scale B; the larger mean of the third pair (i.e., 4.2) to sub-scale B; and the larger mean of the fourth pair (i.e., 3.9) to sub-scale A. (This means that the smaller means in each pair were assigned in a BAAB, or

"mirror-image" order). The larger mean of the succeeding (i.e., fifth) pair was assigned as the initial element in a new ABBA pattern.

The resulting means for the two 20 item Dogmatism sub-scales were 74.675 and 74.821. The mean difference between the two sub-scales is thus a negligible .146. The means for the two 14 item F sub-scales were 48.018 and 48.103. The mean difference between these two sub-scales, .085, is also negligible.

Next, the 14 items of one F sub-scale and the 20 items of one Dogmatism sub-scale were integrated into one 34 item form (Form A), and the items of the other F and Dogmatism sub-scales were integrated into a second 34 item form (Form B). The sequence in which F or Dogmatism items appears in each form was randomly determined (see Table 3). The overall means (based on the Kerlinger data) for these two forms were 122.778 and 122.834. Copies of the two forms will be found in Appendix B together with the other material presented to the Ss.

To test their reliability, both forms were administered to a sample of 174 M.S.U. students enrolled in Introductory Psychology during the spring quarter of 1965. (N.B. This will later be referred to as the "Reliability Study".) The resulting raw correlations hovered, for the most part, slightly above  $r = .6$  (see Table 4). Corrected for length by the Spearman-Brown formula, they ranged in the order of .74 to .82. The corrected F-Scale reliability coefficients for the total sample ( $r = .782$ ) falls below the mode ( $r = .90$ ) for the 14 reliability coefficients obtained by Adorno, et al. (1950, p. 258) for Forms 40 and 45 of the F-Scale. The corrected Dogmatism reliability coefficient for the total sample ( $r = .753$ ), however, fall nearly at





Table 3

Scale of Origin (i.e., Dogmatism or F) Means, and S.D.'s of the A and B Form Items. (N.B. - values presented are those obtained by Kerlinger, 1964.)

<u>Form A</u>				<u>Form B</u>			
<u>Item</u>	<u>Origin<sup>a</sup></u>	<u>Mean</u>	<u>S.D.</u>	<u>Item</u>	<u>Origin<sup>a</sup></u>	<u>Mean</u>	<u>S.D.</u>
1	D	5.737	1.582	1	D	5.473	1.445
2	F	3.138	1.822	2	F	3.039	1.538
3	F	2.419	1.391	3	D	5.397	1.464
4	F	3.050	1.440	4	F	2.296	1.386
5	D	1.862	1.050	5	D	3.199	1.542
6	F	3.026	1.662	6	D	3.983	1.672
7	F	3.730	1.784	7	F	4.425	1.639
8	D	4.214	1.809	8	D	4.065	1.916
9	D	5.101	1.572	9	F	2.769	1.789
10	D	3.045	1.621	10	D	3.045	1.468
11	F	2.912	1.766	11	F	3.439	1.766
12	F	3.769	1.758	12	F	2.957	1.761
13	F	4.026	1.673	13	F	2.676	1.405
14	D	3.937	1.795	14	F	3.890	1.706
15	D	4.043	1.675	15	D	4.155	1.768
16	D	4.056	1.558	16	F	4.534	1.692
17	F	4.551	1.728	17	D	3.799	1.909
18	F	3.034	1.701	18	D	3.875	1.862
19	D	3.559	1.720	19	D	3.553	1.821
20	D	4.119	1.751	20	F	4.808	1.722
21	D	4.538	1.936	21	F	3.287	1.626
22	D	2.795	1.784	22	D	2.136	1.246
23	F	2.629	1.449	23	D	3.993	1.763
24	D	3.400	1.850	24	D	3.879	1.717
25	D	2.829	1.418	25	D	2.838	1.485
26	F	4.700	1.715	26	D	2.912	1.836
27	D	4.700	1.644	27	F	3.041	1.742
28	F	4.216	1.754	28	F	2.948	1.753
29	D	3.803	1.515	29	D	3.236	1.451
30	D	3.825	1.876	30	F	3.909	1.677
31	D	2.991	1.831	31	D	4.598	1.703
32	D	3.140	1.409	32	D	4.685	1.529
33	F	2.903	1.203	33	D	3.544	1.478
34	D	3.901	1.700	34	D	2.456	1.268

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a. D = Dogmatism Scale; F = F-Scale

the mode ( $r = .76$ ) for the 10 reliability coefficients obtained by Rokeach (1960, p. 90) for Form E of the Dogmatism Scale. On the basis of these results (especially for the Dogmatism subscales) it was felt that further modification of the two sets of sub-scales would not appreciably raise the reliabilities.

Table 4

Reliability Coefficients for Dogmatism and F sub-scales:  
Reliability Study

	<u>N</u>	<u>Dogmatism</u>		<u>F</u>	
		raw <u>r</u>	corrected <u>r</u>	raw <u>r</u>	corrected <u>r</u>
Total sample	174	.603485	.75271	.641585	.78166
Males	117	.616108	.76245	.642006	.78197
Females	57	.594249	.74549	.612069	.75935
Ss taking Form A first	86	.639686	.78025	.591754	.74352
Ss taking Form B first	88	.589169	.74148	.688831	.81574

The means for the two forms, however, were not nearly as equivalent as was expected on the basis of the Kerlinger data (see Table 5). Tests for the significance of the difference between means of correlated samples (Ferguson, 1959, p. 140) were conducted for both the F and Dogmatism sub-scales. An insignificant  $t$  of 1.12 was obtained for the difference between the total sample means on the F sub-scales. However, a significant ( $p. < .01$ )  $t$  of 3.57 was obtained for the difference between the total sample means on the Dogmatism sub-scales.

Table 5

Reliability Study: Dogmatism and F sub-scale means and S.D.'s

<u>Dogmatism sub-scales</u>					
	N	Form A		Form B	
		$\bar{X}$	S.D.	$\bar{X}$	S.D.
Total sample	174	72.6034	11.5091	75.3735	11.5969
Males	117	74.3761	11.2723	76.4786	11.0933
Females	55	68.5273	11.1419	72.8182	11.9445
Ss taking Form A first	86	73.2907	11.1618	74.4419	10.7677
Ss taking Form B first	88	71.9318	11.8640	76.2841	12.3474

<u>F sub-scales</u>					
	N	Form A		Form B	
		$\bar{X}$	S.D.	$\bar{X}$	S.D.
Total sample	174	46.3908	10.5726	47.1897	10.0922
Males	117	48.1111	9.3447	48.5556	9.8168
Females	55	42.3455	11.9445	44.2182	10.2861
Ss taking Form A first	86	47.1047	10.4904	47.2442	9.6783
Ss taking Form B first	88	45.6932	10.6656	47.1364	10.5364

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A judgement, therefore, had to be made concerning whether or not to proceed with the two Dogmatism sub-scales as they were and adjust the scores just prior to the analyses, or to construct two altogether new sub-scales in an attempt to obtain equivalent mean scores as well as

high reliability. Since construction of the present sub-scales was based on data from a sample (Kerlinger, 1964) more than three times larger than that of the present reliability study ( $537 > 3 \times 174$ ), and since the obtained reliability coefficients were considered to be fairly high considering the small number of items in each subscale, it was decided that the best way to handle the discrepancy would be to add in a correction factor in the analyses of the results should this later prove necessary.

Anxiety Indices - Three measures were taken of each S's level of anxiety, one prior to and two after the experimental manipulations (see Appendix B). The pre and one of the post measures, hereafter referred to as Anx-I and Anx-II, consisted simply of the S's response to the following 6 point question (adapted from Schachter, 1959, p. 31):

How nervous or uneasy do you feel about taking part in this experiment? Please answer by checking one of the following alternatives:

- \_\_\_\_\_ I feel extremely uneasy
- \_\_\_\_\_ I feel very uneasy
- \_\_\_\_\_ I feel quite uneasy
- \_\_\_\_\_ I feel a little uneasy
- \_\_\_\_\_ I feel relatively calm
- \_\_\_\_\_ I feel completely calm

The second post manipulation measure (hereafter called the "terminal anxiety" measure) is somewhat more indirect and consists of the S's response to the following question.

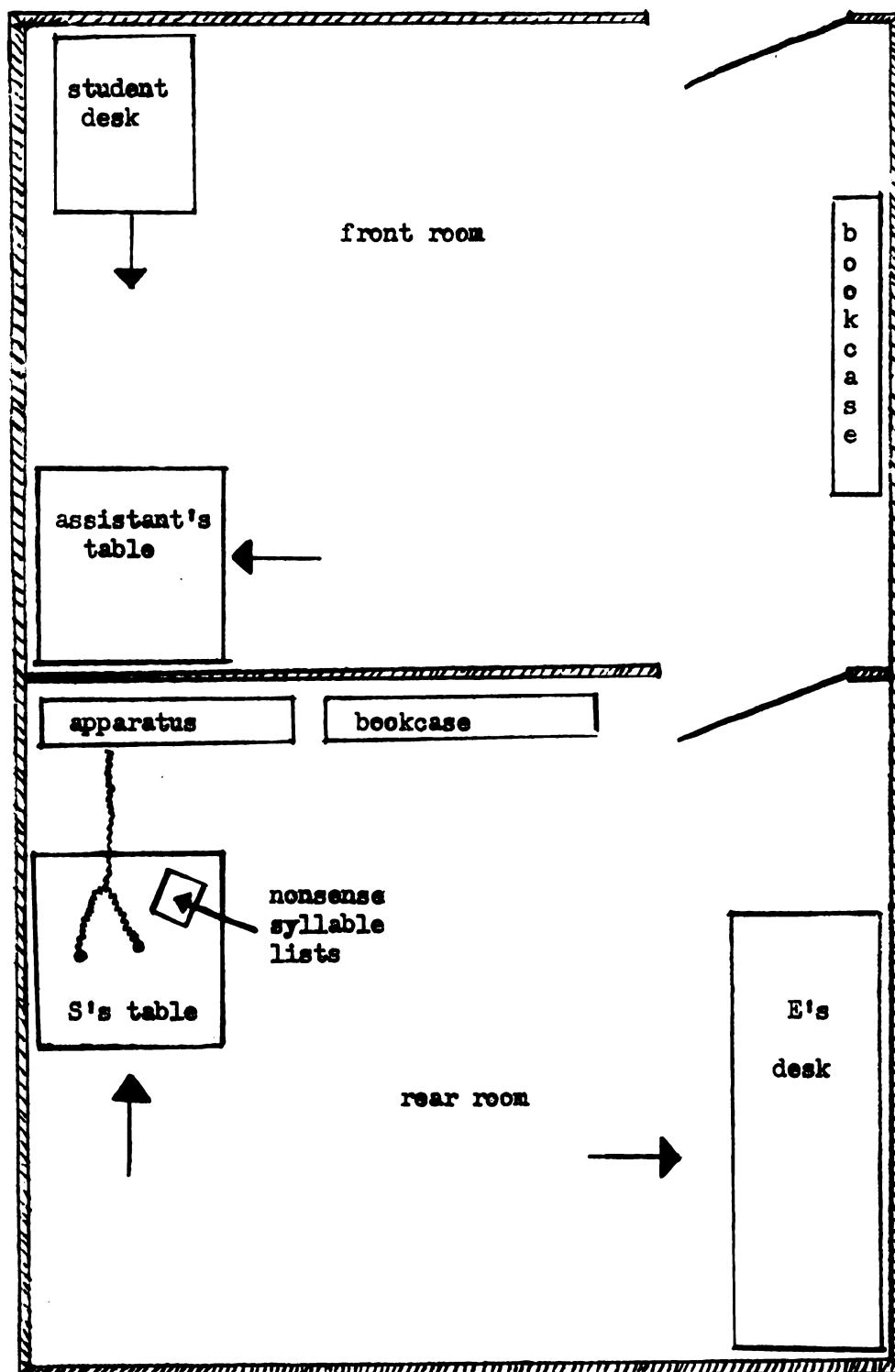
Would you like to leave rather than proceed with the experiment:

\_\_\_\_\_ yes                      \_\_\_\_\_ no

Experimental Assistants - Three male undergraduates were hired as experimental assistants. Their primary function was to conduct the introductory work with each of the Ss so that when the E began to work with them he was unaware of their respective birth ranks.

The assistants received the following training for the job. The nature of the study was described at length and in detail until the E was satisfied that each assistant had a good understanding of what was going on. In addition, each assistant was instructed on how to conduct himself with, and what to say to each of the Ss (as described directly below). On the following day, each assistant was required, in private, to describe the procedure in as great detail as he could, focussing specifically upon his part in the experiment. Omissions and incorrections were attended to. In addition, they were given test protocols to score, and their work was closely scrutinized by the E. (Their work was also periodically spot-checked by the E during the course of the experiment proper.) Each assistant ran three Ss in the last phase of his training. These Ss were used solely as training Ss for the assistants and their results were discarded. The procedure followed was exactly the same as was followed during the experiment, and the E closely supervised each assistant's performance during this phase.

Physical Layout of the Experimental Situation - Two adjoining rooms in the basement of the new Psychology Research Building at M.S.U. were utilized for the experiment. As illustrated in Figure 1, the only means of entry into the rear room was by walking through the front room. When the door between the two rooms was closed, the rear room was soundproof.



**Fig. 1** Physical layout of the experimental situation.

Note: the arrows indicate the direction in which a seated individual would be facing.

The front room contained a table and chair (for the assistant), a large student desk (for the S), and bookshelves upon which were arranged most of the paper forms needed for the experiment. The assistant's table held a flow-chart indicating how each of the successive Ss in the four combinations (male vs. female x first and only vs. later born dichotomies) were to be run. That is, the flow-chart indicated which form they were to receive first (A or B) and which of the experimental treatments (Hi-Anx, Mild-Anx, or Control) they were to receive.

The rear room contained the E's desk, a table and chair for the S, another smaller bookcase, and a large metal equipment rack full of electrical wiring and gadgetry. The chair and equipment rack were at opposite ends of the table so that an individual sitting in the chair would be facing the equipment rack which was standing approximately two feet from the other side of the table. The bookcase was standing adjacent to the rack and it too faced the chair. In addition to containing the remainder of the papers and forms used in the study, it held some more electrical equipment (which had wires leading to the rack), as well as a conspicuously displayed First Aid Kit. On top of the table was a manila folder bearing the label: "Nonsense Syllable Lists: 3 - practice; 4 - test A; 5 - test B". Inside were three appropriately labeled nonsense syllable lists. The significance of these lists is described below in the "Procedure" section.

The equipment rack was employed to induce the anxiety. It had several alternately flashing red lights, a conglomeration of complexly wired connections, an apparatus which generated a continuous random

flow of intense blue sparks across a 3/4 inch gap, and two dead (i.e., non-functioning) finger electrodes which were long enough to be affixed to the fingers of the individual sitting in the chair opposite. The sparks produced a loud staccato crackling noise and after being in operation for 20 or so seconds, produced a smell similar to that of burning ozone.

Procedure - Each S announced his arrival by knocking at the front door, whereupon the assistant on duty ushered him in and bade him be seated at the student desk in the front room. The door to the second room, in which the E sat attired in a white lab coat and working at his desk, was closed. After being seated, the S was presented with a single sheet which requested him to indicate his age; sex; date and place of birth; and number, sex, and dates of birth of his siblings. At the bottom of the sheet was the Anx-I question. (Note: Appendix B contains all of the materials arranged in the same order as they were presented to the Ss. All the different sets of forms were sequentially numbered and each successive S was given a number and retained it throughout.)

When the S finished responding to this first sheet the assistant collected the paper and noted the response to the birth order question. Given this response, the assistant checked his flow-chart to determine which form (A or B) and which treatment (Hi-Anx, Mild-Anx, or Control) the S was to receive. The assistant then took the next numbered copy of the appropriate form from the shelves and administered it to the S.

Up to this point all the Ss were treated alike. Once they finished responding to the first form, however, they began to be treated



differentially. The first difference came in how they were brought in to the E sitting in the second room. As soon as the Control Ss had finished the first form the assistant said: "Excuse me, but I have to leave for a few moments. You can finish the second part of the questionnaire next door." At this point he took the S and the second form with him, knocked, then opened the door to the rear room and said to the E: "Excuse me, but I have to go make that phone call now. Would you please finish this off for me? Thanks." As the assistant left, the E gave the S the second form and nodded towards the table and chair saying: "Okay, you can sit there and finish the questionnaire. Don't let that apparatus bother you; it's being used in a different experiment also being carried out in this room." The E then resumed working at his desk. After the Control Ss had finished responding to the second form the E gave them the two post-manipulation anxiety measures (see Appendix B) saying: "Now would you please answer these last two questions as honestly and sincerely as you can."

Upon completion of the first form the Ss in the two experimental conditions were told by the assistant that the remainder of the experiment would be conducted in the other room and would they please follow him. After opening the door the assistant told the E either to "run this S as a number 2" (i.e., Mild-Anx) or "a number 3 (Hi-Anx)". In this way the E was able to administer the appropriate manipulations while remaining ignorant of the S's birth rank.

All experimental S's were seated at the table and were first asked to answer a question relating to their general state of health (see Appendix B). This was intended to increase the experimental S's level

of anxiety, as described below. Throughout (i.e., during the instructions and all subsequent conversation with the S), the E spoke in more serious and somber tones to the Hi-Anx Ss than he did to the Mild-Anx Ss.

These experimental Ss were instructed as follows:

Please have a seat. Before we begin, please answer this question concerning your general state of health.

No matter what the S's response was, the E continued as follows:

The reason why we ask this question is because this is an experiment involving electrical shock and we would like to eliminate all those people with weak or deficient hearts. Do you have any heart trouble that you know of?

Four Ss responded in the affirmative and, consequently, they were dismissed. For all other Ss the E continued:

Fine, now I'll explain some of what's going to happen. In this experiment we are interested in the rate at which people are able to learn new information under stress. Here, what we mean by "new information" is lists of nonsense syllables. These are lists of three letter words which have no known meaning. As you have probably learned in your Psych. class, the reason why we use nonsense syllables is because just about nobody has had any prior experience with them. This means that we can assume that everyone starts off at the same basal level and this greatly simplifies our measurement task.

Stress, on the other hand, is defined here in terms of electrical shocks. What we're going to do is first give you a practice list of 10 nonsense syllables so that you can get the hang of it. After you have learned this first list, you will be given a test list to learn. At this point we are going to start giving you a series of electrical shocks and we are going to measure the rate at which you learn this second list while you are being shocked. We are then going to give you a third list to learn, and this time you will not be shocked. The purpose of this last list is for us to get some comparative measurements on you.

The purported purpose of the experiment was given added credibility by the manila folder labeled "Nonsense Syllable Lists" which was lying on the table directly in front of the S. Inside the manila folder were three appropriately labeled nonsense syllable lists to quell the curiosity of any S who might open the folder. None chose to do so.

Up to this point the instructions were the same for both groups of experimental Ss. In the case of the Mild-Anx Ss the E continued:

Don't let the word shock trouble you; I am sure you will enjoy the experiment. The shocks will be very mild and I assure you that what you will feel will in no way be painful. The shocks resemble more of a tickling or tingling sensation rather than anything unpleasant. We will fasten these electrodes to your hand, hook you into the apparatus and, after the machine warms up, start you on the nonsense syllables. Again, I do want to emphasize the fact that most people report the shocks as being more pleasureable than anything else.

The preceding critical paragraph defining stress was deleted and the following one substituted for the Hi-Anx Ss:

Now I feel I must be completely honest with you and tell you exactly what you are in for. These shocks will hurt. Most people say they are rather painful. As you can guess, in research like this, if we are to learn anything of real value, it is necessary that our shocks be intense. What we will do is fasten these electrodes to your hand, hook you into the apparatus and, after it warms up, start you on the nonsense syllables. Again, I do want to be honest with you and tell you that these shocks will be quite painful but, of course, they will do no permanent damage.

These two critical paragraphs were adapted from Schachter (1959, pp. 13-14). It should be noted that threat of electric shock has been consistently observed to be as effective as actual electric shock in inducing physiological stress reactions. For example, studies by Ax (1953), Deane (1961), Hodges and Spielberger (1966), and J. Schachter

(1957), have demonstrated that threat of shock is sufficient to produce significant increases in heart rate (HR) and other indices of autonomic nervous system (ANS) arousal.

From this point on, the instructions to the two groups of experimental Ss were the same. E continued:

Will you please remove any watches or rings which you have on and place them on the side of the table. Now, which hand do you write with? (S responds) Fine, may I have your (Opposite) hand.

The E then attached the electrodes to the S's non-dominant hand and proceeded to plug the apparatus in. Once plugged in, the apparatus flashed, crackled, and sparked ominously.

It takes the apparatus several minutes to warm up. While we are waiting would you please answer the items on this questionnaire. The format is the same as the one you took in there (E motions to front room), but the questions are different. You will have enough time to finish it before we start on the nonsense syllables and shocks.

After the S had completed the second form the E picked it up, looked at his watch, handed the S the last sheet containing the final two anxiety measures, and said:

Fine, we still have about two minutes remaining before the apparatus is warmed up enough to deliver shocks. Would you please answer these last two questions as honestly and sincerely as you can.

It was thought that placing these two measures at the very end of the experiment would indicate whether, in the case of the experimental Ss, the anxiety induced by the threat of shock had sustained throughout the period during which they were responding to the second form. Consistent with such an interpretation is the report by Hodges and Spielberger (1966, p. 288) that:

Deane (1961) found that Ss told to expect shock during a long anticipation period responded with HR acceleration prior to the time the shock was expected and maintained this accelerated HR on subsequent trials even though they were never shocked. Thus, it would appear that threat of shock is as effective in inducing ANS arousal as the actual presentation of the shock stimulus.

When all the Ss in the experiment -- controls as well as experimentals -- had answered the last two anxiety questions they were told that the experiment was over. In the case of the experimental Ss, the apparatus was disconnected at this point, usually from very surprised looking Ss.

The E told each S that the experiment was a very complex one involving six experimental and six control groups and that, strictly on the basis of chance, he had been randomly assigned to one of the control groups. The experimental Ss were told that this (i.e., the fact that they were "control" subjects) was the reason why they weren't shocked, and the true control Ss were told that this was the reason they did what must have appeared to them to have been very little actual work for the experimental credit. All Ss were further told that since there were twelve groups in the experiment, if they spoke about what had happened to them with other students who would be participating in the experiment, these people would arrive with pre-conceived notions which would probably be inappropriate for their particular group and this would tend to distort their responses. It was also pointed out to the experimental Ss that they could easily imagine what would happen to the number of people who would volunteer or show up for this experiment once the word leaked out about the electric shocks. Lastly, the cause of scientific advancement was made grounds for another appeal. Thus,

it was stressed to each S, in several ways, how exceedingly important it was that he not divulge anything concerning the experiment to anyone. At the conclusion of this talk, each S was asked to personally commit himself to remain silent. This was done by the E asking in conclusion: "Do I have your word, then, that you won't discuss anything of what you saw or what happened here with anyone?" Only after the S had committed himself was he given the credit slip, thanked for his participation in the experiment, and shown to the door.

All Ss in all conditions appeared to respond with a sincere "yes" to the commitment question. Furthermore, the E and his assistants were on guard to observe if any of the in-coming Ss seemed to be in any way knowledgeable of what was to transpire. In only one case did it appear as if an S was aware of what was going to happen, and his results were discarded. It should be noted, however, that none of the Ss were asked directly if they had had any foreknowledge of the experimental procedure.

It should also be added that no direct credibility measures were obtained at the termination of the experiment. That is, the experimental Ss were not specifically asked whether they believed they were actually going to be shocked. However, from the surprised looks obvious upon most of their faces when the electrodes were removed, it did appear that they were convinced of the E's sincerity. The results of the analyses conducted on the anxiety measures (see Chapter IV below) provides indirect evidence that this was so.

#### Chapter IV: Analyses and Results

In total, 140 Ss were run. Nine served as training Ss for the assistants. The results for a tenth S were discarded because he refused to answer two of the items on the grounds that he felt absolutely and perfectly neutral on the issues involved. Another S was eliminated because he said he "just knew" he wasn't going to be shocked. Four more Ss were eliminated because they indicated that they had either weak hearts or heart related problems. Lastly, five Ss being run under experimental conditions (two from the Mild-Anx and three from the Hi-Anx conditions) became so anxious and nervous during the instructions phase that they just would not continue. They all terminated at one point or another during the instructions. Before leaving, each of these 20 Ss were given the standard talk on the importance of not discussing the experiment with others. The analyses presented below are based on the remaining 120 Ss.

One of the three experimental assistants (assistant #2) was European-born and raised, and spoke with a very marked accent. This seemed to introduce the possibility that the assistants might have exerted differential effects upon the Ss. Specifically, it was believed that an assistant with an accent could potentially raise the Ss' general level of initial anxiety. Using the individual Anx-I scores, a simple one-way analysis-of-variance was therefore conducted to test for such differences. Table 6 contains the respective frequencies, means, and S.D.'s for the three assistants. Simple inspection reveals that the mean Anx-I score was indeed greater for the foreign born assistant, but not appreciably so, as the difference fails by a substantial enough





Table 6

Mean Anx-I Score for the Ss run by the three Assistants

<u>Assistant</u>	<u>N</u>	<u>Mean Anx-I Score</u>	<u>S.D.</u>
1	43	1.90698	.78115
2	61	2.13115	.56021
3	16	1.87500	.80623

margin to reach an acceptable level of significance ( $F = 1.537$ ;  $p > .05$ ; (see Table 7)).

Table 7

Analysis-of-Variance for Differences in Anx-I Score  
for the Ss run by the three Assistants

<u>Variance Source</u>	<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>
Between Groups	1.63794	2	.81897	1.53732
Within Groups	62.32873	117	.53272	
Total	63.96667	119		

Next, a  $3 \times 2 \times 2$  analysis-of-variance was conducted to determine whether any group of Ss began the experiment more anxious than others. This analysis served two purposes: to help resolve the issue in the literature concerning whether first or later borns are typically more anxious to begin with; and, to enable us to use these Anx-I scores as a base-line for evaluating the increase in anxiety (Anx-II minus Anx-I) as a function of the experimental manipulations. With slight departures for each of the relevant sub-groups (see Table 8), the overall

Table 8

Anx-I Score Means and S.D.'s for the Relevant Sub-Groups.

<u>Group</u>	<u>N</u>	<u>Mean</u>	<u>S.D.</u>
Males	60	2.000	.6106
Females	60	2.033	.8431
First and only Borns	60	2.017	.6763
Later Borns	60	2.017	.7917
Male First and only Borns	30	2.033	.6149
Female First and only Borns	30	2.000	.7428
Male Later Borns	30	1.967	.6149
Female Later Borns	30	2.067	.9444
Overall	120	2.017	.7332

mean Anx-I score and S.D. for the 120 Ss was 2.017 and .7332, respectively. The analyses failed to reveal any differences which even approached significance (see Table 9).

Two separate analyses were conducted to test the efficacy of our experimental manipulations. The first of these analyses involved the difference between anxiety scores (i.e., Anx-II minus Anx-I). It was predicted that the manipulations would produce no significant differences between Anx-I and Anx-II across the sex and OBP variables, but would produce significant differences across the treatment (i.e., anxiety) condition. A 3x2x2 analysis-of-variance utilizing the difference scores reveal these predictions to be overwhelmingly confirmed

Table 9

Analysis-of-Variance of the Anx-I Scores for the Treatment (A), Sex (B), and Ordinal Brith Position (C) Variables.

<u>Variance Source</u>	<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>	<u>Significance</u>
A	.21667	2	.10833	.18932	N.S.
B	.03333	1	.03333	.05825	N.S.
C	.00000	1	.00000	.00000	N.S.
AB	1.51667	2	.75833	1.32524	N.S.
AC	.15000	2	.07500	.13107	N.S.
BC	.13333	1	.13333	.23301	N.S.
ABC	.11667	2	.05833	.10194	N.S.
Error	61.80000	108	.57222		
Total	63.96667	119			

(see Table 10). The difference between the two anxiety score means for both sex and OBP were highly insignificant, while the differences resulting from the experimental manipulations are significant at beyond the .001 level. For the 40 Control Ss there was an average decrease of .275 from Anx-I to Anx-II while the 40 Mild-Anx Ss went up an average of .773 and the 40 Hi-Anx Ss went up an average of 1.750. Thus the manipulations spread the three groups almost equidistantly into one point intervals along the six point anxiety scale. The mean Anx-II score for the Control, Mild-Anx, and Hi-Anx groups were 1.725, 2.775, and 3.750, respectively.

The second independent test of the success of our manipulations

Table 10

Analysis-of-Variance of the Difference Between Anx-I and Anx-II  
Scores Across the Treatment (A), Sex (B), and Ordinal Birth  
Position (C) Variables.

<u>Variance Source</u>	<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>	<u>Significance</u>
A	82.05000	2	41.02500	53.90146	$p < .001$
B	.03333	1	.03333	.04380	N.S.
C	.30000	1	.30000	.39416	N.S.
AB	.81667	2	.40833	.53650	N.S.
AC	.05000	2	.02500	.03285	N.S.
BC	.03333	1	.03333	.04380	N.S.
ABC	1.01667	2	.50833	.66788	N.S.
Error	82.20000	108	.76111		
Total	116.50000	119			

involved the Ss' responses to the terminal anxiety question. When given the chance, 12 out of 40 Ss in the Hi-Anx condition chose to terminate as compared to only 1 out of 40 in the Mild-Anx condition (see Table 11). The difference between these frequencies is significant at the .02 level by Chi Square (cf. Ferguson, 1959, p. 172).

Given that the experimental manipulations worked as planned, two other methodological questions had to be considered prior to the testing of the hypotheses. The first involved the reliability of the instruments as they were employed in the present study. Consequently, the Ss' F and Dogmatism scores on the two forms were correlated and the results for the major sub-groups are presented in Table 12. In the main, these correlation coefficients are slightly greater in magnitude

Table 11

Chi Square Test of Responses to the Terminal Anxiety Question.

		<u>Decision to Terminate</u>	
		<u>Yes</u>	<u>No</u>
<u>Condition</u>	<u>Mild-Anx</u>	1	39
	<u>Hi Anx</u>	12	28
		13	67
			40
			40
			80

Chi Square = 5.41,  $p = .02$ 

Table 12

Reliability Coefficients for Dogmatism and F subscales:  
Dissertation Study

	<u>N</u>	<u>Dogmatism</u>		<u>F</u>	
		<u>raw r</u>	<u>corrected r</u>	<u>raw r</u>	<u>corrected r</u>
Total sample	120	.725824	.841133	.699800	.823391
Males	60	.692817	.818538	.690972	.817248
Females	60	.756869	.861611	.710300	.830656
First and onlies	60	.736492	.848253	.675928	.806631
Later borns	60	.724312	.840117	.716259	.834675
Control Ss	40	.781347	.877254	.711961	.831749
Mild-Anx Ss	40	.751975	.858431	.766739	.867971
Hi-Anx Ss	40	.591942	.743673	.544015	.704676

than those obtained in the earlier reliability study. In fact, for the

40 Control Ss, the corrected reliabilities for the Dogmatism and F-Scales were calculated to be in the order of .88 and .83, respectively. For the entire sample (i.e., experimental Ss included) the respective coefficients were .84 and .82. These values are even better than those obtained earlier in the pretesting of the instruments (see Table 4). Attention should also be directed to several additional points. First, the Dogmatism sub-scales appear to be slightly more reliable than the F sub-scales. Second, scores for the female Ss seem to be generally more consistent and reliable than those for the male Ss. Third, there appears to be a general trend for the reliability to be inversely related to anxiety -- as situational anxiety increases, reliability decreases. This last point is a rather interesting finding and will be discussed in greater detail below.

The last methodological consideration concerns the possibility of constant form or order effects involved in the administration of the sub-scales to the Ss. To determine whether either, neither, or both were present, in addition to the data for the 40 Control Ss, the data for the 174 Ss used in the earlier pretest reliability study were also employed. (Inasmuch as differences of unknown magnitude resulting from the experimental manipulations were predicted between first and second form scores for the 80 experimental Ss, the data these Ss could not be used in testing for form or order effects.)

The data for the 174 reliability study Ss (see Table 13)<sup>3</sup> seem to indicate the presence of both constant form and order effects for

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3. Note: these are some of the same data previously presented in Table 5. The format has been rearranged in order to facilitate easy comparison with Table 14.

Table 13

Pretest Reliability Study: Dogmatism and F subscale means.

	<u>Total Sample</u> N = 174	<u>Form A first</u> N = 86	<u>Form B first</u> N = 88
Mean Dogmatism Score: Form A	72.603	73.291	71.932
Mean Dogmatism Score: Form B	75.374	74.442	76.284
Mean F-Score: Form A	46.391	47.105	45.693
Mean F-Score: Form B	47.190	47.244	47.136

both the F and Dogmatism sub-scales. With respect to a form effect we find that, when we consider the total sample, the average Form B Dogmatism score is 2.8 points higher than the average Form A Dogmatism score. Similarly, the average B Form F-score for the total sample is .8 of a point higher than the average A Form F-score. Earlier, in our discussion of the construction of the sub-scales in Chapter III, we noted that while the difference between F sub-scale means was not statistically significant, the difference between Dogmatism sub-scale means was significant at better than the .01 level. The pretest reliability study data also indicate an order effect. For both the F and Dogmatism sub-scales, the first form taken averages approximately one point higher than the total sample mean, while the second form taken averages a point less.

When we consider the data on the 40 Control Ss in the present study there again seems to be a fairly constant form effect (see Table 14).

Table 14

Dissertation Study (Control group): Dogmatism and F subscale means.

	<u>Total Sample</u> n = 40	<u>Form A first</u> n = 20	<u>Form B first</u> n = 20
Mean Dogmatism Score: Form A	69.600	72.600	66.600
Mean Dogmatism Score: Form B	71.550	75.350	67.750
Mean F-Score: Form A	40.700	43.600	37.800
Mean F-Score: Form B	42.375	45.700	39.050

For both F and Dogmatism sub-scales, the mean total sample B Form score is approximately two points higher than the mean total sample A Form score. The order effects, however, appear to be more random. For the Dogmatism sub-scales, if Form A is taken first the resultant score tends to be approximately three points higher than the total sample average. If Form B is taken first, it tends to average approximately four points less than that(i.e., total sample) average. For the F sub-scales, if Form A is taken first it tends to average approximately three points higher than the total sample mean. When Form B is taken first it tends to average approximately three points less than that (i.e., total sample) mean.

On the basis of a rough average of the two studies, it appears that the order effects are random. Consequently, no adjustment on these grounds was believed necessary. However, the data do seem to



indicate a constant form effect for both F and Dogmatism sub-scales, viz., scores for Form B tend to average about two points more than scores on Form A. Consequently, a simple adjustment was made prior to testing the hypotheses. The correction entailed subtracting two points from the Form B (Dogmatism and F) subscale scores just prior to the calculation of the difference scores. Thus, the difference scores (dX) used in the analyses of variance described directly below were computed as follows:

For all Ss who took Form A first:

$$dX = (\text{Form B score minus 2}) \text{ minus Form A score}$$

For all Ss who took Form B first:

$$dX = \text{Form A score minus (Form B score minus 2)}$$

These difference scores are presented in Table 15. Tables 16 and 17 contain the means and S.D.s of these difference scores for dogmatism and authoritarianism, respectively.

Two separate analyses-of-variance were then conducted. One tested the hypotheses relating to dogmatism (Hypotheses Ia and Ib), and the other tested the hypotheses relating to authoritarianism (Hypotheses IIa and IIb). The results of these analyses are presented in Tables 18 and 19. With respect to dogmatism, inspection of Table 18 reveals that no significant relationships are obtained as a result of either the experimental manipulations (i.e., anxiety treatments) or the organismic variables involved (i.e., sex and birth position). The results for authoritarianism (see Table 19) are similarly unencouraging. The only significant difference found was for the sex variable. Males showed a significantly greater increase in authoritarianism than did females

Table 15

Change in Dogmatism (dD) and Change in Authoritarianism (dF)  
Scores for all Subjects.<sup>a</sup>

		<u>Control Ss</u>		<u>Mild-Anx Ss</u>		<u>Hi-Anx Ss</u>	
		<u>dD</u>	<u>dF</u>	<u>dD</u>	<u>dF</u>	<u>dD</u>	<u>dF</u>
	<u>First &amp; Onlies</u>	-3	12	4	1	7	12
		0	4	-4	25	-14	29
		0	10	8	13	23	-4
		5	-2	6	-11	-15	-10
		13	-1	-12	0	9	-4
		-6	8	-1	11	10	8
		3	7	0	17	-1	-2
		1	-2	11	-4	-5	-6
		-2	6	1	2	7	-3
		-7	-8	6	-10	13	5
<u>Males</u>	<u>Later Borns</u>	16	2	16	0	22	13
		4	2	-16	2	14	4
		-19	-2	8	7	-2	3
		-8	13	29	15	-7	-3
		0	-2	0	15	0	24
		-17	7	-12	-8	-9	20
		-10	1	-11	2	9	-7
		-3	6	0	4	9	4
		0	2	-6	6	-2	18
		3	4	18	8	12	13
	<u>First &amp; Onlies</u>	9	-10	7	3	-1	6
		7	-1	13	-2	-19	4
		-16	2	7	8	23	16
		13	7	-5	12	2	9
		-1	-31	-6	2	11	-9
		9	-5	-1	-11	-1	-6
		9	-1	-13	-11	9	1
		13	-1	6	-18	8	-1
		9	-2	6	-12	0	19
		7	6	-6	7	9	-3
<u>Females</u>	<u>Later Borns</u>	9	-21	-2	7	-6	-1
		-19	9	-7	-1	-5	-15
		-2	13	10	4	2	6
		18	-21	-1	-10	7	12
		-1	0	-12	9	-3	2
		-10	-4	18	0	0	-10
		4	3	-9	1	-12	1
		-8	-10	-1	-1	-9	9
		11	-4	16	8	12	1
		1	21	1	6	1	2

a. Consult text for description of how these scores were obtained.

Table 16

Means and S.D.s of the Difference Scores for Dogmatism.<sup>a</sup>

<u>Treatment</u>	<u>Sex</u>	<u>Birth rank<sup>b</sup></u>	<u>N</u>	<u>Mean</u>	<u>S.D.</u>
Control	-	—	40	.800	9.433
Mild-Anx	-	—	40	1.650	10.045
Hi-Anx	-	—	40	2.700	10.118
—	M	—	60	1.583	10.317
—	F	—	60	1.850	9.377
—	-	Early borns	60	2.750	8.084
—	-	Later borns	60	.683	10.711
Control	M	—	20	-1.500	8.464
Control	F	—	20	3.100	9.994
Mild-Anx	M	—	20	2.250	11.182
Mild-Anx	F	—	20	1.050	9.017
Hi-Anx	M	—	20	4.000	10.829
Hi-Anx	F	—	20	1.400	9.450
Control	-	Early borns	20	3.150	7.680
Control	-	Later borns	20	-1.550	10.585
Mild-Anx	-	Early borns	20	1.350	7.271
Mild-Anx	-	Later borns	20	1.950	12.412
Hi-Anx	-	Early borns	20	3.750	11.206
Hi-Anx	-	Later borns	20	1.650	9.069
—	M	Early borns	30	1.900	8.413
—	M	Later borns	30	1.267	12.066
—	F	Early borns	30	3.600	9.242
—	F	Later borns	30	.100	9.334
Control	M	Early borns	10	.400	5.777
Control	M	Later borns	10	-3.400	10.480
Control	F	Early borns	10	5.900	8.621
Control	F	Later borns	10	.300	10.914
Mild-Anx	M	Early borns	10	1.900	6.657
Mild-Anx	M	Later borns	10	2.600	14.811
Mild-Anx	F	Early borns	10	.800	8.162
Mild-Anx	F	Later borns	10	1.300	10.242
Hi-Anx	M	Early borns	10	3.400	12.057
Hi-Anx	M	Later borns	10	4.600	10.069
Hi-Anx	F	Early borns	10	4.100	10.929
Hi-Anx	F	Later borns	10	-1.300	7.273
—	-	—	120	1.717	9.818

a. A blank in a column indicates a breakdown with no concern for that particular variable.

b. "Early borns" signifies first and only borns.

Table 17

Means and S.D.s of the Difference Scores for Authoritarianism.<sup>a</sup>

<u>Treatment</u>	<u>Sex</u>	<u>Birth rank</u> <sup>b</sup>	<u>N</u>	<u>Mean</u>	<u>S.D.</u>
Control	-	-	40	.425	9.690
Mild-Anx	-	-	40	2.400	9.108
Hi-Anx	-	-	40	3.925	9.937
-	M	-	60	4.600	8.857
-	F	-	60	-.100	9.832
-	-	Early borns	60	1.350	10.183
-	-	Later borns	60	3.150	9.001
Control	M	-	20	3.350	5.373
Control	F	-	20	-2.500	12.077
Mild-Anx	M	-	20	4.750	9.408
Mild-Anx	F	-	20	.050	8.376
Hi-Anx	M	-	20	5.700	11.103
Hi-Anx	F	-	20	2.150	8.530
Control	-	Early borns	20	-.100	9.358
Control	-	Later borns	20	.950	10.266
Mild-Anx	-	Early borns	20	1.100	11.253
Mild-Anx	-	Later borns	20	3.700	6.334
Hi-Anx	-	Early borns	20	3.050	10.123
Hi-Anx	-	Later borns	20	4.800	9.929
-	M	Early borns	30	3.433	9.877
-	M	Later borns	30	5.767	7.695
-	F	Early borns	30	-.733	10.218
-	F	Later borns	30	.533	9.562
Control	M	Early borns	10	3.400	6.381
Control	M	Later borns	10	3.300	4.498
Control	F	Early borns	10	-3.600	10.814
Control	F	Later borns	10	-1.400	13.721
Mild-Anx	M	Early borns	10	4.400	11.796
Mild-Anx	M	Later borns	10	5.100	6.887
Mild-Anx	F	Early borns	10	-2.200	10.196
Mild-Anx	F	Later borns	10	2.300	5.736
Hi-Anx	M	Early borns	10	2.500	11.511
Hi-Anx	M	Later borns	10	8.900	10.246
Hi-Anx	F	Early borns	10	3.600	9.119
Hi-Anx	F	Later borns	10	.700	8.111
-	-	-	120	2.250	9.612

a. A blank in a column indicates a breakdown with no concern for that particular variable.

b. "Early borns" signifies first and only borns.

Table 18

Analysis-of-Variance for the Difference in Dogmatism Scores  
on the two Forms as a Function of Anxiety Level (A), Sex (B),  
and Ordinal Birth Position (C).

<u>Source</u>	<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>	<u>Significance</u>
A	72.467	2	36.233	.365	N.S.
B	2.133	1	2.133	.022	N.S.
C	128.133	1	128.133	1.468	N.S.
AB	291.467	2	145.733	1.291	N.S.
AC	140.467	2	70.233	.708	N.S.
BC	61.633	1	61.633	.621	N.S.
ABC	55.467	2	27.733	.279	N.S.
Error	10718.600	108	99.246		
Total	11470.367	119			

Table 19

Analysis-of-Variance for the Difference in F-Scores on the  
two Forms as a Function of Anxiety Level (A), Sex (B), and  
Ordinal Birth Position (C).

<u>Source</u>	<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>	<u>Significance</u>
A	246.350	2	123.175	1.374	N.S.
B	662.700	1	662.700	7.391	$p < .01$
C	97.200	1	97.200	.147	N.S.
AB	26.450	2	13.225	1.084	N.S.
AC	12.050	2	6.025	.067	N.S.
BC	8.533	1	8.533	.095	N.S.
ABC	257.017	2	128.508	1.433	N.S.
Error	9684.200	108	89.669		
Total	10994.500	119			

(for 1 and 108 df;  $F = 7.4$ ,  $p < .01$ ; see Snedecor, 1956). This result is difficult to interpret for two reasons: (a) there were no a priori hypotheses regarding a sex variable effect, and (b) any sex variable effect obtained was expected to be meaningful only in terms of its interaction with the other variables (i.e., anxiety and ordinal birth position).

Close examination of Tables 16 and 17, however, reveals some rather interesting (though non-significant) things. Confining our interest first only to Table 16 we find that, as predicted, there is an increase in dogmatism with increasing anxiety. For the 40 Control Ss there was an unpredicted mean increase of .8 of a point. However, in line with our predictions, we find a mean increase of 1.650 for the 40 Mild-Anx Ss, and a mean increase of 2.700 for the 40 Hi-Anx Ss. We also find, in line with our predictions, that while later borns only display a mean increase of .683 of a point, first and only borns exhibit a mean increase of 2.750 points ( $p = .12$ ). Furthermore, the interactions also generally conform to prediction. Later born Control Ss who were predicted to show the least amount of increase actually displayed a mean loss of 1.550 points, while anxious first and only born Ss displayed the greatest mean increase, 3.750 points, as predicted ( $p = .06$ ). The relationships between birth position, anxiety level, and change in dogmatism are presented graphically in Figure 2. Although these differences are all in the directions predicted, they apparently fail to reach statistically significant levels for two reasons: (1) If one considers that the range of possible scores obtainable on each 20 item subscale is 20 to 140, then a change of two



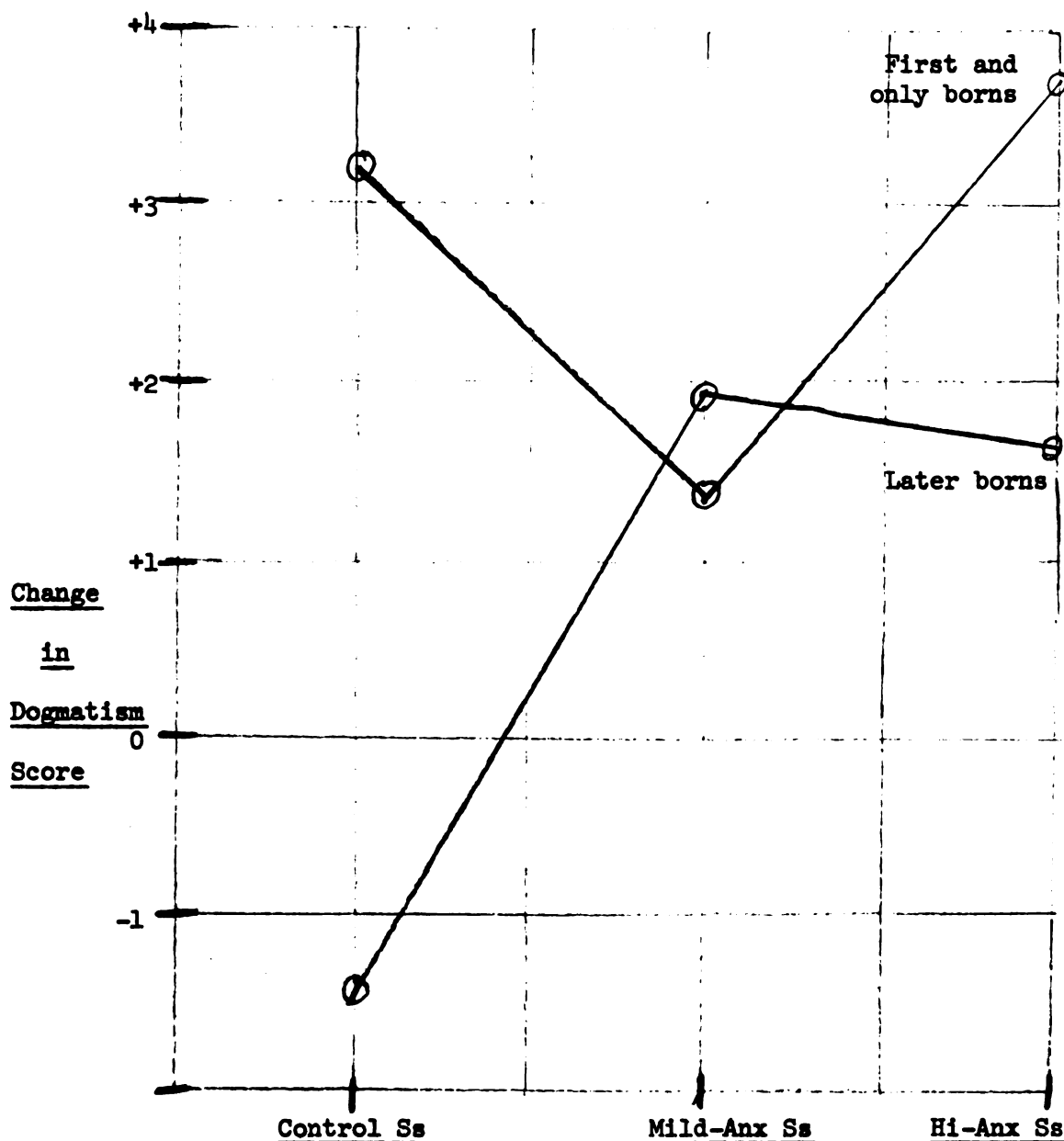


Fig. 2. Mean Change in Dogmatism scores obtained for first and only borns vs. later borns in each of the three treatment groups.

Note: With each questionnaire item based on a 1-to-7 scale. The range of possible scores obtainable on either of the 20 item Dogmatism sub-scales is 20 to 140. Therefore, the changes in score possible when going from one form to the other can range anywhere from 0 to a maximum of  $(140 - 20 =) 120$ . Even for a hypothetical individual who responded neutrally to each item on the first form (thereby obtaining a score of  $20 \times 4 = 80$ ), the range of change possible in either a positive or negative direction would still be from 0 to 60. Thus, the small changes presented in the above figure must be interpreted in this context.



or so points seems rather small. (2) Examination of the raw difference scores (Table 15), the standard deviations (Table 16), and the error mean square of the analysis of variance (Table 18) readily reveals a great deal of variability among the scores.

Table 17 also reveals small increases in the predicted direction for authoritarianism resulting from increases in situational threat. While the Control Ss demonstrated an unpredicted increase of .425, the Mild-Anx and Hi-Anx Ss demonstrated respective predicted (but non-significant) increases of 2.400 and 3.925 points. However, contrary to prediction, later born Ss evidenced a greater increase (3.150 points) than did the first and only born Ss (1.350 points). The relationships between birth position, anxiety level, and change in authoritarianism are presented graphically in Figure 3. Again, we note the following: (1) When the range of possible scores obtainable on each 14 item subscale is 14 to 98, a change of two or so points appears relatively small. (2) Examination of the raw scores (Table 15), the standard deviations (Table 17), and the error mean square of the analysis of variance (Table 19) reveals a great amount of unexplained variability among the difference scores.

A possible factor contributing to these findings may arise from the relatively lower reliabilities of the Dogmatism and F subscales for the Hi-Anx condition (cf., Table 12). Since the statistics employed assume that the reliability coefficients are all estimates of the same population parameter, Edwards (1960, p. 83) test of homogeneity for  $k$  values of  $r$  was applied to the raw data. For the three Dogmatism subscale treatment group correlation coefficients (i.e., .781347, .751975,



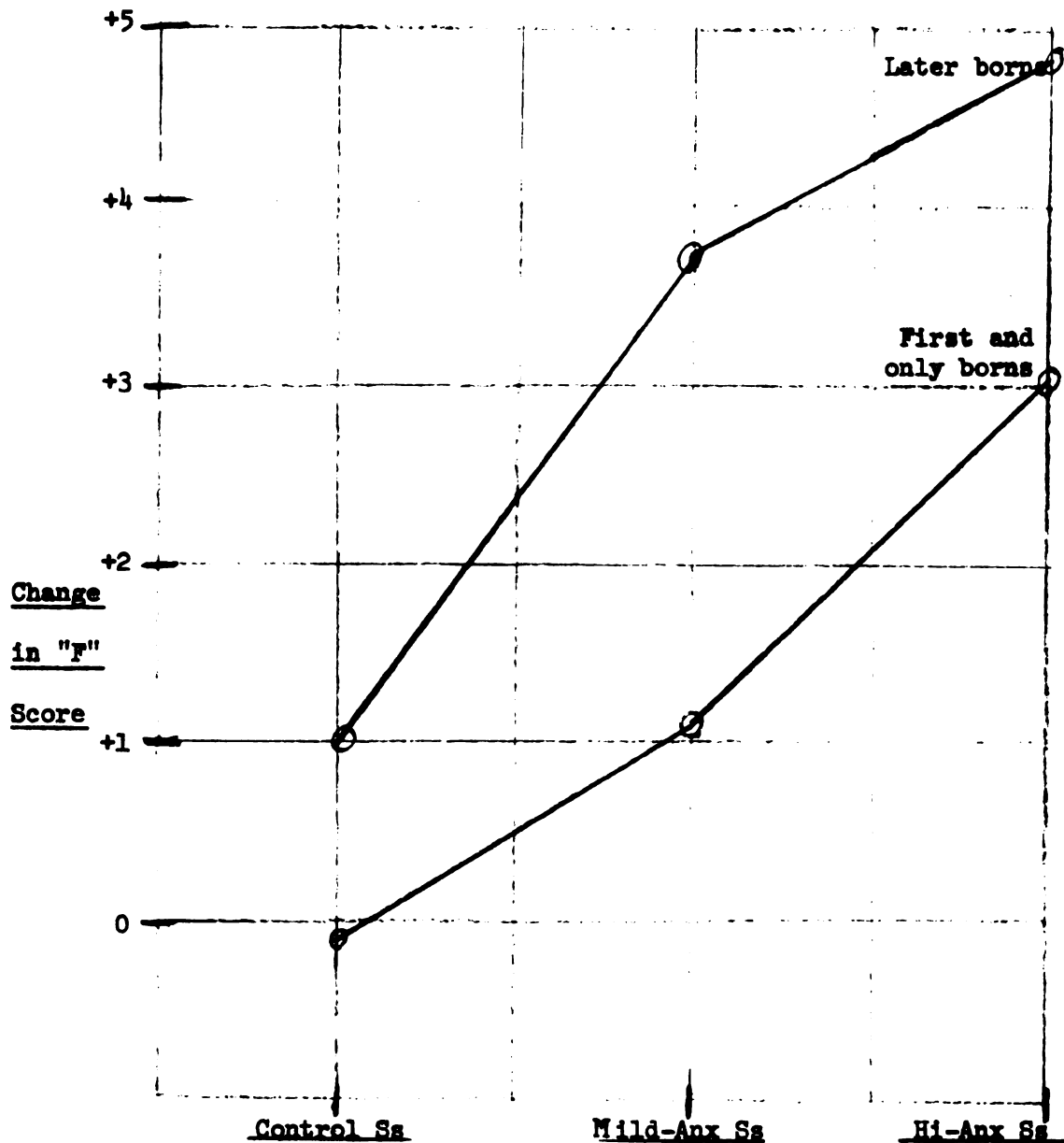


Fig. 3. Mean Change in Authoritarianism scores obtained for first and only borns vs. later borns in each of the three treatment groups.

Note: With each questionnaire item based on a 1-to-7 scale, the range of possible scores obtainable on either of the 14 item "F" sub-scales is 14 to 98. Therefore, the changes in score possible when going from one form to the other can range anywhere from 0 to a maximum of  $(98 - 14 =) 84$ . Even for a hypothetical individual who responded neutrally to each item on the first form (thereby obtaining a score of  $4 \times 14 = 56$ ), the range of change possible in either a positive or negative direction would be from 0 to 42. Thus, the small changes presented in the above figure must be interpreted in this context.

and .591942) the obtained Chi Square was 2.858. With  $k-1=2$  df, this fails by a substantial margin to approach significance ( $p = .25$ , ca.). Analyses of the three F subscale treatment group correlation coefficients (i.e., .711961, .766739, and .544015) yields a Chi Square of 3.144. With  $k-1 = 2$  degrees of freedom, this also fails by a substantial margin ( $p = .22$ , ca.) to reach significance.

Lastly, it should be noted that anxiety may be defined from either of two perspectives — that of the experimenter or that of the subject. In the present study, as well as in the analyses presented thus far, we have employed the vantage point of the experimenter. Depending upon which of the treatments he was subjected to, a subject was considered to be either mildly anxious, highly anxious, or not anxious at all. One could say that anxiety was here being operationally defined by experimenter fiat. However, it is generally recognized that any two individuals selected at random and exposed to exactly the same manipulations might differ widely in their reactions. Thus, in some experiments involving the measurement of anxiety it is the subject who defines his emotional condition. This is usually done either through some sort of verbal report or by measurement of the subject's physiological reactions. In this study, "verbal report" data are available for each subject, viz., the Anx-I and Anx-II scores, and the responses to the terminal anxiety question. Consequently, it was decided to re-examine the change in Dogmatism and F-scores using these self-appraisals as our measure of anxiety.

In one such analysis the 80 experimental Ss were grouped on the basis of their Anx-II scores. These scores represent the S's self-

reported level of anxiety subsequent to the experimental manipulations. Simple visual inspection of this data array (see Table 20) revealed neither consistent nor meaningful trends. A similar arrangement, in which the Dogmatism and F change scores of the 80 experimental Ss were grouped according to the pre- to post-manipulation change in the Ss' anxiety level (i.e., Anx-II score minus Anx-I score), also proved fruitless.

In yet another analysis, the 40 Ss who had undergone the Hi-Anx manipulations were arranged on the basis of their responses to the terminal anxiety question (see Tables 21 and 22). Certainly, one could legitimately classify as being truly "highly anxious" those 12 Ss who, after undergoing the Hi-Anx manipulations, had responded in the affirmative when asked "Would you like to leave rather than proceed with the experiment?" As opposed to the 28 Ss who responded negatively to this question, these 12 were ready to give behavioral expression to their verbal report of high anxiety. Although t tests indicated no significant differences between any of the major or sub groups, it is interesting to note that the five "highly anxious" first-born terminators, as predicted, showed by far the greatest mean increase in both Dogmatism and F-scores. The failure to obtain significance again appears to be due to the higher variability within the scores.

Table 20

Mean Changes in Dogmatism and F Scores. (Where the 80 experimental subjects are grouped according to their Anx-II Scores.)

MILD ANX Ss (n=40)

<u>ANX-II SCORE</u>		<u>DOGMATISM</u>	<u>F</u>	<u>N</u>
5	First Borns	0.00	0.00	0
	Later Borns	10.00	4.00	1
4	First Borns	-1.75	1.25	4
	Later Borns	18.00	0.00	1
3	First Borns	-0.70	7.30	10
	Later Borns	1.60	5.60	10
2	First Borns	6.83	-9.33	6
	Later Borns	0.67	1.33	6
1	First Borns	0.00	0.00	0
	Later Borns	-4.50	3.00	2

HI ANX Ss (n=40)

<u>ANX-II SCORE</u>		<u>DOGMATISM</u>	<u>F</u>	<u>N</u>
6	First Borns	11.50	12.00	2
	Later Borns	4.67	14.00	3
5	First Borns	-1.17	4.33	6
	Later Borns	-1.50	-5.33	3
4	First Borns	5.50	5.00	2
	Later Borns	0.00	-2.00	3
3	First Borns	1.42	0.85	7
	Later Borns	4.20	6.40	10
2	First Borns	8.33	-1.67	3
	Later Borns	0.00	0.00	0
1	First Borns	0.00	0.00	0
	Later Borns	-9.00	20.00	1

Table 21

Mean Increases in Dogmatism Scores for Hi-Anx Treatment Subjects. (Where the "Terminator" vs. "Non-Terminator" distinction refers to the individual's response to the terminal anxiety question.)

	<u>TERMINATORS</u>		<u>NON-TERMINATORS</u>			
<u>First Borns</u>	$\bar{X}$	= 9.00	$\bar{X}$	= 2.93	$\bar{X}$	= 4.45
	S.D.	= 15.95	S.D.	= 10.56	S.D.	= 11.65
	N	= 5	N	= 15	N	= 20
<u>Later Borns</u>	$\bar{X}$	= 0.14	$\bar{X}$	= 2.46	$\bar{X}$	= 1.65
	S.D.	= 8.75	S.D.	= 9.48	S.D.	= 9.00
	N	= 7	N	= 13	N	= 20
	$\bar{X}$	= 3.83	$\bar{X}$	= 2.71		
	S.D.	= 11.59	S.D.	= 9.89		
	N	= 12	N	= 28		

Table 22

Mean Increases in F-Scores for Hi-Anx Treatment Subjects. (Where the "Terminator" vs "Non-Terminator" distinction refers to the individual's response to the terminal anxiety question.)

	<u>TERMINATORS</u>		<u>NON-TERMINATORS</u>			
<u>First Borns</u>	$\bar{X}$	= 13.00	$\bar{X}$	= 0.07	$\bar{X}$	= 3.30
	S.D.	= 12.79	S.D.	= 6.38	S.D.	= 8.02
	N	= 5	N	= 15	N	= 20
<u>Later Borns</u>	$\bar{X}$	= 0.57	$\bar{X}$	= 6.69	$\bar{X}$	= 5.50
	S.D.	= 10.67	S.D.	= 9.13	S.D.	= 9.42
	N	= 7	N	= 13	N	= 20
	$\bar{X}$	= 5.75	$\bar{X}$	= 3.14		
	S.D.	= 11.02	S.D.	= 7.62		
	N	= 12	N	= 28		

## Chapter V: Discussion and Conclusions

Although there were some small trends in the predicted directions, no statistically significant support was obtained for any of the hypotheses. Several explanations may be offered to account for this failure. One distinct possibility is that the hypothesized relationships have no basis in reality, i.e., they just do not exist. Another alternative is that they are correct as stated but were, for one reason or another, improperly tested, i.e., the experimental manipulations and/or measurement procedures were in error. A third possibility is that the hypotheses are, in general, conceptually accurate but are lacking or in error in some of their essential details.

There is some evidence (viz., Rokeach, Toch, and Rottman, 1960) to indicate that, for Hypothesis Ia at least (i.e., contraction of the belief system will vary directly with the degree of anxiety elicited by the situation), the first possibility can be discounted. The second possibility would also appear to be ruled out for at least two reasons: (a) almost identical threat manipulations and measurement techniques have been successfully employed in several other studies (e.g., Schachter, 1959; Gerard and Rabbie, 1961; Sarnoff and Zimbardo, 1961; and, Staples and Walters, 1961); and, (b) two independent tests of the efficacy of the present anxiety inducing procedures resulted in confirmation at highly statistically significant levels. Of the possibilities considered, the third, therefore, seems to offer the most likely explanation.

The primary independent variables of this study are ordinal birth



position and situational threat or anxiety. Of the two, ordinal birth position is the more difficult to confound, i.e., one either is or is not an only born, a first born, or a later born. In only a small minority of cases, such as when Ss are adopted children or when parents re-marry and provide the S with half-siblings, is there a problem of categorizing into first and later borns. The threat-anxiety variable, however, is a bit more difficult to work with, primarily because psychologists have not yet agreed upon any single universally acceptable definition of anxiety.

For one group of psychologists, anxiety and fear are two distinct affective states. Generally speaking, the term fear is applied to those cases where the object of danger is clearly perceived, and the term anxiety used when the object is unknown or vaguely discerned (cf., Symonds, 1946). Many of the theorists in this camp assert that the cardinal difference between the two is to be found at the most fundamental levels of the personality structure. A very frequently cited definition of anxiety (May, 1950) holds that it is a diffuse "apprehension cued off by a threat to some value which the individual holds essential to his existence as a personality." Portnoy (1959, p. 309) has made the following distinction:

Anxiety is a natural phenomenon which the individual experiences when values essential to his existence, his sense of being, and his identity are threatened. It is to be distinguished from fear in which the threat is peripheral, the intactness of the sense of being is not being threatened, the danger is objective, and the individual can evaluate it and can act either in terms of fight or flight in coping with it.

Other investigators, though maintaining the distinction between fear and anxiety, conceptualize the difference at less fundamental

levels. Cameron (1947) defines fear as "any strongly avoidant emotional reaction that culminates in flight when flight is possible" (p. 146) and anxiety as "the normal preliminary phase of emotional flight, but which for some reason is prevented from going into its consummatory phase" (p. 147). For Cameron, then, anxiety is similar to the early stages of fear. However, in another conception (Goldstein, 1939), fear is conceived of as the early stage of anxiety.

What is it then that leads to fear? Nothing but the experience of the possibility of the onset of anxiety. What we fear is the impending anxiety. Thus it becomes clear that anxiety cannot be made intelligible from the phenomenon of fear, but that only the opposite procedure is logical. The person in fear knows anxiety from past experience and present imagination (anticipation). The person in anxiety, however, cannot know fear, because in the state of anxiety he is incapable of any recollection. The person in fear infers, from certain indications, that an object is apt to bring him into a situation of anxiety. (Goldstein, 1939, pp. 296-297).

Briefly we note that other definitions popular at one time or another have held anxiety to be: (1) an over-generalization of the fear response (Mowrer, 1939); and (2) the consequence of inadequate control of fear (Grinker, 1939).

Lastly, there are those who assert that "nothing is gained ... by making a systematic distinction between anxiety and fear .... Such distinctions are more linguistic than psychological. Whatever the status of the arousing object, the basic emotional reaction is the same. In the literature on neurosis, anxiety is the term most often encountered, but it is used in a sense that includes all degrees of the fear reaction" (White, 1956, p. 206). Hall and Lindzey (1954, p. 160) state simply that, insofar as psychoanalytic theory is concerned, "Anxiety

and fear are interchangeable terms." Physiological psychologists would concur with this position and would point to the general failure thus far to demonstrate any neuro-physiological differences between the two.

It thus appears that the investigator, confronted by an array of interpretations, can literally select a definition of anxiety suitable for his purposes. In the formulation of the present study it was believed that no distinction needed to be drawn between fear and anxiety. Two considerations led to this decision. For one, several other studies in which birth position was the variable of interest (e.g., Schachter, 1959; Gerard and Rabbie, 1961; Sarnoff and Zimbardo, 1961; Staples and Walters, 1961; and, Weller, 1962) employed very similar manipulations (i.e., threat of electrical shock) and defined the affective consequences as anxiety. For another, the statement from which the primary hypothesis of this study is derived (viz., "we assume that the more threatening a situation is to a person, the more closed his belief system will tend to become," Rokeach, Toch, and Rottman, 1960, p. 377) specifies threat, not necessarily fear nor anxiety. Consequently, it was assumed that fear manipulations, even if discriminably different from anxiety manipulations, would serve equally as well to produce a "threatening situation."

However, if we accept the definition of anxiety proposed by May (1950) and Portnoy (1959), and if we re-examine the earlier test of the hypothesis concerning belief system contraction as a function of situational threat (i.e., Rokeach, Tech, and Rottman, 1960), we find that a case can be made for an anxiety (vs. a fear) interpretation of the phrase "threatening situation". It will be recalled that in their test

of this proposition these authors consider the calling of an ecumenical council to be indicative of a threatening situation. They document their belief by noting that:

According to the Catholic Encyclopedia (1908), ecumenical councils represent "a common effort of the church, or part of the church, for self-preservation and self-defense. They appear...whenever faith or morals or discipline are seriously threatened" (p. 424). [*italics ours*]

If one accepts the fear-anxiety distinction proposed by May (1950) and Portnoy (1959), it then becomes tenable to assert that what was involved in the Rokeach, Toch, and Rottman study was the societal-level counterpart of individual anxiety, as opposed to individual fear.

Let us pursue this point further. One of the most generally accepted and frequently used measures of anxiety (as a personality trait) is the Taylor Manifest Anxiety Scale (TMAS). If one assumes that the TMAS is a valid indicator of anxiety, insofar as shock or threat of shock is anxiety inducing, one would expect individuals scoring high on the TMAS to react differently than low-scoring individuals, i.e., there should be a relationship between personality measures of anxiety and physiological indices of autonomic nervous system arousal. However, it appears as if such studies have consistently obtained negative findings (cf., Hedges and Spielberger, 1966, p. 288). For example, Lewisohn (1956) found changes in heart rate in response to actual shock to be uncorrelated with scores on the TMAS. Similarly, Katkin (1965) found that in response to threat of shock, changes in skin conductance and the GSR were unrelated to TMAS scores.

One way to interpret these findings is suggested by Spielberger's recent (in press) conceptualization of anxiety, in which a distinction



is made between state- and trait-anxiety. "According to this view, state-anxiety is a transitory condition of the organism characterized by subjective feelings of apprehension and heightened ANS arousal... whereas trait-anxiety is a relatively permanent aspect of personality which reflects individual differences in the disposition to respond with state-anxiety to situations perceived as threatening" (Hodges and Spielberger, 1966, p. 293). Rephrasing the issue in the present study, one could say the following. Although dogmatism has already been shown to be positively related to, and a partial function of, trait-anxiety, the current investigation sought to demonstrate that dogmatism could also be affected by state-anxiety. According to Spielberger, "Ss who differ in trait-anxiety will respond with differential amounts of state-anxiety to 'ego-stress' situations, but not to situations involving physical pain or threat of pain" (Hodges and Spielberger, 1966, p. 293). This contention is entirely consonant with the results of the present study.

If the reasoning presented here is correct, then two ramifications emanate from such a position. The more immediate one is that the hypotheses were not adequately tested by the present study, i.e., fear, rather than the discriminably distinct state of anxiety, was employed as the independent variable. The other is that Rokeachian theory is in need of a slight but very important modification, namely, the specification of anxiety as the type of threat necessary to cause the contraction of a belief system.

Thus, it is now obvious that certain procedural modifications must be incorporated in any future tests of the hypotheses. Specifically,

the threat manipulations should attempt to induce affective reactions which more nearly approximate anxiety rather than fear, as the two terms are distinguished in the formulations of May (1950) and Portnoy (1959). We believe that such manipulations would be in greater consonance with Rokeach's implicit conception of threat (i.e., threat qua anxiety), and would provide a more adequate test of that facet of his theory. To produce such anxiety it is necessary that the threat be perceived by the subject as being vague and ill-defined. Further, it must be directed towards the deepest personality levels — those involving the individual's core concepts regarding self, being, identity, and existence. (In contradistinction, in the present study the threat was concrete, objective, delimited solely to the infliction of external physical pain, and peripheral to the individual's self-concept.)

To actually obtain state-anxiety via experimental manipulations would appear to be a fairly difficult task. For example, although there are general and specifiable fear stimuli (e.g., probably all normal Americans are afraid of severe pain), with the possible exception of death, the writer is not aware of any general and specifiable anxiety stimuli. Furthermore, since the referent for fear is objective, the experimenter can either directly control it or, even at the most basic level of scientific methodology, he can observe its onset, duration, and cessation and the individual's attendant reactions. However, since anxiety is not directly contingent upon the external stimulus, even if the investigator could determine that the cause of the anxiety had ceased, could he also safely assume that the anxiety itself had dissipated? This ties in with the conception of

anxiety as being directly involved with the deepest levels of the individual's personality, as opposed to fear which is involved with the intermediate and/or more superficial levels. Lastly, the writer wishes to pose two related questions which he does not at this time feel qualified to answer himself: (1) If, in order to induce state-anxiety, we must manipulate the individual's deepest levels of personality, should such research be conducted only with the active presence and assistance of a clinician or psychiatrist? (2) Ethically speaking, should such research even be conducted at all?

On the basis of the current investigation the following statements appear in order:

1. Early and later borns enter the experimental situation experiencing approximately the same degree of general nervous tension. (Note: there are some grounds for considering the Anx-I score, since it was administered prior to any specific threat manipulations, to represent a valid measure of pre-experimental anxiety.)
2. Neither dogmatism nor authoritarianism is directly related to ordinal birth position, either under fear or non-fear inducing conditions.
3. Situational threat, here being operationally defined in terms of fear manipulations, has no significant effect upon either dogmatism or authoritarianism.
4. Rokeach's (1960) theory appears to be in need of a minor refinement, i.e., the nature of the threat theorized to affect dogmatism should be more specifically defined as anxiety rather than fear.



Insofar as the current study failed to employ true anxiety manipulations, no conclusions may be offered regarding any of the hypothesized relationships.



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## Appendix A

DO NOT PUT YOUR NAME ON THE PAPER. Just fill in the following blanks.

Present date .....

Date of birth ..... Age .....  
month day year

Place of birth .....  
town state

Grade in school ..... Male ..... Female .....

Religion .....

Are you: ..... an only child? ..... a fifth-born child?  
..... a first-born child? ..... a sixth-born child?  
..... a second-born child? ..... a seventh-born child?  
..... a third-born child? ..... an eighth or higher-  
born child?  
..... a fourth-born child?

On the following pages you will find a list of 40 statements. These are what many people think and feel about a number of important issues concerning both ourselves and the world we live in. The best answer to each statement is your personal opinion, your own point of view. You may find yourself agreeing strongly with some of the statements, disagreeing just as strongly with others, and perhaps not very sure about others. Whether you AGREE or DISAGREE with any statement, you can be sure that many other people feel the same as you do.

Because these statements have been made by adults, some of them are hard for high school students to understand. We have asked another group of high school students to help us change the words in order to make the meanings clearer. They changed 25 of the 40 statements. We have put the changes they made [in brackets] under the statements made by the adults. When you check whether you AGREE or DISAGREE with the statements you may understand the version [in brackets] better, but the two statements mean the same thing.

The results of this study will be valuable in terms of understanding what high school students think and feel about the issues. While the identity of the individual student is not important to the study, the over-all results are of great importance. And so we would appreciate your careful, accurate, thoughtful, and conscientious cooperation in answering the questions.

\* \* \* \*

Here are two sample statements. Note that you check your AGREEMENT on the left side, and your DISAGREEMENT on the right side. Make only ONE check per statement.

I AGREE  
..... very much  
..... on the whole  
..... a little

A. Fair play is not important  
in sports

I DISAGREE  
..... very much  
..... on the whole  
..... a little

I AGREE  
..... very much  
..... on the whole  
..... a little

B. Some people think about them-  
selves too much.

I DISAGREE  
..... very much  
..... on the whole  
..... a little



REMEMBER: THIS IS NOT A TEST. We would like to see whether you agree of disagree with statements made by adults every day.

PLEASE BE SURE TO MARK EVERY STATEMENT

ONLY ONE CHECK PER STATEMENT

\* \* \* \* \*

<p>I AGREE</p> <p>___ very much</p> <p>___ on the whole</p> <p>___ a little</p>	<p>1. The United States and Russia have just about nothing in common.</p>	<p>I DISAGREE</p> <p>___ very much</p> <p>___ on the whole</p> <p>___ a little</p>
<p>I AGREE</p> <p>___ very much</p> <p>___ on the whole</p> <p>___ a little</p>	<p>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.</p> <p>[The best kind of government is a democracy, and the best kind of democracy is a government run by those who are smartest.]</p>	<p>I DISAGREE</p> <p>___ very much</p> <p>___ on the whole</p> <p>___ a little</p>
<p>I AGREE</p> <p>___ very much</p> <p>___ on the whole</p> <p>___ a little</p>	<p>3. Even though freedom of speech for all groups is a worthwhile goal, it is unfortunately necessary to restrict the freedom of certain political groups.</p> <p>[All groups should be able to say what they believe in without anyone stopping them, but some political groups have to be limited in this freedom, although it is too bad to have to limit them.]</p>	<p>I DISAGREE</p> <p>___ very much</p> <p>___ on the whole</p> <p>___ a little</p>
<p>I AGREE</p> <p>___ very much</p> <p>___ on the whole</p> <p>___ a little</p>	<p>4. It is only natural that a person would have a much better acquaintance with ideas he believes in than with ideas he opposes.</p> <p>[It is only natural that a person would know much more about ideas he believes in than ideas he doesn't like at all.]</p>	<p>I DISAGREE</p> <p>___ very much</p> <p>___ on the whole</p> <p>___ a little</p>
<p>I AGREE</p> <p>___ very much</p> <p>___ on the whole</p> <p>___ a little</p>	<p>5. Man on his own is a helpless and miserable creature.</p>	<p>I DISAGREE</p> <p>___ very much</p> <p>___ on the whole</p> <p>___ a little</p>
<p>I AGREE</p> <p>___ very much</p> <p>___ on the whole</p> <p>___ a little</p>	<p>6. Fundamentally, the world we live in is a pretty lonesome place.</p> <p>[Actually, the world we live in is a pretty lonesome place.]</p>	<p>I DISAGREE</p> <p>___ very much</p> <p>___ on the whole</p> <p>___ a little</p>



I AGREE ____ very much ____ on the whole ____ a little	7. Most people just don't give a "damn" for others.	I DISAGREE ____ very much ____ on the whole ____ a little
I AGREE ____ very much ____ on the whole ____ a little	8. I'd like it if I could find someone who would tell me how to solve my personal problems.	I DISAGREE ____ very much ____ on the whole ____ a little
I AGREE ____ very much ____ on the whole ____ a little	9. It is only natural for a person to be rather fearful of the future.	I DISAGREE ____ very much ____ on the whole ____ a little
I AGREE ____ very much ____ on the whole ____ a little	10. There is so much to be done and so little time to do it in.	I DISAGREE ____ very much ____ on the whole ____ a little
I AGREE ____ very much ____ on the whole ____ a little	11. Once I get wound up in a heated discussion, I just can't stop.	I DISAGREE ____ very much ____ on the whole ____ a little
I AGREE ____ very much ____ on the whole ____ a little	12. In a discussion, I often find it necessary to repeat myself several times to make sure I'm being understood.  [In a discussion, I often have to say the same thing several times to make sure others understand me.]	I DISAGREE ____ very much ____ on the whole ____ a little
I AGREE ____ very much ____ on the whole ____ a little	13. In a heated discussion I generally become so absorbed in what I am going to say that I forget to listen to what the others are saying.  [In a heated discussion, I almost always think so hard about what I am going to say that I forget to listen to what the others are saying.]	I DISAGREE ____ very much ____ on the whole ____ a little
I AGREE ____ very much ____ on the whole ____ a little	14. It is better to be a dead hero than to be a live coward.	I DISAGREE ____ very much ____ on the whole ____ a little
I AGREE ____ very much ____ on the whole ____ a little	15. 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.  [While I don't like to say this even to myself, my secret goal in life is to become a very great man.]	I DISAGREE ____ very much ____ on the whole ____ a little

I AGREE _____ very much _____ on the whole _____ a little	16. The main thing in life is for a person to want to do something important.	I DISAGREE _____ very much _____ on the whole _____ a little
I AGREE _____ very much _____ on the whole _____ a little	17. If given the chance, I would do something of great benefit to the world.  [If given the chance, I would do something of great help to the world.]	I DISAGREE _____ very much _____ on the whole _____ a little
I AGREE _____ very much _____ on the whole _____ a little	18. In the history of mankind there have probably been just a handful of great thinkers.	I DISAGREE _____ very much _____ on the whole _____ a little
I AGREE _____ very much _____ on the whole _____ a little	19. There are a number of people I have come to hate because of the things they stand for.	I DISAGREE _____ very much _____ on the whole _____ a little
I AGREE _____ very much _____ on the whole _____ a little	20. A man who does not believe in some great cause has not really lived.  [A man who does not believe in something which can be of great help to the world has not really lived.]	I DISAGREE _____ very much _____ on the whole _____ a little
I AGREE _____ very much _____ on the whole _____ a little	21. It is only when a person devotes himself to an ideal or cause that life becomes meaningful.  [Life takes on real meaning for a person only when he puts all of his effort into something which has a high purpose or which is important in this world.]	I DISAGREE _____ very much _____ on the whole _____ a little
I AGREE _____ very much _____ on the whole _____ a little	22. Of all the different philosophies which exist in this world, there is probably only one which is correct.  [Probably only one of the different beliefs which there are in this world is right.]	I DISAGREE _____ very much _____ on the whole _____ a little
I AGREE _____ very much _____ on the whole _____ a little	23. A person who gets enthusiastic about too many causes is likely to be a pretty "wishy-washy" sort of person.  [A person who gets interested and excited about too many things which are important in this world is likely to be someone who can't make up his mind.]	I DISAGREE _____ very much _____ on the whole _____ a little

<p>I AGREE</p> <p>_____ very much</p> <p>_____ on the whole</p> <p>_____ a little</p>	<p>24. To compromise with our political opponents is dangerous because it usually leads to the betrayal of our own side.</p> <p>[It is dangerous to give in, even a little, to people on the other side of the political fence, because this usually leads to the weakening or defeat of our own side.]</p>	<p>I DISAGREE</p> <p>_____ very much</p> <p>_____ on the whole</p> <p>_____ a little</p>
<p>I AGREE</p> <p>_____ very much</p> <p>_____ on the whole</p> <p>_____ a little</p>	<p>25. 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.</p> <p>[When it comes to differences of opinion in religion, we must be careful not to give and take with those whose beliefs are different from ours.]</p>	<p>I DISAGREE</p> <p>_____ very much</p> <p>_____ on the whole</p> <p>_____ a little</p>
<p>I AGREE</p> <p>_____ very much</p> <p>_____ on the whole</p> <p>_____ a little</p>	<p>26. In times like these, a person must be pretty selfish if he considers promarily his own happiness.</p> <p>[In times like these, a person must be pretty selfish if he puts his own happiness ahead of anything else.]</p>	<p>I DISAGREE</p> <p>_____ very much</p> <p>_____ on the whole</p> <p>_____ a little</p>
<p>I AGREE</p> <p>_____ very much</p> <p>_____ on the whole</p> <p>_____ a little</p>	<p>27. The worst crime a person could commit is to attack publicly the people who believe in the same thing he does.</p> <p>[The very worst thing a person could do is to openly attack the people who believe in the same thing he does.]</p>	<p>I DISAGREE</p> <p>_____ very much</p> <p>_____ on the whole</p> <p>_____ a little</p>
<p>I AGREE</p> <p>_____ very much</p> <p>_____ on the whole</p> <p>_____ a little</p>	<p>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.</p> <p>[In times like these, we often have to be more careful about dangerous ideas put out by people or groups on our side of the fence than by people on the other side of the fence.]</p>	<p>I DISAGREE</p> <p>_____ very much</p> <p>_____ on the whole</p> <p>_____ a little</p>
<p>I AGREE</p> <p>_____ very much</p> <p>_____ on the whole</p> <p>_____ a little</p>	<p>29. A group which tolerates too much difference of opinion among its own members cannot exist for long.</p> <p>[A group which allows too much difference of opinion among its own members cannot last long.]</p>	<p>I DISAGREE</p> <p>_____ very much</p> <p>_____ on the whole</p> <p>_____ a little</p>





I AGREE ___ very much ___ on the whole ___ a little	30. There are two kinds of people in this world: those who are for the truth and those who are against the truth.	I DISAGREE ___ very much ___ on the whole ___ a little
I AGREE ___ very much ___ on the whole ___ a little	31. My blood boils whenever a person stubbornly refuses to admit he's wrong.  [I get very angry when a person just won't admit he's wrong.]	I DISAGREE ___ very much ___ on the whole ___ a little
I AGREE ___ very much ___ on the whole ___ a little	32. A person who thinks primarily of his own happiness is beneath contempt.  [A person who thinks first of his own happiness is about as low as anyone can get.]	I DISAGREE ___ very much ___ on the whole ___ a little
I AGREE ___ very much ___ on the whole ___ a little	33. Most of the ideas which get printed nowadays aren't worth the paper they are printed on.	I DISAGREE ___ very much ___ on the whole ___ a little
I AGREE ___ very much ___ on the whole ___ a little	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.  [Since this world of ours is so hard to understand, the only way we can know what's going on is to depend on the leaders and those who know a lot, whom we can trust.]	I DISAGREE ___ very much ___ on the whole ___ a little
I AGREE ___ very much ___ on the whole ___ a little	35. It is often desirable to reserve judgement about what's going on until one has had a chance to hear the opinions of those one respects.  [It is often better to wait until people you think a lot of have given their opinion before you make up your own mind about what's going on.]	I DISAGREE ___ very much ___ on the whole ___ a little
I AGREE ___ very much ___ on the whole ___ a little	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.	I DISAGREE ___ very much ___ on the whole ___ a little
I AGREE ___ very much ___ on the whole ___ a little	37. The present is all too often full of unhappiness. It is only the future that counts.	I DISAGREE ___ very much ___ on the whole ___ a little

<p>I AGREE</p> <p>_____ very much</p> <p>_____ on the whole</p> <p>_____ a little</p>	<p>38. If a man is to accomplish his mission in life it is sometimes necessary to gamble "all or nothing at all."</p> <p>[If a person is to reach his goal in life, he sometimes has to play an "all" or "nothing" kind of game.]</p>	<p>I DISAGREE</p> <p>_____ very much</p> <p>_____ on the whole</p> <p>_____ a little</p>
<p>I AGREE</p> <p>_____ very much</p> <p>_____ on the whole</p> <p>_____ a little</p>	<p>39. Unfortunately, a good many people with whom I have discussed important social and moral problems don't really understand what's going on.</p> <p>[I think it's too bad, but lots of people I've talked to don't really understand about the important problems facing the world today or about what is right and what is wrong.]</p>	<p>I DISAGREE</p> <p>_____ very much</p> <p>_____ on the whole</p> <p>_____ a little</p>
<p>I AGREE</p> <p>_____ very much</p> <p>_____ on the whole</p> <p>_____ a little</p>	<p>40. Most people just don't know what's good for them.</p>	<p>I DISAGREE</p> <p>_____ very much</p> <p>_____ on the whole</p> <p>_____ a little</p>

STOP. Please go back and make certain that:

- a) you have answered each and every one of the 40 statements, and
- b) you have made only one check for each of the 40 statements.

Thank you for your cooperation.

## Appendix B

DO NOT PUT YOUR NAME ON THE PAPER. Just fill in the following blanks.

Present date \_\_\_\_\_

Date of birth \_\_\_\_\_ Age \_\_\_\_\_  
month day year (not 1965)

Place of birth \_\_\_\_\_  
town state

Psychology 151 section \_\_\_\_\_

Male \_\_\_\_\_ Female \_\_\_\_\_ Religion \_\_\_\_\_

Are you: \_\_\_\_\_ an only child? \_\_\_\_\_ a fifth-born child?  
\_\_\_\_\_ a first-born (oldest) child? \_\_\_\_\_ a sixth-born child?  
\_\_\_\_\_ a second-born child? \_\_\_\_\_ a seventh- or later- born child?  
\_\_\_\_\_ a third-born child? \_\_\_\_\_ a twin?  
\_\_\_\_\_ a fourth-born child? \_\_\_\_\_ a triplet?

If you are one of several children, please list the exact ages of your brothers and sisters.

Brothers

1. \_\_\_\_\_ years and \_\_\_\_\_ months old.
2. \_\_\_\_\_ years and \_\_\_\_\_ months old.
3. \_\_\_\_\_ years and \_\_\_\_\_ months old.
4. \_\_\_\_\_ years and \_\_\_\_\_ months old.

Sisters

1. \_\_\_\_\_ years and \_\_\_\_\_ months old.
2. \_\_\_\_\_ years and \_\_\_\_\_ months old.
3. \_\_\_\_\_ years and \_\_\_\_\_ months old.
4. \_\_\_\_\_ years and \_\_\_\_\_ months old.

How nervous or uneasy do you feel about taking part in this experiment?  
Please answer by checking one of the following alternatives:

- \_\_\_\_\_ I feel extremely uneasy.  
\_\_\_\_\_ I feel very uneasy.  
\_\_\_\_\_ I feel quite uneasy.  
\_\_\_\_\_ I feel a little uneasy.  
\_\_\_\_\_ I feel relatively calm.  
\_\_\_\_\_ I feel completely calm.



Below are 34 statements concerning a number of important issues about ourselves and the world we live in. These are all controversial statements, and many conflicting and opposing points of view are included. You may find yourself agreeing strongly with some of the statements, disagreeing just as strongly with others, and perhaps not very sure about yet others. Whether you agree or disagree with any statement, you can be sure that there are many other people who feel pretty much the way you do. So the best answer to each statement is your personal opinion, your own point of view. Please try to respond to all the statements as honestly and frankly as you can. No one will know how you respond because we are asking you not to identify yourself.

Instructions: Respond to each of the statements using the following numbers, depending on how you feel in each case:

+3: I AGREE VERY MUCH

-3: I DISAGREE VERY MUCH

+2: I AGREE ON THE WHOLE

-2: I DISAGREE ON THE WHOLE

+1: I AGREE A LITTLE

-1: I DISAGREE A LITTLE

For example, if you agree very much with a statement, write +3 on the short line preceeding that statement. If you happen to disagree a little, write -1 in front of it. Respond to each statement as best you can. Please do not omit any. Go rapidly but carefully. Do not spend too much time on any one statement; try to respond and then go on. Do not sign your name.

REMEMBER: PLEASE BE SURE TO ANSWER EVERY STATEMENT.

+3: I AGREE VERY MUCH

-3: I DISAGREE VERY MUCH

+2: I AGREE ON THE WHOLE

-2: I DISAGREE ON THE WHOLE

+1: I AGREE A LITTLE

-1: I DISAGREE A LITTLE

- \_\_\_\_\_ 1. If given the chance I would do something of great benefit to the world.
- \_\_\_\_\_ 2. Nowadays when so many different kinds of people move around and mix together so much, a person has to protect himself **especially** carefully against catching an infection or disease from them.
- \_\_\_\_\_ 3. It is often desirable to reserve judgement about what's going on until one has had a chance to hear the opinions of those one respects.
- \_\_\_\_\_ 4. Homosexuals are hardly better than criminals and ought to be severely punished.
- \_\_\_\_\_ 5. In a heated discussion I generally become so absorbed in what I am going to say that I forget to listen to what the others are saying.
- \_\_\_\_\_ 6. A person who gets enthusiastic about too many causes is likely to be a "wishy-washy" sort of person.
- \_\_\_\_\_ 7. Young people sometimes get **rebellious** ideas, but as they grow up they ought to get over them and settle down.
- \_\_\_\_\_ 8. In the history of mankind there have probably been just a handful of really great thinkers.
- \_\_\_\_\_ 9. Some day it will probably be shown that astrology can explain a lot of things.
- \_\_\_\_\_ 10. The worst crime a person could commit is to attack publicly the people who believe in the same thing he does.
- \_\_\_\_\_ 11. There is hardly anything lower than a person who does not feel a great love, gratitude, and respect for his parents.
- \_\_\_\_\_ 12. Sex crimes, such as rape and attacks on children, deserve more than mere imprisonment; such criminals ought to be publicly whipped, or worse.
- \_\_\_\_\_ 13. People can be divided into two distinct classes: the weak and the strong.
- \_\_\_\_\_ 14. The wild sex life of the old Greeks and Romans was tame compared to some of the goings-on in this country, even in places where people might least expect it.
- \_\_\_\_\_ 15. Unfortunately, a good many people with whom I have discussed important social and moral problems don't really understand what's going on.
- \_\_\_\_\_ 16. What the youth needs most is strict discipline, rugged determination, and the will to work and fight for family and country.



- \_\_\_\_\_ 17. The highest form of government is a democracy and the highest form of democracy is a government run by those who are the most intelligent.
- \_\_\_\_\_ 18. In times like these, a person must be pretty selfish if he considers primarily his own happiness.
- \_\_\_\_\_ 19. 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.
- \_\_\_\_\_ 20. No weakness or difficulty can hold us back if we have enough will power.
- \_\_\_\_\_ 21. Most people don't realize how much our lives are controlled by plots hatched in secret places.
- \_\_\_\_\_ 22. Of all the different philosophies which exist in this world there is probably only one which is correct.
- \_\_\_\_\_ 23. Even though freedom of speech for all groups is a worthwhile goal, it is unfortunately necessary to restrict the freedom of certain political groups.
- \_\_\_\_\_ 24. Most people just don't know what's good for them.
- \_\_\_\_\_ 25. There are two kinds of people in this world: those who are for the truth and those who are against the truth.
- \_\_\_\_\_ 26. Fundamentally, the world we live in is a pretty lonesome place.
- \_\_\_\_\_ 27. It is essential for learning or effective work that our teachers or bosses outline in detail what is to be done and exactly how to go about it.
- \_\_\_\_\_ 28. Wars and social troubles may someday be ended by an earthquake or flood that will destroy the whole world.
- \_\_\_\_\_ 29. A person who thinks primarily of his own happiness is beneath contempt.
- \_\_\_\_\_ 30. If people would talk less and work more, everybody would be better off.
- \_\_\_\_\_ 31. It is only when a person devotes himself to an ideal or cause that life becomes meaningful.
- \_\_\_\_\_ 32. If a man is to accomplish his mission in life it is sometimes necessary to gamble "all or nothing at all."
- \_\_\_\_\_ 33. In a discussion I often find it necessary to repeat myself several times to make sure I am being understood.
- \_\_\_\_\_ 34. The present is all too often full of unhappiness. It is only the future that counts.

---

Please go back over your paper and make certain that you have answered each and every one of the statements.



How would you rate your general state of health?

Please place a check mark over the appropriate number.

Very good. \_\_\_\_\_ Very poor  
1 2 3 4 5 6 7



+3 I AGREE VERY MUCH-3: I DISAGREE VERY MUCH+2: I AGREE ON THE WHOLE-2: I DISAGREE ON THE WHOLE+1: I AGREE A LITTLE-1: I DISAGREE A LITTLE

- ..... 1. There is so much to be done and so little time to do it in.
- ..... 2. Every person should have complete faith in some supernatural power whose decisions he obeys without question.
- ..... 3. The businessman and the manufacturer are much more important to society than the artist and the professor.
- ..... 4. Familiarity breeds contempt.
- ..... 5. The United States and Russia have just about nothing in common.
- ..... 6. Most of our social problems would be solved if we could somehow get rid of the immoral, crooked, and feeble-minded people.
- ..... 7. What this country needs most, more than laws and political programs, is a few courageous, tireless, devoted leaders in whom the people can put their faith.
- ..... 8. It is only natural that a person should have a much better acquaintance with ideas he believes in than with ideas he opposes.
- ..... 9. My blood boils whenever a person stubbornly refuses to admit he's wrong.
- ..... 10. There are a number of persons I have come to hate because of the things they stand for.
- ..... 11. When a person has a problem or worry, it is best for him not to think about it, but to keep busy with more cheerful things.
- ..... 12. No sane, normal, decent person could ever think of hurting a close friend or relative.
- ..... 13. A person who has bad manners, habits, and breeding can hardly expect to get along with decent people.
- ..... 14. A man who does not believe in some great cause has not really lived.
- ..... 15. The main thing in life is for a person to want to do something important.
- ..... 16. Once I get wound up in a heated discussion I just can't stop.
- ..... 17. Science has its place, but there are many important things that can never be understood by the human mind.
- ..... 18. Some people are born with the urge to jump from high places.
- ..... 19. In this complicated world of ours the only way we can know what is going on is to rely on leaders or experts who can be trusted.

- \_\_\_\_\_ 20. I'd like it if I could find someone who would tell me how to solve my personal problems.
- \_\_\_\_\_ 21. A group which tolerates too much differences of opinion among its own members cannot exist for long.
- \_\_\_\_\_ 22. 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.
- \_\_\_\_\_ 23. Nobody ever learned anything really important except through suffering.
- \_\_\_\_\_ 24. 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.
- \_\_\_\_\_ 25. Most of the ideas which get printed nowadays aren't worth the paper they are printed on.
- \_\_\_\_\_ 26. Nowadays more and more people are prying into matters that should remain personal and private.
- \_\_\_\_\_ 27. It is only natural for a person to be rather fearful of the future.
- \_\_\_\_\_ 28. Obedience and respect for authority are the two most important virtues children should learn.
- \_\_\_\_\_ 29. 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. Most people just don't give a "damn" for others.
- \_\_\_\_\_ 31. Man on his own is a helpless and miserable creature.
- \_\_\_\_\_ 32. To compromise with our political opponents is dangerous because it usually leads to betrayal of our own side.
- \_\_\_\_\_ 33. An insult to our honor should always be punished.
- \_\_\_\_\_ 34. It is better to be a dead hero than a live coward.

---

Please go back over your paper and make certain that you have answered each and every one of the statements.

How nervous or uneasy do you feel about taking part in this experiment?  
Please answer by checking one of the following alternatives:

☐ I feel extremely uneasy.

☐ I feel very uneasy.

☐ I feel quite uneasy.

☐ I feel a little uneasy.

☐ I feel relatively calm.

☐ I feel completely calm.

Would you like to leave rather than proceed with the experiment?

Yes ☐

No ☐





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