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## Reconstruction of a Belief Index: Modern Values and Pre-vatican Belief

David F. Schwartz  
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RECONSTRUCTION OF A BELIEF INDEX:  
MODERN VALUES AND PRE-VATICAN BELIEF

by

David F. Schwartz

A Thesis Submitted to the Faculty of the Graduate School  
of Loyola University of Chicago in Partial Fulfillment  
of the Requirements for the Degree of

Master of Arts

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## VITA

The author, David Frank Schwartz, is the son of Frank Nikalas Schwartz and Isabelle (Kretz) Schwartz. He was born October 14, 1948, in Chicago, Illinois.

His elementary education was obtained in the catholic parochial schools of Chicago, Illinois, and secondary education at Gordon Technical High School of Chicago, where he was graduated in 1966.

In September, 1966, he entered De Paul University, and in June, 1970, received the degree Bachelor of Arts with a major in sociology. While attending De Paul University, he was elected to membership in Blue Key and served as president of the Student-Faculty Sociology Council. In 1970 he became a member of the American Sociological Association.

In September, 1970, he was granted an assistantship in sociology at Loyola University. In May, 1974, he was nominated to Alpha Sigma Nu. Since spring 1972, he has been working in a cooperative effort at reanalysis of the priesthood study data through the Center for Social Organization Studies at Loyola University.

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## INTRODUCTION

This thesis seeks to reconstruct the major belief index used in a recent study of American priests (NORC, 1972). By tracing the origin and development of the Modern Values index, this work will show that the constructed index does not measure what it claims to measure. Hence, conclusions and more importantly policy implications based on use of the index must be reinterpreted through use of a reconstructed index. This type of work is important for the sociology of religion since the approach to measuring belief used by the NORC researchers is part of a new trend in the study of religious belief. If these new developments are to represent an increase in knowledge and technique, it is essential that care is taken to insure that the index does in fact represent an improvement.

The first section briefly traces the development of the new approach and provides the theoretical context necessary to understand the approach to measuring belief. The second section reviews the work of Neal (1965 and 1970) which forms the background for the modern values index. The third section discusses the manner in which the NORC researchers adapted Neal's framework. The fourth section provides a critique of the method used to construct modern values. The next section sets forth a concise statement of the central problem addressed by this thesis, followed by a discussion of a methodology appropriate to address the question. The sixth and seventh sections present the



results of this research. Finally, the last section summarizes the work and explores its implications for future research.

## EMPIRICAL STUDY OF RELIGIOUS BELIEF

The rationale for the modern values index (NORC, 1972: 81) begins by evaluating previous research on the measurement of belief:

On those items referring to attitudes about the priesthood and about religion, no attempt was made to assess theological orthodoxy. Experience with other research and of our own pretest indicates that there is nearly unanimous agreement on those items which are statements of doctrinal position.

Hence the simple assessment of assent to orthodoxy may not provide usable measures of religious belief. This empirically based criticism is part of a general critique being raised in many recent evaluations of the empirical study of religious belief, especially the work of Glock and Stark (1965 and 1966). (C.f. Dittes, 1969; Neal, 1970; Gannon, 1972; Hargrove, 1973.) As Hargrove (1973: 464-465) suggests, "the overall picture of Glock's work is one of a pioneering effort at new approaches to the sociology of religion," yet "there needs to be considerably more sophistication of the theological aspects of the research."

To provide a sense of continuity, it is worthwhile to briefly trace the origin of Glock's work. In exploring the strategic problems raised by research in the 1950s for the volume Sociology Today (Merton, Broom, and Cottrell, 1959), Glock asserts:

For the most part, the studies compared churchgoers and non-churchgoers, regular and irregular attenders, or children who have received Sunday-school training with those who have not.

He suggests direct measurement of religious beliefs; his work during the 1960s implements this suggestion. The main result, the orthodoxy

index, has received considerable attention in the sociology of religion literature (Stark and Foster, 1970). While this index represents an improvement over simple indicators such as affiliation and attendance (Demerath and Hammond, 1969: 141), the assessment of assent to orthodoxy implies too narrow a definition of individual religious belief (Neal, 1970: 9; Gannon, 1973: 7). Hence new conceptions of belief which pay explicit attention to the results of previous research are necessary (Ficther, 1969: 170). This implies a review of some basic assumptions regarding the phenomenon of religion and the nature of religious belief.

Religion first of all is a human phenomenon. Scientific knowledge of this phenomenon requires abstraction of the relevant social, cultural, and psychological dimensions of human action. Religion can be defined (Gannon, 1972: 214) as "an institution comprising a believing community's organized, integrated, and culturally conditioned patterns of interaction with a superhuman Being (or beings) postulated as relevant to their existence." Before reviewing the origin of the Modern Values index it is necessary to comment on the social, cultural, and personal aspects of religion and religious belief in the context of recent historical events.

At the level of individual religious commitment, religion expresses itself in patterns of behavior guided by the relevant belief system (Neal, 1970). Religious belief systems are ideological sets of propositions that include statements about the nature of reality, behavioral patterns designed to achieve specific ends, and sets of principles providing accepted criteria for making moral value-judge-

ments. Thus, religious beliefs embody conceptions of acceptable creeds, guiding codes, and cultic acts. In short, religious beliefs provide the believer with a model of reality as well as a model for reality (Gannon, 1973). Formally, the religious beliefs of individuals find their expression in the cognitive outcome of a cathectic-evaluative attachment to a belief system (or systems). Empirically, this phenomenon may be gauged by assessing the extent of endorsement of belief propositions.

However, these data take on meaning only if the belief statements are taken from an identifiable belief system. In other words, since the belief system exists only in an institutional form, it is at least implicitly associated with social organization. This presents a critical problem for the study of contemporary religious belief (Luckmann, 1971) because the current institutional forms of religion are undergoing the process of secularization. Put in terms of the sociology of knowledge, secularization represents a progressive loss of the plausibility of religious belief systems (Berger, 1974: 132) and the consequent emergence of competing world-views. In this situation it is hazardous, if not fruitless, to measure religious belief of nebulously defined populations.

Research should focus on populations for which it can be assumed that the individuals under investigation have been exposed to one principal religious belief system. When this is not possible, given contemporary communication media, research should focus on a population for which it can be assumed that individuals having been exposed to competing world views have chosen a specific belief system. Obviously,

expressing religious affiliation (Protestant, Catholic, Jew) is too nebulous a base upon which to measure religious belief. It should be equally obvious that accidental selection of belief propositions from a loosely defined "Judeo-Christian" belief system is also a hazardous procedure for measuring individual religious belief. Unfortunately, most recent empirical research does not take these considerations into account.

Furthermore, in times marked by shifts in the orientation of belief systems, simply to measure endorsement of orthodoxy will not provide an accurate assessment of individual religious belief. This strategy, characteristic of the "dimensional" approach of Glock and Stark (1965) and their followers (c.f. Dittes, 1969 for a review of this literature), precludes detection of shifts at the individual level. Thus, Glock (1971) seeks to classify believers through use of a "sacred/profane" distinction, while many contemporary believers deny the relevance of the distinction (Bellah, 1970; Gannon, 1973). Although this approach was adequate for moving beyond the use of attendance and/or affiliation as indicators of belief, it is inadequate for exploring the contemporary situation.

At the general cultural level Bellah (1964) suggests that there is currently underway a shift from "early modern" to "modern" religious belief systems. This shift involves a refocusing of orientation away from the direct relation between the individual and transcendent reality to a symbolization of man's relation to the ultimate conditions of his existence. While the seeds of this new orientation have been present

for some time (e.g. Thomas Paine's statement "My mind is my church), it is only in recent years that massive socio-historical events have allowed large aggregates of people to experience the situation in which change may occur. Interestingly, Glock (1972) acknowledges this shift in orientation, but this fact was never incorporated into the design of his research.

## THE DEVELOPMENT OF NEAL'S BELIEF INDEXES

Neal (1970) deals with this kind of orientational change in a study of structural change among Catholic religious orders of women. Since some of the belief statements she developed (and part of her rationale) were used in the NORC study, an understanding of her work forms a basic background for the present study. After a review of Neal's theoretical rationale and index development procedure a firm groundwork will exist for a critical review of the NORC study with regard to the modern values index.

In Neal's framework, religious belief at the individual level is defined as an attitude. Holding a general definition of attitude as "an enduring organization of motivational, emotional, perceptual, and cognitive processes with respect to some aspect of the individual's world" (Scott, 1968: 204), Neal (1970: 9) implies that:

the concept of religious belief used in this study refers to this complex of qualities related to specific cognitive sets associated by the actor with his conceptions of a creed, a code, and a cult that express for him his understanding of and feelings about what has ultimate meaning, couched in terms that are used by groups of people who, within a range, share similar understandings about ultimate values.

Her definition is not a beginning, but a conclusion which encompasses a number of critical points. That is, Neal offers not an operational definition, but an enumeration of several key assumptions about the relation of an individual to the attitude object--the belief system. To understand the rationale for her measures we shall review each of these assumptions in turn.

After affirming that religious belief is an attitude Neal connects the individual believer to the belief system. That is, individual religious beliefs are "specific cognitive sets associated by the actor with his conceptions of a creed, a code, and a cult." Here Neal defines religious belief in an enumerative fashion. Thus, the actor who believes subscribes to a creed providing a model of reality, and affirms a moral code as well as the efficacy of ritual which provides him with a model for reality. Note that Neal assumes the existence of a belief system as a cultural object received and interpreted by the individual believer.

The next element attributes the individual's understanding of creed, code, and cult to the category of "understanding of and feelings about what has ultimate meaning." This assumption crosscuts the attribution of religious belief to the category "attitude." Thus, as attitude, religious belief is taken to be the most general or fundamental attitude possible. Indeed, religious belief incorporates whatever models an individual uses to express his relationship to the ultimate conditions of his existence. Although not immediately important for the present study, this assumption defines the scope of possible systems of religious belief. Whether or not to include in the study of religious belief those belief systems that do not explicitly postulate a sacred, transcendental, or supernatural "object" (e.g. Secular Humanism, Unitarianism, or political ideologies) is a basic question of strategy and theory for the field (c.f. Robertson's discussion (1972) of the work of Berger and Luckmann). By defining



religious belief as 'ultimate meanings' one broadens the scope of inquiry to include those world-views that popularly would not be defined as "religious." We cannot resolve the issue of scope here. For present purposes we accept the definition provided by Gannon (1972) which includes a reference to a superhuman Being (or beings).

The last element of Neal's definition ties the study of belief to specific systems of belief or theological perspectives. Underlying this assumption is the broader presupposition that "the rejection of random beliefs by equally random individuals is of little significance" (Gannon, 1973: 3). As concept, belief depends on some specifiable system of belief. Hence the study of religious belief necessarily requires study of theological perspectives and currents embodied in those beliefs. Consequently, the content of a belief index (i.e. the belief items) will be historically specific to the time at which the measure is constructed.

Neal's rationale is embodied in two measures of religious belief reflecting the contemporary situation of the Catholic church. Thus, two measures were judged necessary since the contemporary situation of the Catholic church reflects the impact of one of the most important (O'Dea, 1968) events in its long history--the second Vatican Council. Dramatic shifts in the Church's orientation to the world emerged during the reign of John XXIII (1958-1963) and were reflected in the deliberations of Vatican II (1962-1963). New emphases emerged which clearly reflect differing theological perspectives. For example, many theologians who were not permitted free publication

and circulation of their works as accepted Catholic thinkers in the 1950s had become consulted "experts" by the fourth session of the Council (Neal, 1970: 157). Because the study of belief depends on specifying the belief system and since the belief system under study currently contains differing theological perspectives at least two measures of belief are necessary.

Although it would be possible to construct numerous measures reflecting the variety of theological perspectives present among theologians, it is obvious that only a group of sophisticated theologians would discriminate among the varying emphases (Stark and Foster, 1970: 388). Hence it is necessary to synthesize the differing currents of opinion in such a way that a significant aggregate of people can respond to the content in a meaningful manner. This is critically important not only in constructing the measure but also in interpreting the resulting data. As we shall see later, this requirement was overlooked in developing the belief index for the NORC study.

How does Neal synthesize the differing perspectives that emerged during Vatican II? In other words, how did she develop the content for her two measures of religious belief?

To get a content for the pre-Vatican and post-Vatican belief orientations a group of religious researchers studied the documents of Vatican II in the form in which they were available in 1965-66. To these we added our understanding of the theologies of the fifties previously analyzed, which were the background for the new directions of the Council. From these readings we generated items expressing themes of the pre- and post-Vatican orientations, and attempted to express all content in the idiom of the day. (1970: 13)

The previous analysis refers to Neal's earlier work (1965) on values

and interests in social change. There Neal suggests that the doctrinal basis of the differing theological perspectives originate in the the transcendence versus immanence dichotomy. (Others phrase it as the eschatological versus incarnational dichotomy.)

Briefly stated, the dichotomy arises from the central directive of Judaic-Christian revelation (Matthew 22: 34-41; Dueteronomy 6: 5; Leviticus 19: 18) expressed in two well known quotations: "Thou shalt love the Lord thy God with thy whole heart, with thy whole soul, with thy whole mind," and "Thou shalt love thy neighbor as thyself." The ubiquitous dilemma is: Shall the emphasis be on God or on man? on withdrawal from the world or engagement in it? Aggiornamento, the Italian phrase which entered the popular lexicon and expressed the hopes of Vatican II, represents a clear break from the post-Tridentine emphasis on transcendence. What themes arise from these differing emphases?

A pre-Vatican orientation taps beliefs holding that God is remote, unchanging, and perfect; he is not understandable. Christ established formal channels of grace as a means of encountering God; in the hierarchical church, professional religious are in a state of higher holiness. The best way to save one's soul is to be alone with the great Alone. The post-Vatican orientation taps beliefs which hold that God acts in history in ever new ways; the believer should listen as God speaks through human encounter which reflects the Trinity. Breaking through cultural barriers is necessary; service rather than command is the appropriate stance for those in authority. In this context, religious professionals are witnesses to the pilgrim character

of the church.

Neal's research group developed nearly 150 items to probe these general themes. Tables 1 and 2 present twelve items which not only survived the testing process but also were chosen for inclusion in the NORC study. As can be seen in Table 1, the pre-Vatican items express standard catechetical themes in use before Vatican II. For example, items twenty-six and twenty-seven (NORC #s) are statements expressing themes memorized by many before the Second Vatican Council. Table 2 presents items which express many of the same ideas but with an emphasis on immanence (e.g. eleven and thirty-one) rather than transcendence.

As a pre-test, Neal submitted the list of 150 items to several groups of lay Catholics and professional religious whose orientation toward these themes were already known to her. Only those items which clearly discriminated between those with known positions were included in her final version of the scale. Additionally, the themes were submitted to a number of theologians who were asked to determine the orientation of the belief propositions. Those items which met their approval were retained, although several expressed disagreement with the labels 'pre-Vatican' and 'post-Vatican.' The final instrument consisted of thirty items for each orientation.

Neal (1970: 13) reports that a factor analysis of the phi-coefficients, generated from the validity test based on fifteen groups of lay and religious "reveals two main factors corresponding to the pre- and post- themes consistently." Assessing the reliability of each index through the Kuder-Richardson formula-20 (Nunnally, 1967: 196-197)

TABLE 1

EXAMPLES OF BELIEF STATEMENTS USED  
IN THE NORC AND CMSW QUESTIONNAIRES  
(Pre-Vatican Themes)

STATEMENT	CMSW#	NORC#
The mystery of the Trinity is so profound and so central that I feel I should humbly accept it as given and not seek to plumb its depths	5	12
The important thing to stress when teaching about Jesus is that He is truly God, and, therefore adoration should be directed toward him.	15	21
The principal meaning of Christ's resurrection for me is that it proved His Divinity.	20	23
I think of heaven as the state in which my soul will rest in blissful possession of the Beatific Vision.	53	26
I feel that the most important thing to recognize about the sacraments is that they are channels for receiving grace.	32	27
A Christian should look first to the salvation of his soul; then he should be concerned about helping others.	43	30

TABLE 2

EXAMPLES OF BELIEF STATEMENTS USED  
IN THE NORC AND CMSW QUESTIONNAIRES  
(Post-Vatican Themes)

STATEMENT	CMSW#	NORC#
I feel that everything that has value in human life will somehow be retained in heaven.	57	11
The experience of dialogue among persons who are open and trusting provides the human analogy for understanding the Trinity as a life of communication and communion.	7	13
I feel that the diversity in individual men, among peoples, and in many cultures helps me to appreciate the meaning of the Incarnation.	17	22
I think that priests who feel called to do so ought to be witnessing to Christ on the picket line or so speaking out on controversial issues.	49	29
When I experience moments of deep communication and union with other persons, these sometimes strike me as a taste of what heaven will be like.	56	31
I think of the mass as a sacramental event which anticipates heaven as the joyous union of humanity: risen, redeemed, and glorified in Christ.	51	28

generated reliability coefficients (Alpha) at .814 for the post-Vatican orientation and .906 for the pre-Vatican orientation. In work still in progress Neal uses these measures as the central assessment of the religious belief of professional women religious. Unfortunately, while utilizing Neal's rationale to some extent and some of her items, the NORC research team did not construct the pre- and post-Vatican measures of belief. What resulted was something of a hybrid index including some of Neal's items and other items developed by the NORC researchers.

## THE RATIONALE FOR MODERN VALUES

Early in 1969, the United States Catholic Conference signed a contract with the National Opinion Research Center to conduct a survey to "determine what the priests see as the past, present, and future role of the priesthood and the Catholic Church in the U.S." (Schoenherr, 1969). Thus, its principal focus was the self-understanding of the priest in the context of his role and identity within the Church and the society-at-large. One result of this multi-faceted study was a massive body of data collected through a 46-page mailed questionnaire from over 5,000 active priests between December and March, 1969-1970.

(Other work included a survey of resigned priests and in-depth interviews with a subset of the main sample.) The main research report (NORC, 1972) portrays the magnitude of the study: 217 descriptive and analytic tables in 309 pages, plus more than 100 pages of appendices.

Facing this mass of data a researcher confronts many problems. As Udy (1965: 680) declares, "exploration of a body of data in an effort to 'make sense out of it' is an important and perennial problem for research." Does the effort of the NORC research team resolve this problem? Several reviews answer this question in the negative. Likewise, the authors of the report (Greeley and Schoenherr) admit that "the present volume only skims the surface of the data" (1972: 11) even though they do claim that "the basic outlines of the situation of the life and ministry of Catholic priests (are) clear" (1972: 23).



However, an over-reliance on explaining one variable (future plans of priests) prematurely narrowed the scope of the report leaving the data inadequately explored (Gannon, 1973: 240-242). Similarly, an unpublished review by Hughes, Donovan, and Cassidy (1972) charges that the data in many respects are underanalyzed and underutilized. This criticism is particularly applicable to the modern values index.

To support this contention I shall review the rationale, construction, and use of the index demonstrating that the interpretation of the index is invalid. First, it is necessary to describe the index and its construction. The modern values index is defined as "Beliefs and values regarding twenty-one aspects of God, Jesus, and the Church scored on a continuous scale (1 - 5) with a high score indicating agreement with few 'traditional' and many 'modern' attitudes." (Schoenherr, 1972: 8; see also Greeley and Schoenherr, 1974: 413). The belief statements are part of question thirty-seven of the NORC questionnaire (and reproduced here as Appendix A with the frequency distribution for each item). Correlations for these items were factor analyzed (Schoenherr, 1972: 10)

using the standard principal components solution available from the Factor Analysis program of the DATA-TEXT SYSTEM. Only one factor emerged providing evidence of a single dimension underlying the set of thirty-one items. Those twenty-one items with the highest loadings (all greater than .493) were chosen to form the basis for the index and were submitted for a second factor analysis.

The results of the first factor analysis are reproduced here as Table 3, the second as Table 4; the asterisk (\*) notation of Table 3 indicates the twenty-one items used in modern values. The index was

constructed by summing the rating scales with reverse scoring for the modern items (Schoenherr, 1972: 10).

Schoenherr's conclusion, "Only one factor emerged....," is inaccurate. As can be seen in Table 3, at least three factors have roots greater than one and two are considerably greater than one implying the presence of more than one underlying factor.<sup>1</sup> Although the index's invalidity results from this error, designating the error does not explain the invalidity of modern values. Since 'validity' has different meanings (Nunnally, 1967: 75), a measure may be both valid and invalid depending on which meaning one uses. Thus, Greeley and Schoenherr show that modern values is a strong predictor; the strength of its zero-order correlations (1974: 414) with other variables is on the average second only to age. It is also a significant component of the path model (1974: 415) explaining future plans of priests. Undoubtedly, modern values has predictive validity, and to the extent that it correlates with other measures such as sexual morality and orientation toward the priesthood (NORC, 1972: 130), it provides evidence of construct validity. But, both predictive and construct validity in the above sense focus on external criteria and presume internal consistency. In other words, modern values may appear both valid as a predictor and as a construct yet be invalid

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<sup>1</sup>The second factor analysis of the twenty-one items used in the index (see Table 4) produces two roots greater than one. As Hughes, Donovan, and Cassidy point out (1972: 21) analysis was stopped here before rotation. Although rotation is the usual next step, it is not appropriate to discuss it at this point. The immediate focus is on modern values' validity, not general procedure.

TABLE 3

PRINCIPAL COMPONENTS: FACTOR LOADINGS FOR  
ALL "MODERN" VALUES ITEMS<sup>1</sup>

NORC ITEM NUMBER <sup>2</sup>	SIMILARITY <sup>3</sup>	FACTORS			
		I	II	III	h <sup>2</sup>
11	+	-.248	.444	-.297	.347
*12 T	+	.494	.209	.359	.416
13	+	-.443	.481	-.254	.492
*14 T	-	.645	.247	.311	.573
*15 T	-	.607	.147	-.167	.417
*16	-	-.509	.451	.262	.531
*17	-	-.714	.204	-.037	.552
18	-	-.251	.491	.295	.391
*19	-	-.703	.286	.136	.595
20	-	-.162	.475	.123	.267
*21 T	+	.726	.295	.086	.622
22	+	-.423	.459	-.170	.418
*23 T	+	.691	.292	.148	.585
*24 T	-	.592	.312	.000	.448
*25 T	-	.674	.149	-.156	.501
*26 T	+	.748	.250	.050	.625
*27 T	+	.780	.250	.111	.683
28	+	.160	.577	-.210	.403
*29	+	-.665	.104	-.057	.456
*30 T	+	.736	.147	.044	.565
31	+	-.486	.480	-.223	.516
32 T	-	.164	.182	-.607	.428
33	-	-.120	.004	.589	.362
34	-	-.497	.086	.360	.384
*35 T	-	.558	.161	.092	.346
*36 T	-	.497	.123	.072	.268
*37	-	-.504	.109	.118	.280
*38 T	-	.763	.147	-.003	.604
*39	-	-.648	.208	.075	.468
*43	-	-.734	.040	.180	.573
*44 T	-	.608	-.117	-.103	.394
Latent Roots:		10.052	2.744	1.717	14.512
Pct. of Var.:		32%	9%	6%	47%

<sup>1</sup>Source: Technical Addenda To Appendix C of American Priests.  
Richard Schoenherr, 1972.

<sup>2</sup>Asterisks indicate items used for modern values; "T" indicates traditional items, all others are modern items.

<sup>3</sup>"+" indicates exact replicates of Neal's items; "-" indicates similar items.

TABLE 4

PRINCIPAL COMPONENTS: FACTOR LOADINGS FOR ITEMS  
USED IN "MODERN" VALUES INDEX<sup>1</sup>

NORC ITEM NUMBER <sup>2</sup>	FACTORS			
	I	II	III	$h^2$
12 T	.513	.290	-.301	.437
14 T	.669	.321	-.080	.561
15 T	.610	.102	.391	.536
16	-.463	.563	-.102	.542
17	-.695	.298	.124	.587
19	-.676	.433	-.042	.646
21 T	.754	.243	.007	.628
23 T	.718	.296	.099	.614
24 T	.612	.327	.306	.575
25 T	.687	-.010	.251	.535
26 T	.767	.241	.173	.676
27 T	.800	.255	.103	.715
29	-.659	.217	.253	.545
30 T	.750	.069	-.144	.588
35 T	.575	.105	-.402	.504
36 T	.508	.085	-.446	.464
37	-.492	.287	-.039	.326
38 T	.778	.026	-.060	.609
39	-.636	.339	-.086	.527
43	-.728	.226	-.083	.588
44 T	.603	-.264	-.046	.436
Latent Roots:	9.126	1.560	.951	11.637
Pct. of Var.:	43%	7%	4%	54%

<sup>1</sup>Source: Technical Addenda to Appendix C of American Priests.  
Richard Schoenherr, 1972.

<sup>2</sup>"T" indicates traditional items, all others are modern items.  
This notation and the per cent of variance is added to the table.  
The same is true for Table 3.

if it lacks internal consistency. To examine modern values' internal consistency, a review of the index's rationale in relation to its construction is necessary.

Being a client's report, the book, (NORC, 1972) does not develop along the lines of a research monograph; it does not contain a formal review of the literature. The main author (Greeley) deals with many conceptual and empirical problems through short explanatory paragraphs at the beginning of each chapter. The theoretical framework for the report's study of belief is contained in the following paragraph (NORC, 1972: 81); I cite the entire paragraph since it contains ambiguities that need to be looked at in comparison to the modern values index:

On those items referring to attitudes about the priesthood and religion, no attempt was made to assess theological orthodoxy. Experience with other research and of our own pretest indicates that there is nearly unanimous agreement on those items which are statements of doctrinal position. Our principal effort was to discover differences in emphasis, which we have chosen to call "traditional" and "modern." By using these labels, no judgement is made that "traditional" is inferior or superior to "modern." The former category is composed of items that tend to stress the essentialist and unchanging aspects of Catholic doctrine and the latter is made up of items that tend to represent more the open-ended aspects of doctrine. There was an expectation that response patterns would emerge from the use of these different kinds of items, partly based on the fact that similar items had produced response patterns in other research.

Greeley clearly rejects simple affirmation of orthodoxy as an adequate means to measure religious belief; it is well known that (Demerath and Hammond, 1969) per cent of Americans affirming belief in God hovers above ninety. Not so widely known is the fact that among Catholics similarly orthodox statements such as "Jesus is the Divine

son of God and I have no doubts about it." also elicit agreement at or around ninety per cent (Glock and Stark, 1966: 7). Like Neal, Greeley seeks to discover differences in emphasis or variation in the theological perspectives underlying religious belief.

Moreover, Greeley suggests the validity of conceptualizing two theological perspectives. The text refers to traditional and modern as two categories. Instead of transcendence versus immanence, he synthesizes varying theological perspectives as essentialist versus existentialist. Given familiarity with Neal's work, it appears that Greeley follows her development, merely changing labels. However, Schoenherr constructs a unidimensional index. This lacuna is not simply a matter of how one interprets the cited text, which does not fully specify the theoretical or empirical status of the categories. Evidence to follow will show an undeniable link to Neal's work. The linkage will also suggest part of the means by which Schoenherr was able to commit the error in interpreting the factor results and construct a unidimensional index, and yet not perceive the error in subsequent use of the index. As a first step, it is necessary to show that "other research" implies the work of Neal.

Vague reference may be appropriate in a client's report; but an article in a major journal--ASR--(Greeley and Schoenherr, 1974: 407-426) is not exempt from the canons of citation. While using the modern values index they state (1974: 412) "All measures except inner-directedness and work satisfaction are based on original items from the questionnaire reproduced in the NORC (1972) report." This is false.

Question thirty-seven of the NORC survey contains thirty-one belief items (see Appendix A). As can be seen from the notation of Table 3, twelve items are exact replicates of Neal's items. Furthermore, of the remaining nineteen, only eight do not have a highly similar counterpart among Neal's items. However, only twenty-one items were used for the modern values index. Still, seven of these are exact replicates of Neal's items. Thus, fifteen of the twenty-one items can be said to have come from Neal's CMSW questionnaire. Obviously, similar items can be written for the same content area. But it is interesting to note that of the twelve exact replicates, eight occur in the same order in both the CMSW and NORC questionnaires.

To trace the relationship between Neal's work and modern values one step further, note that Greeley seeks to belie popular connotation by explicitly dissociating himself from one of the implications of the terms 'traditional' and 'modern.' Greeley and Schoenherr consistently put the terms in quotes throughout the report and the subsequent (1974) article. As mentioned previously, some of Neal's (1970: 13) expert judges (theologians) disagreed with the labels 'pre-Vatican' and 'post-Vatican.' It is not a great inferential leap to recognize the solution that Greeley offers. Traditional replaces pre-Vatican and modern replaces post-Vatican. But these terms allow different rhetorical opportunities (theoretical rather than historical) to inflict ambiguity; traditional and modern may be either one or two dimensions.

For example, Greeley states (1972: 96) that "if the 'traditional' formulations that come closest to being orthodox doctrine are accepted by most priests, this does not mean that the more 'modern'

religious attitudes are rejected." In other words, accepting modern themes does not imply that a priest takes a less traditional stance.

In counterpoise, observe the following sequence where "less traditional" substitutes for "modern" (Greeley and Schoenherr, 1974: 416):

Thus, younger priests are likely to have more modern values principally because they are younger, but also because they are more inner-directed. But the path coefficient of .30 from inner-directedness to modern values indicates that an inner-directed personality orientation alone--regardless of age, family tension, or religious experiences--disposes a priest to take a less traditional stance in his attitudes and values regarding church and religion. (My underscore.)

In the first case modern and traditional are two dimensions. In the second, traditional and modern describe a single dimension. How does this affect the validity of modern values?

"In a very general sense," Nunnally (1967: 75) points out, "a measuring instrument is valid if it does what it is intended to do." But without a clear expression of intent, it is difficult to assess validity. Greeley follows Neal's development, conceptualizes two belief perspectives, and discusses the items in terms of two dimensions; yet Schoenherr constructs and Greeley and Schoenherr use a unidimensional index for analysis. Thus, while Greeley theorizes two perspectives, Schoenherr considers the items in terms of one dimension. This inconsistency is possible through the use of terms that allow theoretical ambiguity. Given the ambiguity and the oversight on the origin of the items, it is plausible to infer that Greeley and Schoenherr are unaware of the inconsistency. It is also plausible to suggest that, given the connotation of the terms 'traditional' and 'modern' and the usual directions for the "Likert method," if Schoenherr were not



familiar with Neal's work, then the item pool implies the unidimensional hypothesis. In this light, the inconsistency suggests that Schoenherr does not approach the validity of modern values in terms of the measure's intent. His reliance on an elementary text about attitude measurement (Oppenheim, 1966: 121-122), which he paraphrases (1972: 1-3) in his general remarks on index construction provides a clue to his approach to validity. We turn now to a discussion of Schoenherr's approach, showing how it leads him to an erroneous interpretation of the results presented in Tables 3 and 4.

## CRITIQUE OF THE INDEX CONSTRUCTION

While alluding to validity in the general sense, Schoenherr (1972: 3) also declares that "as a final word, investigators usually say that what the index measures is apparent from the content of the items." Indeed, his definition (1972: 8) of modern values closely resembles his notion of the "final word" on validity: it describes the content of the index. "Beliefs and values regarding twenty-one aspects of God, Jesus, and the Church," describes the number of statements chosen from the pool of thirty-one items and vaguely refers to the object under investigation. It appears that the measure was first constructed and then defined. As a means of validity assessment, this approach is inadequate.

"Face validity," as Nunnally (1967: 99) notes, "concerns judgements about an instrument after it is constructed." Essentially, "face" validity--the description of an index in terms of item content--is a heuristic notion for non-specialists; it helps communicate the meaning of an index. As a means of validity assessment, "face" validity is inadequate since the tautological character of validity in this sense precludes the possibility of invalidity. Schoenherr's use of this device in a client's report is an acceptable means of communicating research findings. But since the same definition was used in the subsequent article (Greeley and Schoenherr, 1974: 413), it is clear that it is intended to serve as more than a simple heuristic device. Yet the definition is inadequate because it is based on the

notion of "face" validity.

This conclusion suggests that careful attention given to Schoenherr's definition will yield information not about the theoretical import of the data, but about the way in which he approaches the data. The latter part of the definition ("with a high score indicating agreement with few 'traditional' and many 'modern' attitudes.") reveals two questionable assumptions which are sometimes contradictory. On the one hand, the definition seems to imply that summated ratings provides scale values for the statements. That is, it suggests that the statements are arrayed along a continuum from traditional to modern. Interpretation of scores in terms of "more modern" and "less traditional" confirms this implication. On the other hand, the definition reflects Schoenherr's use of reverse scoring for the modern items. Discussion of these points will illuminate the assumptions which Schoenherr uses to analyze the results presented in Table 3.

The latter part of the definition suggests that summated ratings scale the statements. In other words, it is a loose version of a definition appropriate to a Guttman scale where a given score indicates the exact statements to which a respondent agrees/disagrees. If this inference is correct, Schoenherr is wrong. The interpretation of the index scores is erroneous. The linear model he uses scales people (Nunnally, 1976: 72-74). The statements are replications for approximating the place of individuals along a postulated continuum of agreement intensity either by summing the ratings or by using some other weighting scheme. Scores from summated ratings do

not indicate the scale value of individual statements. The method of summated ratings assumes (Upshaw, 1968: 96) "that the implied affect of every item in a set is the same, at least within the margin of random, replicated error." Hence, a high score on the modern values index does not mean that a priest takes a "less traditional" stance. The method of summated ratings, therefore, does not scale the statements.

Furthermore, as Torgerson notes (1958: 25) in clarifying confusion on this point, factor analysis does not provide weights for the statements per se. It provides an estimate of the proportion of variance of a rating scale assignable to an underlying continuum of agreement intensity. The orientation of this variable is defined by reference to the statement content. In other words, given the assumption of equal affect, factor analysis partitions the variance of each rating to provide information on the extent to which a given rating scale measures more than one underlying continuum of agreement intensity. Thus, the underlying property is not a continuum on which the statements are arrayed in terms of affective strength; it is the postulated continuum of agreement intensity. Since there is confusion in the literature on index measurement concerning these points (Edwards, 1957: 162-169), it is worthwhile to reflect on this topic in a different manner.

Schoenherr (1972) does not provide a rationale for the reverse scoring assumption. But his general discussion of index construction paraphrases Oppenheim's (1966: 121-123) elementary text on attitude

measurement; it concludes, in fact, with a quote from that text. In a step by step discussion of the "Likert method," Oppenheim (1966: 132-142) places heavy emphasis on reverse scoring for that part of an item pool which represents the unfavorable aspect of an attitude. Since it is a practical discussion of the original Likert method, the emphasis is acceptable; Oppenheim notes that researchers have difficulty if care is not taken at this step. But, Oppenheim provides reverse scoring for an index dealing with acceptance or rejection of children by mothers whereas earlier in his discussion (1966: 107-108) he concedes that the negative part (rejection) is not a "linear extension" of the positive. This inconsistency suggests the existence of an error in the original Likert method.

Discussions of the Likert method usually begin (c.f. Edwards, 1957; Sellitz, et. al., 1959; Oppenheim, 1966; Upshaw, 1968) by directing the researcher to construct an item pool with favorable and unfavorable statements. This direction stems from Likert's (1932) intention of approximating Thurstone's method of successive intervals without using a group of judges. But the direction is ambiguous and contradictory of the assumption necessary to interpret the scores. Thus, whereas Oppenheim (1966: 134) states that "it is best not to have many neutral items nor many extreme items at either end of the continuum," Sellitz, et. al. (1959: 367) suggest that an investigator "assemble a large number of items either clearly favorable or clearly unfavorable." Yet as Upshaw (1968: 96) points out, the interpretation of scores requires the assumption of equal affect within limits of

random, replicated error. Hence, the construction and/or interpretation of an item pool in terms of a hypothetical favorableness continuum contradicts the assumption necessary for interpreting the resulting scores.

Interestingly, the contradiction has not created problems because the traditional method of item selection by part-whole correlations has in practice selected items that are at the extremes of a favorableness continuum when those items are scaled by Thurstone's method (Ferguson, 1941; Edwards and Kenney, 1946; Upshaw, 1968). This means that the assumption of equal affect is not violated, because the usual reversal of scores for either the favorable or unfavorable statements results in equality of the implied affect. However, the reversal of scores requires an assumption that is more difficult to meet in practical application. It assumes that one part of a set of statements embodies the exact opposites of the other part.

Schoenherr's use of reverse scoring (1972: 10) indicates his assumption that the modern items are opposites of the traditional statements. Is this a defensible assumption? Methodological and theoretical considerations suggest it is not defensible. In the early stages of research on response styles, as Nunnally (1967: 608) notes, some investigators thought they had found evidence of a trait variously called acquiescence, response set, or the agreement tendency. For the measurement of authoritarian attitudes it seemed necessary to include items which tap the opposite of the attitude being measured so it would be possible to correct for the response set. After reviewing

these attempts and illustrating the difficulties for the "F-scale," Brown (1965: 510-514) concludes that "it is probably not possible to write items that are perfect psychological contraries." Rorer (1965) labels the whole attempt as "the great response-style myth." Finally, Nunnally (1967: 611) concludes that:

The overwhelming weight of evidence now points to the fact that the agreement tendency is of very little importance either as a measure of personality or as a source of systematic invalidity in measures of personality and sentiments.

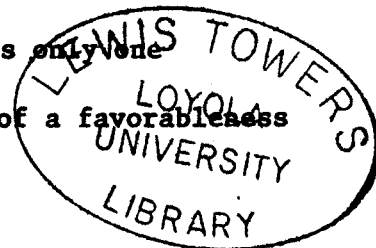
This experience can be applied to the directions of the Likert method. These considerations suggest that there is no methodological basis for constructing or interpreting an item pool in terms of a favorableness continuum. The considerations also suggest that the methodological basis for treating an item pool in terms of favorableness and unfavorableness is at best weak. More importantly, there are theoretical reasons in this case for questioning the assumption that the modern statements are opposites of the traditional statements.

Neal's rationale requires more than one measure of belief, since the belief system under study currently contains differing theological perspectives. Although it is possible to construct numerous measures reflecting the variety of trends, only a group of sophisticated theologians would be able to discriminate among the emphases. Therefore, it is necessary to synthesize the varying perspectives. Neal suggests the Pre- and Post-Vatican orientations. Greeley adumbrates this rationale and inflicts an ambiguity by use of the terms 'traditional' and 'modern.' Although this revision is only a shadow of Neal's theoretical rationale, it is nonetheless sufficient

if modern and traditional are to be considered as two dimensions and not the polar opposites of a single dimension. Apparently Greeley considers the perspectives in this manner. But Schoenherr constructs a unidimensional index. Why?

If the synthesis of theological perspectives is inadequate, then the data should show that priests either consider the statements as psychological contraries or consider the statements in terms of more than two dimensions. At first, this appears to be the reason why Schoenherr constructs a unidimensional index. He concludes that only one factor emerges. This would provide support for the conclusion that priests consider the statements as psychological contraries. But, Schoenherr is not testing this possibility; nor is this his interpretation. His use of factor analysis shows that his main effort was directed toward constructing a unidimensional index. In other words, he is not using factor analysis to test the dimensionality of a set of thirty-one items. Rather, he uses factor analysis as a means of item analysis having already assumed a single factor interpretation. This distinction is subtle and requires demonstration.

Schoenherr conducts two factor analyses. In examining the results of the first solution he concludes that only one factor emerges. This is inaccurate. Only one major factor emerges. As can be seen in Table 3, the first factor explains 32 per cent of the variance while the second and third explain 9 and 6 per cent respectively. Put differently, Schoenherr's conclusion means that he finds only one substantively meaningful factor. Given his assumption of a favorableness





continuum and/or his assumption that the modern items are psychological contraries of the traditional items, it appears that, since all the high negative loadings are modern items, Schoenherr concluded that only one substantively interesting factor emerges. It would appear, then, that he considers the loadings on the first factor as evidence of his hypothetical favorableness continuum and/or as evidence that priests see the traditional and modern items as psychological contraries. Although this is erroneous, I delay comment until tracing the remainder of Schoenherr's steps. Since his goal is to select those items from the set of thirty-one items that best represent what he sees as the first factor, he discards items (those without asterisks in Table 3) that have high loadings on the second and third factors.

The remaining items are submitted to a second factor analysis. After examining these results (presented here as Table 4) he observes (1972: 10) that "the average loading in the one strong principal component factor that emerged in the second analysis is .652."<sup>1</sup> This conclusion about the number of factors is more accurate. The first factor of the second solution explains 43 per cent of the variance while the second and third explain 7 and 4 per cent, respectively. Thus, he increases the percentage of variance explained by 11 per cent. But the increase in percentage of variance explained does not indicate an increase in support for an interpretation that priests view the modern

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<sup>1</sup>The average loading is .652 only if one ignores the signs of the loadings. This is more evidence of the fact that Schoenherr interprets the results in terms of his assumptions about favorableness and unfavorableness. He did not reverse scores before computing correlations.

items as psychological contraries (opposites) to the traditional items. Nine of the ten items he discards after examining the first factor analysis are modern items. Thus, fourteen of the twenty-one items in the second analysis are traditional statements. Schoenherr achieves the increase in support for a one factor interpretation only by weighting the item pool in favor of the traditional statements. Furthermore, as can be seen in Table 4, several of the remaining modern items still have moderately high loadings on the second factor. Nonetheless, this is still an inadequate estimate of the proportion of variance due to those who see the statements as contraries.

Schoenherr commits two major and interrelated errors in this process. First, it is clear that more than one factor emerges. Therefore, his interpretation of loadings on the first factor is erroneous for the following reason. Given two or more substantively independent clusters of items, indicated by the fact that more than one factor emerges in both analyses, unless the clusters are perfectly uncorrelated (which seldom occurs), the first factor of a principal components solution will pick up more variance than it should (Armor 1974: 36). Since loadings on the first factor will be artificially high due to the maximization of variance criterion, examination of these loadings cannot provide an answer to the question of which items belong to the different dimensions. Indeed, given Schoenherr's assumptions, these loadings provide an answer that is the opposite of what in fact may be the case.

Second, he seeks to strengthen his one factor interpretation by eliminating variables that load highly on the second and third

factors. For Schoenherr, these items are poor measures of what he considers to be the underlying dimension. This is an error because the factor loadings for each variable in a principal components solution are dependent on all the other variables included in the analysis (Rummel, 1970: 375). By eliminating a majority of the variables which possibly represent a second factor, Schoenherr weights the analysis in favor of the traditional items. He then compounds this error by interpreting the second factor analysis in the same manner as the first. In other words, he repeats the first error when interpreting the second factor analysis. Thus, it appears that modern values combines items from identifiably different clusters.

Therefore, Schoenherr is not testing the dimensionality of the set of thirty-one items. He is using factor analysis as a means of item analysis having already assumed that only one dimension underlies the data. In theoretical terms, Schoenherr is not considering what the items measure. He is looking for the items that measure what he a priori assumes to be the underlying dimension. And he achieves this only by eliminating a majority of the modern items. To put it bluntly, Schoenherr forces the data to fit his conception of the underlying variable not only in his first factor analysis but also in his use of the second factor analysis as the basis for the index. His use of factor analysis only illustrates his ambiguous assumptions about the data which he then writes into his definition of the index.

## STATEMENT OF THE PROBLEM

Although important as a lead, the foregoing analysis does not allow us to conclude that modern values is invalid; the index has predictive validity and in the external sense, construct validity. The index does represent theological perspectives held by priests. But, the foregoing analysis conclusively demonstrates that the interpretation of the index is invalid. As a dismissive conclusion, this suggests a more appropriate question. What theological perspectives does the modern values index represent? Modern or traditional or both? Since Schoenherr commits substantive errors in both analyzing the factor results and constructing the index, there is no methodological way of answering this question given the extent of his analysis, i.e. given the results of data analysis presented up to this point.

For example, a simple review of the statement content of the index (fourteen of the items are traditional; seven, modern) cannot answer this question. Although this content seems to suggest that the index is more a measure of traditional than modern perspectives, such an inference involves the same fallacy of "operationism in reverse" (Coombs, 1953: 276; Kaplan, 1964: 199) as Schoenherr committed by defining the index in terms of methodological assumptions after constructing it. In other words, it endows the index with meaning not on the basis of empirical interrelationships, but on the basis of

item content. Both are necessary for interpreting the index scores. When this information is combined with the results presented in Tables 3 and 4, it suggests that the reliable variance of the modern values index reflects Neal's pre-Vatican orientation. Thus, most of the modern items have moderately high loadings on the second factors in Tables 3 and 4 suggesting that after rotation, the first factor will reflect only the traditional statements.

It is likely, therefore, that the variance summarized by the index reflects Neal's pre-Vatican orientation, the reference of traditional. Hence, high scores will not indicate "agreement with few 'traditional' and many 'modern' attitudes" as Schoenherr (1972: 8) would have us believe. High scores, given his scoring method, are likely to indicate disagreement with traditional positions and carry few implications about a respondent's attitude toward modern positions. This is a serious error because different conclusions and different policy implications emerge when the data are reinterpreted in this fashion. Although it is not appropriate to detail conclusions and implications at this point, it is possible to outline the general frame of reference.

If the reliable variance of modern values reflects Neal's pre-Vatican orientation and not a "traditional-modern" continuum, then high scores indicate disagreement with traditional positions, not agreement with modern positions. And if a measure positively correlated with modern values represents an attitude or action undesirable from the standpoint of church leaders (e.g. plans to

leave the priesthood), then suppression of modern positions is not a strategy to remedy the situation. Indeed, since "modern" values does not represent modern values, effort in this direction is futile. Furthermore, any form of suppression would aggravate the situation since, if the above is true, the data indicate a need to discuss possible alternatives.

This thesis will reconstruct the modern values index and seek to demonstrate that different conclusions and different policy implications do emerge from reanalysis of the data. Theoretically, the work will be guided by the framework suggested by Neal(1970) and summarized in the first two sections of this paper. Methodologically, this thesis will use a research strategy that can demonstrate that modern values reflects Neal's pre-Vatican orientation and not a "traditional-modern" continuum. Conclusions from this study will be used to reinterpret findings reported in the NORC (1972) study and the Greeley and Schoenherr (1974) article. The next section discusses an appropriate research strategy.

## RECONSTRUCTING THE MODERN VALUES INDEX

The methodology necessary for this thesis must provide an answer to the following question: What theological perspectives does the modern values index represent? Schoenherr's incomplete analysis and erroneous interpretation cannot provide an answer. Stating the question in a slightly different manner suggests another approach. Does the reliable variance of modern values reflect Neal's pre-Vatican orientation and not a "traditional-modern" continuum? Putting the question this way suggests that the necessary task is to determine what proportion of modern values' variance is attributable to the predominance (fourteen versus seven) of traditional formulations over the modern positions.

However, since the mathematical theory of reliability assumes (Armor, 1974: 25) that a set of items measures only one property, there is no way through direct use of this theory to partition the index variance into parts attributable to either the modern or traditional perspectives. On the other hand, it is possible to compute a reliability coefficient for the modern values index. But, as Nunnally (1967: 186-187) points out in discussing the problem of reliability for factorially complex measures, "such estimates might be accompanied by a considerable amount of content sampling error." Hence, neither the specific reliability coefficient for modern values nor the mathematical theory of reliability provide a way of answering

the question. Nonetheless, stating the question in terms of "reliable variance" is a sensible approach.

Essentially, the question of "reliable variance" in this case suggests that the correlation between a reconstructed index and the modern values index will be strong enough to warrant the assertion that modern values measures traditional values. By interpreting factor analysis results in terms of Neal's framework, it should be possible to reconstruct her pre-Vatican measure. The correlation between this measure and the modern values index will indicate the extent to which modern values reflects traditional values. In one sense this is a form of reliability estimation, since a large number of items from the modern values index are likely to be part of the reconstructed index; it is a theory based approximation of the "split-half" method. In this manner it will be possible to establish that Schoenherr made a content sampling error by interpreting the data in terms of a "traditional-modern" continuum which resulted in an index that measures only one of the two perspectives. The remainder of this section will describe the steps necessary to reconstruct the index and provide the background information on the priesthood study sample.

The first step is to consider the role of factor analysis in index construction. The essential idea underlying factor analytic index construction is that both the latent dimension and the optimal scale for measuring it can be defined from the correlations among a set of rating scales (Hiese, 1974: 8). In other words, factor analysis defines the variable being measured by identifying its



correlations with the rating scales. As such, it is an index technique, since the observed correlations can completely determine the underlying factors (depending, of course, on the factor model one uses). Unfortunately, there are no purely mathematical criteria for identifying theoretically relevant factors defined by the set of indicators.

As Hiese (1974: 9) portrays the problem, there are two major decisions facing a researcher who utilizes factor analysis: 1) how many relevant latent dimensions underlie the data, and 2) what is the pattern of correspondence between the latent variables and the indicators?

At a general level, to answer the first question one must choose a factor model. Two broad choices are available. First, one can hypothesize common and unique variance for each item (common factor analysis). Second, one can construct a space defining the total variance of each item (principal component analysis). The first approach does not provide factors completely defined by the items and hence involves an extra step in determining the number of relevant latent dimensions, the step of estimating communality. The second approach offers the most straight forward and precise connection between reliability and scaling (Armor, 1974: 27). Since an index should be a well defined number (Dawes, 1972), the second approach is preferable.

But this does not exclude consideration of the results of a common factor solution. The problem of determining the relevant number of factors still remains. In previous years it was often the case that factor solutions were advocated as "best" because considerable time, expense, and effort was involved in arriving at the solution.

Given the availability of high speed computers, the results of several solutions can be fruitfully compared (Hakstian and Muller, 1973).

Additionally, there are several criteria (Rummel, 1970: 349-367) for determining the number of factors. The criteria used here will be discussed as the results are presented since the problem is partly theoretical.

To decide what the pattern of correspondence between the factors and the indicators will be requires consideration of possible rotations. The fundamental problem of rotation is to determine a transformation matrix that will yield a rotated solution with certain desirable properties (Rummel, 1970: 372). However, there are an infinite number of transformations that may be chosen. Since the desirable properties (principles of simple structure) are substantively defined, the rotated solution is no longer mathematically unique. That is, there are different rotation techniques; there are various transformations which approximate simple structure. Although many (c.f. Rummel, 1970: 392) claim that varimax in comparison to equimax and quartimax is "best," it may be that the situation is similar to that regarding the "best" factor model. Given the availability of computational facilities, it may be "best" to compare rotations. If the factor structure remains essentially invariant (given variation in minor detail) then comparison is a good strategy.

As an alternative means to solve the problems posed by multiple factors involves a review of the basic assumption about the use of factor analysis as a means of item analysis. It can be suggested

that the presence of multiple factors changes the focus of analysis from being a method to define an index to posing the question of multiple meaning for some of the items. Indeed, if an item is "fuzzy" (i.e. loads highly on two or more factors (Stinchcombe, 1971: 1080-1084)) then it should be discarded as a poor indicator. In this case the appropriate strategy would be to eliminate "fuzzy" indicators and/or re-factor the apparent homogeneous set of items in order to arrive at a single factor solution. But, these are secondary considerations that are sensible only after rotation.

The foregoing considerations suggest a number of contingencies which need to be considered in reconstructing the modern values index. Since many of these alternatives depend on the form of empirical relationships, these contingencies will be considered as the results of the analysis are presented. Finally, simple summation of items will be used to calculate index scores if a review of estimated factor score weights shows that those weights are essentially equal. Before passing to the findings, it is necessary to describe the sample data of the priesthood study. Since the final report (NORC, 1972) contains a full appendix on sample methodology, the description is brief noting the stance taken in this thesis and the limitation imposed by the sample design.

The data for the study were collected through the use of a mailed questionnaire sent to a national sample of American Catholic priests. The sample was drawn according to a two-stage, stratified design. In the first step a sample of all dioceses and religious institutes in the United States was drawn according to size strata

with clusters for the United States census divisions. At the second stage, sampling of individual priests was accomplished through the use of replicated systematic selection with probabilities proportional to the size of the first stage sampling unit. There was one major departure from this design. All dioceses classified as "extra-large" (i.e. dioceses with more than 500 priests) were included in the sample and replicated systematic selection was performed on the combined lists of priests from these dioceses. Usable responses were obtained from 5,155 active priests representing a response rate of 71 per cent.

Is this sample adequate as a basis on which to generalize to the whole population of American priests? Greeley and Schoenherr (1974: 412) declare that "the number of cases for analysis is large enough that questions of statistical significance are unimportant." Since statistical inference for analytic statistics based on complex designs is not well understood (Kish and Frankel, 1970: 1072), this is a sensible alternative to computing statistics which, due to large sample size, show significance even for the smallest correlations. Although it may not be the best procedure in a rigorous statistical sense, it is the best alternative given the lack of well understood procedures for complex samples. The present thesis adopts this stance. Additionally, it is interesting to note that correlations computed by Greeley and Schoenherr based on weighted distributions for the belief items do not differ significantly from correlations based on unweighted sample data computed for this thesis. Although alternatives are available (Kish and Frankel, 1970; Frankel, 1971; Finifter, 1972),

they are not sufficiently developed to deal with the actual design employed in collecting the priesthood study data. Finally, the data for this study are available through the Center for Social Organization Studies at Loyola University.

## FINDINGS: FACTOR ANALYSIS

This section presents the findings relating to two major questions. First, how many dimensions underlie the data? Do the belief items clearly represent Neal's two factor theory? Second, what is the pattern of correspondence between these dimensions and the individual belief items? Before discussing the problem of the number of factors, it is necessary to briefly describe the data. Distributions for the thirty-one belief items are listed in Appendix A, correlations in Appendix B. A review of the distributions shows that the items surviving the NORC pre-test provide sufficient variance on which to base correlations. Close examination of Table B.1 shows that the correlations range from  $-.56$  to  $.70$  indicating that the five point scale, although not the best, did provide sufficient variance. The use of unities in the main diagonal (principal component analysis) will not distort the data as is often the case (Nunnally, 1967: 368-371) with phi-coefficients.

Table 5 presents the basic principal components solution for four factors. As reference, it provides several pieces of information.<sup>1</sup> First, four factors explain 51 per cent of the variance providing

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<sup>1</sup>After trying mean substitution for missing data and listwise deletion, few differences between these bases for correlations and simple pairwise deletion were observed; the latter was selected as the basis. See Table B.2 for means, standard deviations, and case bases. All solutions were computed through the SPSS routines (Nie, Bent, and Hull, 1970) using version 5.01 of that system.

TABLE 5

FACTOR ANALYSIS OF THIRTY-ONE BELIEF ITEMS  
(Principal Components)

NORC ITEM NUMBER*	FACTORS				
	I	II	III	IV	$h^2$
11	-.282	.398	-.305	-.018	.331
12 T	.542	.244	.321	-.137	.475
13	-.458	.455	-.283	.105	.508
14 T	.668	.281	.234	.027	.581
15 T	.610	.176	-.173	.317	.534
16	-.485	.456	.250	-.092	.514
17	-.740	.204	-.060	.120	.607
18	-.216	.508	.265	-.361	.505
19	-.701	.320	.146	.013	.615
20	-.142	.517	.042	-.392	.444
21 T	.715	.313	.073	-.001	.615
22	-.405	.478	-.226	.029	.444
23 T	.684	.318	.169	.096	.607
24 T	.600	.292	-.029	.336	.559
25 T	.681	.183	-.185	.031	.514
26 T	.760	.249	.033	.174	.670
27 T	.779	.252	.112	.158	.707
28	.168	.551	-.205	-.178	.405
29	-.688	.158	-.042	.223	.550
30 T	.722	.167	.058	-.010	.553
31	-.500	.424	.267	.030	.502
32 T	.127	.124	-.642	-.198	.483
33	-.149	.096	.574	.320	.464
34	-.526	.100	.369	-.084	.429
35 T	.542	.170	.051	-.338	.439
36 T	.522	.144	.073	-.180	.331
37	-.530	.128	.147	.174	.349
38 T	.765	.155	-.002	-.056	.612
39	-.622	.265	.025	.062	.462
43	-.736	.075	.206	.051	.592
44 T	.612	-.093	-.088	-.070	.396
Latent Roots:	10.218	2.812	1.730	1.041	15.041
Pct. of Var.:	33%	9%	6%	3%	51%

\* "T" indicates traditional statements. All other statements are modern items.

an adequate reduction of the data. Second, communalities range from .331 to .707 indicating that four factors account for fairly different proportions of variance of each variable. The four factors provide an explanation for a slightly larger proportion of variance of traditional than modern items. The average communality is .538 for the traditional items and .483 for the modern items. More importantly, Table 5 presents part of the basic information for determining the number of significant factors. Four factors have roots greater than one.

By itself, however, this information is insufficient since there is no straightforward (Hakstian and Muller, 1973: 464) link between work on algebraic bounds for the rank of a reduced correlation matrix and the optimal number of factors to retain from a component analysis. In this case various rules of thumb are necessary but must be subordinated to interpretive criteria. On the basis of Neal's work we should expect two factors. But the difference between the third and fourth factor (2.4 per cent of the explained variance) is much larger than the differences between each succeeding pair of factors; the latter differences vary between .0 and .4 per cent. In other words, the contribution of factors after the third factor levels off so that each succeeding factor explains a slightly decreasing proportion of the variance. By both "discontinuity" and the "scree test" (Rummel, 1970: 361-365), the results indicate three significant factors. It may be the case that some of the items added by the NORC researchers do not directly tap either the pre- or post-Vatican orientations.



As Armor (1974: 38) notes, many researchers "rotate successive numbers of factors until they find a solution that is substantively meaningful." The present work will follow this direction beginning with a three factor interpretation, since the difference between the fourth root (1.04) and the fifth root (.92) is small compared to the difference between the second (2.81) and third roots (1.73). Next, I will briefly consider two and four factor interpretations. Rationales for various rotations will be considered as the results of analysis are presented. Before considering three factor rotations, however, some notes on the form of presentation are necessary.

Reviewing the results of factor analysis is often a tedious task because of the form used to present the data. Alternatives such as plots and bar graphs (Rummel, 1970: 481-489) are available, but these reduce the data to mere illustration rather than evidence. There is a better alternative. By using the "loading order approach" (Rummel, 1970: 480) with appropriate spacing it is possible to retain features of both the evidence and illustration function of tables. Thus, rather than present the data in terms of the original variable order, the remaining factor analysis tables will present the data in terms of the loading size order developed from the first rotation.

Additionally, spacing considerations do not allow the use of extended labels for the items represented in these tables. Reference to the short phrases provided in Appendix A will facilitate independent interpretation. Through the use of various notations such as "T" for the traditional and "M" for the modern statements, these tables will

designate the orientation of the statements. When necessary, the text will provide extended reference to the content of specific items under consideration. Table 6 illustrates these considerations.

The varimax rotation presented in Table 6 approximates simple structure by focusing on factor complexity, i.e. by simplifying columns. This is an appropriate starting point since the immediate goal is to provide an interpretation of the three important factors. Using an arbitrary cutoff point of .500 (.498 for item 20), the items are ranked in descending order by loadings and by factors. Put differently, items which approximate simple structure by having high loadings on one factor and relatively low loadings on other factors are grouped according to the factor on which the high loadings occur. However, items with moderate loadings (approximately .300 to .600) on more than one factor are presented at the bottom of the table. These items present a special interpretive problem since it is not clear to which factor these items belong.

Disregarding for the moment the ambiguous items at the bottom of the table, we find that the first factor approximates Neal's pre-Vatican orientation. All of the high loadings (greater than .530) are traditional statements. The second factor represents Neal's post-Vatican orientation. All items with loadings greater than .400 on this factor are modern perspectives. Three items (32-Contemplative life is essential; 33-Good Christians without solitary reflection; and 34-Church must abandon emphasis on the sacred) that load highly on the third factor express the dilemma of insertion in versus withdrawal from the world. But it is not clear whether or not this factor is

TABLE 6

VARIMAX ROTATION: THREE FACTORS  
OF THE THIRTY-ONE BELIEF ITEMS

NORC ITEM NUMBER *	FACTORS			h <sup>2</sup>
	I	II	III	
27	.814	-.132	-.052	.683
21	.781	-.042	-.062	.615
26	.784	-.106	-.122	.640
23	.771	-.051	.038	.598
14	.750	-.095	.098	.580
38	.739	-.180	-.173	.609
T 30	.717	-.168	-.103	.553
24	.654	.014	-.132	.446
12	.636	-.097	.207	.456
25	.623	-.124	-.331	.513
15	.588	-.052	-.292	.434
35	.560	-.090	-.063	.325
36	.534	-.110	-.041	.298
13	-.233	.661	-.072	.497
31	-.281	.645	-.051	.501
M 22	-.168	.644	-.028	.443
11	-.110	.545	-.149	.331
16	-.174	.529	.442	.505
20	.121	.498	.166	.290
32 T	.070	.228	-.621	.443
C 33	.003	-.010	.601	.361
34	-.356	.205	.504	.422
17	-.561	.499	.169	.592
29	-.535	.433	.165	.501
19	-.442	.529	.375	.615
39	-.417	.481	.230	.458
A 37	-.381	.291	.299	.319
28	.370	.465	-.143	.373
18	.087	.460	.395	.375
43	-.576	.313	.399	.589
44 T	.478	-.310	-.258	.391
Latent Roots:	8.013	3.991	2.329	14.334
Pct. of Var.:	26%	13%	8%	47%

\*Notation: T - Traditional items (two of the fifteen traditional items are not in this group and are indicated by a 'T' to the right of the item number); M - Modern; C - Contemplative; A - Ambiguous.

substantively important. The average correlation between these three items (disregarding signs) is .22 indicating that the shared variance is not very reliable. That these items form a separate factor is due more to the lack of correlation between two of the items (32 and 33) and all the other belief items than to the substantive importance of these items by themselves. Perhaps the factor expresses an artifact due to the sequence in which the three items were presented. Interpreting the factors in terms of those items which approximate simple structure provides a starting point from which it is possible to analyze the ambiguous items.

Variables which load highly on more than one factor present an interpretive problem since it is not clear to which factor these items belong. In this case it is difficult to decide upon the nature of a factor. For example, since seven of the modern items have moderately high loadings on the first factor, does this indicate that priests see these items as contraries to the traditional statements in addition to representing a post-Vatican orientation? From a slightly different perspective, is it reasonable to conclude that the first factor represents an overall orientation in which traditional items and many modern statements are seen as opposites? These are plausible alternatives to Neal's framework; it is necessary to consider whether or not the data support these interpretations.

Since varimax rotation places emphasis on simplifying factors rather than items, the data presented in Table 6 is somewhat inadequate by itself as a means for distinguishing among the alternatives.

Although varimax was an improvement upon quartimax (Harman, 1967: 304), the latter's tendency to load the first factor as a general factor can be useful. If the first factor is an overall orientation, then use of a rotation that has a bias in this direction will strengthen this interpretation. On the other hand, if the ambiguous items remain ambiguous then the results of a quartimax rotation argue against interpreting the first factor as a general orientation since the quartimax rotation is an approximation of simple structure.

Table 7 presents a quartimax rotation for three factors of the thirty-one belief items. First, notice that the first factor appears as a more general factor. Whereas the first factor in Table 6 explains 26 per cent of the variance, the first factor in Table 7 explains 31 per cent of the variance. The increase is small, but it is also in the right direction. Next, quartimax provides a slightly better approximation of simple structure for the first set, the traditional items. In Table 6, seven of the loadings in this set on the second factor are zero in the first decimal place whereas ten of the thirteen are zero in the first decimal place, second factor, in Table 7. However, the complexity of nearly all the modern items increases. For the second set, of the six modern items, which approximate simple structure in Table 6, three have loadings greater than .300 on the first factor and less than .600 on the second factor in Table 7. For the one traditional and eight modern items in the set that is essentially ambiguous, there is only a minimal improvement in clarifying the complexity of the items. Six of the items still have moderate to high

TABLE 7

QUARTIMAX ROTATION: THREE FACTORS  
OF THE THIRTY-ONE BELIEF ITEMS

NORC ITEM NUMBER*	FACTORS			$h^2$
	I	II	III	
27	.821	.027	.090	.683
21	.774	.108	.068	.615
26	.799	.044	.014	.640
23	.749	.102	.166	.598
14	.726	.058	.224	.580
38	.778	-.040	-.038	.609
T 30	.743	-.030	.027	.553
24	.654	.136	-.026	.446
12	.597	.038	.314	.456
25	.683	-.015	-.216	.513
15	.628	.051	-.189	.434
35	.569	.018	.035	.325
36	.544	-.006	.054	.298
13	-.335	.599	-.159	.497
31	-.383	.577	-.145	.501
M 22	-.276	.597	-.103	.443
11	-.181	.506	-.206	.331
16	-.343	.504	.366	.505
20	-.004	.518	.145	.290
32 T	.133	.210	-.618	.443
C 33	-.099	.017	.592	.361
34	-.469	.153	.423	.422
17	-.664	.387	.038	.592
29	-.626	.327	.043	.501
19	-.590	.448	.257	.615
39	-.532	.400	.122	.458
A 37	-.474	.224	.211	.319
28	.296	.521	-.117	.373
18	-.069	.485	.368	.375
43	-.684	.212	.276	.589
44 T	.564	-.222	-.154	.391
Latent Roots:	9.521	3.103	1.709	14.333
Pct. of Var.:	31%	10%	6%	47%

\*Notation: T- Traditional items (two of the fifteen traditional items are not in this group and are indicated by a 'T' to the right of the item number); M - Modern; C - Contemplative; A - Ambiguous.

loadings on the first and second factors.

Thus, both varimax and quartimax fail to provide a clear resolution of the issue raised by the ambiguous items. Neither rotation provides a clear approximation of simple structure for the set of items labeled here as ambiguous. It is not clear whether these items belong to the first or second factor.<sup>1</sup> But both varimax and quartimax are orthogonal rotations which presume independent factors. Simple structure does not presume independent factors. Although identifiable as interrelated clusters of items in terms of independent sources of variance (principal components), perhaps the two important dimensions are nonetheless correlated as underlying factors. It may be that an orthogonal rotation distorts the relationship between these factors resulting in a poor approximation of simple structure for the ambiguous items. It is necessary, therefore, to consider whether or not an oblique rotation provides a better approximation to simple structure.

Table 8 provides an oblique rotation (oblimin) for three factors of the thirty-one belief items. The pattern matrix provides the loadings of the items on the oblique factors while the structure matrix provides the correlations of each item with each of the three factors. The pattern loadings define the simple structure configuration while

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<sup>1</sup>Although equimax rotation (Nie, Bent, and Hull, 1970: 224) is another alternative, its aim of accomplishing both simplification of rows and columns would not add new information. Its results would reflect a combination of quartimax and varimax and hence would not change the conclusion offered here. Thus, it is not presented.

TABLE 8

OBLIQUE ROTATION: THREE FACTORS  
OF THE THIRTY-ONE BELIEF ITEMS

NORC ITEM NUMBER	PATTERN			STRUCTURE		
	I	II	III	I	II	III
27	.832	.009	.048	.825	.198	-.115
21	.804	-.078	.030	.780	.105	-.116
26	.798	-.018	-.028	.799	.173	-.181
23	.799	-.060	.131	.759	.109	-.016
14	.777	-.008	.191	.738	.109	.040
38	.743	.060	-.082	.773	.246	-.235
T 30	.726	.057	-.013	.742	.229	-.163
24	.673	-.122	-.059	.656	.044	-.173
12	.665	.020	.289	.614	.135	.157
25	.617	.009	-.258	.670	.190	-.380
15	.589	-.057	-.226	.619	.113	-.333
35	.571	.003	.006	.570	.136	-.106
36	.543	.029	.026	.545	.153	-.084
13	-.195	-.645	.131	-.321	-.672	-.002
31	-.245	-.622	-.115	-.369	-.664	.020
M 22	-.126	-.634	-.077	-.259	-.652	.037
11	-.081	-.551	-.189	-.173	-.543	-.096
16	-.113	-.481	.404	-.304	-.564	.494
20	.175	-.513	.160	.023	-.495	.198
32 T	.052	.290	-.634	.108	-.188	-.604
C 33	.039	.055	.612	-.068	-.022	.596
34	-.323	-.118	.461	-.440	-.259	.541
17	-.533	-.413	.084	-.646	-.550	.246
29	-.511	-.350	.086	-.610	-.482	.235
19	-.395	-.445	.305	-.559	-.581	.445
39	-.382	-.411	.163	-.510	-.523	.296
A 37	-.354	-.217	.246	-.453	-.335	.346
28	.411	-.540	-.124	.309	-.426	-.128
18	.150	-.452	.391	-.032	-.472	.425
43	-.550	-.204	-.324	-.660	-.378	.460
44 T	.456	.226	.193	.547	.360	-.314
FACTOR CORRELATIONS:						
	I	II				
		II .23				
			III -.20 -.14			



the structure loadings measure an item's direct relationship with each factor and the interaction between factors. Perhaps the most important result of an oblique rotation is the measure of factor correlation it provides. Unfortunately, this measure depends on the relatively arbitrary value of a parameter ( $\delta$ ) used to define the rotation. Nonetheless, with  $\delta$  equal to 0.0 (a value known (Harman, 1967: 337) to produce a fairly oblique solution), the first factor is relatively uncorrelated with the second factor (.23). The simple structure configuration should be close to that of an orthogonal rotation.

As can be seen in Table 8, the pattern loadings for the first set, the traditional items, provide a close approximation of simple structure. The resolution is better than either the varimax or quartimax rotations. The same is true for the second set of six modern items, although the varimax results are very close to the oblique pattern. The pattern loadings for the ambiguous set remain relatively high on both the first and second factors for most of the items (some have moderate loadings on the third factor). The structure loadings show the high degree to which the ambiguous items correlate with both the first and second factors. Interestingly, the structure loadings for the six modern items in the second set also show a moderate association with the first factor. Consequently, it is possible that even though the first set of thirteen traditional items is highly homogeneous, the modern items form somewhat distinct clusters.

In terms of the theoretical framework, the data show a strong factor representing the pre-Vatican orientation. However, the results of various rotations also show that the modern items only weakly represent the post-Vatican orientation. There are two alternative interpretations which may account for this situation. First, some priests may have interpreted some of the modern items not as modern positions, but as negations of traditional formulations. In other words, some of the modern items may have an ambiguity which leads to a dual interpretation dependent on the individual's overall orientation. Second, since the modern items do not form a homogeneous set, more than three factors may be necessary to explain these items. The latter alternative requires a review of the problem of the number of factors; hence, it is necessary to discount this possibility before examining the former alternative.

It is clear that at least three factors emerge. An analysis of the latent roots definitely shows three important factors. But the third factor, while important as a source of variance, is not substantively important. That is, it appears to be somewhat of an artifact due to the sequence of presentation. From this point of view, the previous rotations "over-factor" (Rummel, 1970: 365) the data. Thus, rotating two factors would suppress the artifact and might produce different results. Alternatively, the lack of homogeneity among the modern items suggests that more than three factors may be necessary to account for the variance of these items. But, as Rummel (1970: 365) notes, "there is disagreement as to what rotating too many factors will do."

Basically, the problem partly results from the focus of various rotations and depends on the factor model one uses. Thus, Kaiser (1960: 4-5) suggests that rotating too few or too many factors can have disastrous results if one is using the common factor model. This is due to the fact that estimating communality places limits on the number of factors and hence the number of factors will be less in a common factor analysis than in a component analysis. Empirically, the third and fourth roots from a common factor analysis of the belief items are 1.065 and .448 respectively. Hence we can exclude the consideration of a common factor solution in more than three factors. (I do not present the results of three factor rotations based on the common factor model since these solutions do not differ significantly from the data already presented.) Alternately, the focus of some rotations can drastically change results depending on the number of factors one retains.

The concentration of quartimax and oblique (oblimin) on simplifying the complexity of variables depends heavily on the number of factors one chooses to rotate. These derived solutions may produce chaotic results and are, therefore, excluded from further consideration. In distinction to these solutions, varimax attends to the simplification of columns and is less subject to distortion due to errors in determining the number of factors. But, this property of invariance only holds, strictly speaking (Rummel, 1970: 393), for the two factor case. Nevertheless, it is applicable to the present data since the theoretical framework specifies two factors and the third factor

appears to be somewhat of an artifact.<sup>1</sup> Hence if the results of a four factor rotation are similar to the three factor rotations then we can exclude the possibility that more than three factors are necessary to achieve a simple structure configuration for the ambiguous items. Before examining the results of a four factor rotation by the varimax criterion, it will be useful to examine the results of a two factor rotation.

Rotating two factors by the varimax criterion suppresses the third factor. As can be seen in Table 9, the communality of items 32 and 33 is 3 per cent. On the other hand, item 34 which is part of this cluster becomes ambiguous. It has moderate loadings on the first and second factors. The simple structure pattern of the traditional items becomes somewhat "fuzzy;" there are fewer zeroes in the first decimal place and the signs are consistently negative. For the modern items in the second set, the pattern is somewhat clearer in Table 9 than in Table 6, but the improvement is minor. Finally, the pattern of the ambiguous set remains almost unchanged. One exception occurs; item 18 which by earlier rotations loads moderately on the second and third factors, would be among the set of six modern items according to a two factor rotation. Thus, item 34 can be considered ambiguous while item 18 may be viewed as a modern item. Do the results of a four factor rotation change the pattern?

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<sup>1</sup>Although the variables with high loadings on the third factor may represent a different domain, the representation of that domain in the present analysis is too weak to be considered substantively important.

TABLE 9

VARIMAX ROTATION: TWO FACTORS  
OF THE THIRTY-ONE BELIEF ITEMS

NORC ITEM NUMBER	FACTORS		h <sup>2</sup>
	I	II	
27	.797	-.185	.670
21	.775	-.100	.610
26	.779	-.178	.639
23	.751	-.080	.570
14	.718	-.104	.526
38	.735	-.261	.609
T 30	.705	-.229	.550
24	.665	-.059	.445
12	.590	-.070	.353
25	.647	-.246	.479
15	.614	-.163	.404
35	.552	-.134	.323
36	.522	-.146	.293
13	-.158	.626	.417
31	-.210	.621	.430
M 22	-.100	.618	.392
11	-.037	.486	.238
16	-.181	.640	.443
20	-.144	.517	.288
32 T	.173	.041	.032
C 33	-.078	.159	.031
34	-.399	.357	.286
17	-.528	.556	.589
29	-.508	.490	.499
19	-.436	.636	.594
39	-.397	.548	.458
A 37	-.388	.383	.297
28	.428	.385	.331
18	.076	.547	.305
43	-.592	.443	.547
44 T	.476	-.396	.384
Latent Roots:	8.249	4.776	13.025
Pct. of Var.:	27%	15%	42%

If the results of a four factor rotation are similar to the three and two factor rotations, then we can exclude the possibility that more than three factors are necessary to achieve a simple structure configuration for the ambiguous items. Table 10 presents a four factor varimax rotation for the thirty-one belief items. First, notice that the portion of variance attributable to the first factor is the same for the three and four factor varimax rotations. (The difference of .062 between the sums of squared loadings is insignificant.) On the other hand, the per cent of variance accounted for by the first factor decreases somewhat between the original principal components solution (Table 5) and the four factor varimax rotation. But, the decrease of 7 per cent is accompanied by a vast improvement in the simple structure of the matrix.

The pattern for the first set of traditional items loses some clarity in the four factor rotation. Whereas in the three factor rotations there is from seven to ten zeroes in the first decimal place, the two and four factor rotations show only two and three zeroes in the first decimal place. Nevertheless, relative to the loadings on the first factor, the pattern of the thirteen traditional items is a good approximation of simple structure. The same remarks apply to the six modern items in the second set with one exception. Two items, (20-Christ makes God plausible and 18-Primacy of Christ as man), the latter being an ambiguous item because of its moderate loading on the third factor in Table 6, have strong loadings on the fourth factor. This is further evidence that the modern items may not be as homogeneous as the traditional items. As was the case with the two factor

TABLE 10

VARIMAX ROTATION: FOUR FACTORS  
OF THE THIRTY-ONE BELIEF ITEMS

NORC ITEM NUMBER	FACTORS			
	I	II	III	IV
27	.821	-.167	-.019	-.072
21	.764	-.124	-.103	.077
26	.798	-.124	-.071	-.113
23	.767	-.118	.032	.040
14	.730	-.185	.054	.104
38	.708	-.247	-.222	.017
T 30	.694	-.231	-.137	.013
24	.710	.053	.004	-.227
12	.583	-.239	.078	-.268
25	.620	-.131	-.312	-.124
15	.643	.018	-.140	-.317
35	.480	-.240	-.249	.298
36	.483	-.213	-.153	.170
13	-.166	.689	-.008	.075
31	-.229	.657	-.022	.133
M 22	-.119	.636	-.008	.160
11	-.074	.541	-.140	.118
16	-.171	.422	.347	.430
20	.068	.312	-.056	.582*
32 T	.065	.243	-.647	-.033
C 33	.043	-.008	.679	.012
34	-.369	.133	.421	.314
17	-.502	.544	.234	.066
29	-.460	.510	.279	-.037
19	-.411	.494	.355	.275
39	-.376	.483	.251	.156
A 37	-.332	.323	.365	.038
28	.429	.465	-.070	.008
18	.030	.255	.163	.642*
43	-.549	.316	.406	.160
44 T	.445	-.327	-.286	-.095
Latent Roots:**	7.951	3.971	2.230	1.634
Pct. of Var.:	26%	13%	7%	5%

\* Indicates two items with high loadings on the fourth factor.

\*\*Totals: Roots = 15.786; Pct. of Var. = 51% (for  $h^2$  see Table 5).

rotation, item 34 joins the ambiguous set of statements. Alternately, the loadings for the ambiguous items remain moderately high on the first and second factors but begin to show moderate loadings on the third and fourth factors.

These data show that the alternatives suggesting, on the one hand, that more than three factors are necessary to account for the modern items and, on the other, that the modern items were interpreted ambiguously, are not necessarily the horns of a dilemma. Partitioning the domain into traditional and modern segments would obviously result in a single factor interpretation for the traditional items and a multi-factor interpretation of the modern items. But the fact that six of the modern items form an identifiable cluster amid the strong traditional items and ambiguous modern items strongly argues in favor of Neal's two factor theory. The data do represent the post-Vatican orientation. More importantly, the ambiguous items remain ambiguous in terms of their loadings on the first and second factors. Therefore, from the findings of this study it is clear that these items either measure more than one property or belong to different domains which relate to both orientations.

To fully establish the latter possibility would take us far beyond the scope of the present analysis. Nevertheless, it is possible to suggest the domains to which some of the ambiguous items belong. First, a few examples will establish the former possibility in which priests responded to different parts of given items depending on their orientation (pre- or post). The examples will not be ex post facto



explanations; the interpretations will demonstrate how clear reference to Neal's framework could have avoided the errors. Nonetheless, this procedure is somewhat subjective. To add objectivity, I will cite appropriate caveats on writing attitude statements.

Double barreled statements (Edwards, 1957: 14) may pose a dilemma where none exists. Neal's two factor theory suggests that priests may hold both orientations to some degree. To set these in opposition creates ambiguity. Item 19 illustrates this possibility:

19) Today's Christian must emphasize more than ever openness to the Spirit rather than dependence on traditional ecclesiastical structures.

From a pre-Vatican point of view, one might respond to the implied rejection of church structure rather than to the perceived need for openness. Alternatively, a post-Vatican orientation might dispose one to accept the emphasis on openness to the Spirit. Item 39 (Faith as encounter rather than assent to truths) poses a similar dilemma. Both items result in moderately high loadings on more than one factor. The loadings on the first factor may reflect variance due to rejection of the negation of church structure (Item 19) or of articles of faith (Item 39) while second factor loadings reflect acceptance of openness (Item 19) or faith as encounter (Item 39). A second example will show how crude adaptation of a Neal item resulted in ambiguity.

Questions should avoid "loaded" words (Oppenheim, 1966: 59) such as "bossex" or "intelligent" which in certain phrases may suggest an automatic feeling of approval or disapproval. Perhaps the capitalization of 'word' in "God's Word" (Item 17) loads the item with

an unnecessary orthodoxy which constrains priests of a pre-Vatican orientation to respond in a negative way. Thus, in a traditional sense, "God's Word" is taken to be revelation in terms of the bible although other sources such as "tradition" are available. To illustrate the negative loading, i.e. the implied rejection of orthodox usage, compare item 17 to a similar item from Neal's questionnaire:

NORC: 17) God's Word comes to us through some of the great prophetic men of our times, such as Mahatma Ghandi and Martin Luther King.

CMSW: 44) Since Christ speaks to us through events of our times, sisters cannot be apostolically effective in the modern world unless they understand and respond to social and political conditions.

To a priest holding a general pre-Vatican orientation, "God's Word" loads the item with an implied rejection of the term's orthodox usage. Neal's item expresses the idea of ongoing revelation without loading the case for the priests with a pre-Vatican orientation. Admittedly, the distinction is esoteric; indeed, it may seem trivial. But in a legalistic post-Tridentine sense, item 17 would qualify as a trick question on a poor true and false test in an undergraduate course on the bible! It is out of place in an attitude measure. Moreover, since the results show moderately high loadings for this item on the first two factors, it is not unlikely for a priest with a strong pre-Vatican viewpoint to stress such legalistic interpretation whereas a post-Vatican stance finds it irrelevant.

There are several other items which either measure more than one property or belong to a different domain. Two items (29-Priests who feel called should witness to Christ on the picket line and 37-

Inadequacy of Church's role in civil rights) deal with issues salient in popular discussion at the time when the priesthood questionnaire was in the field, December 1969 to March 1970. Item 29 is an exact replicate of a Neal item that was written in 1965 and in the field from 1965 to 1968. It is possible that, given the currency of the issue "to demonstrate or not to demonstrate" in 1969-70, priests may have responded more to this issue than to its theological background. The zero-order correlation between 29 and 37 ( $r = .44$ ) strengthens this judgement. Item 37 is at best a "long shot" for a belief measure since it deals with an evaluation of performance rather than suggesting a theological justification for the evaluation. Perhaps the moderately strong and positive loadings of 28-Mass as joyous anticipation, reflects the effects of liturgical change current at that time. Priests of both orientations can affirm this statement. Finally, item 43 (Accept possibility of conscience over church) and item 44 (Protestant theology jeopardizes faith) could represent different domains. The former may belong with later parts of the questionnaire dealing with reactions to the encyclical Humane Vitae. Rather than express a model of reality, it treats a problematic aspect of a model for reality. The latter item may have a strong negative correlation with general attitudes toward ecumenism--a topic also treated in other parts of the NORC priesthood questionnaire.

Admittedly, some of the foregoing suggestions may be wrong. Nonetheless, the results of two, three, and four factor rotations clearly establish that the ambiguous items either measure more than

one property or belong to different domains. Future work can establish the specific domains or consider alternative dual interpretations. Therefore, since the ambiguous items either imperfectly measure or do not belong to the first factor, it is clear that the first factor embodies Neal's pre-Vatican orientation. Furthermore, since the loadings of the thirteen traditional items in the first set are relatively homogeneous, it is not necessary (Armor, 1974: 38) to continue with further factor analyses. These thirteen items can serve as the basis for a reconstructed index. (Whether or not the modern items which reflect Neal's post-Vatican orientation form a reliable index useful is beyond the scope of the present analysis.) Thus, the next step is to score the index and correlate it not only with modern values but also with other important variables from the priesthood study. The next section presents these results.

## FINDINGS: THE MEANING OF "MODERN" VALUES

Before discussing the results of reconstructing the index, a brief summary will highlight the analysis up to this point. Greeley employs Neal's rationale for the study of religious belief. In a style similar to Neal, he synthesizes differing theological perspectives as essentialist versus existentialist but inflicts an ambiguity by labeling the perspectives as traditional and modern. These terms may designate either one or two dimensions. Thus, although Greeley theorizes two dimensions, Schoenherr uses factor analysis not as a means to determine whether or not the synthesis is accurate but as an item analysis method assuming a priori that only one dimension underlies the data. On this basis he constructs the modern values index and claims that it measures a "traditional-modern" continuum.

But an adequate interpretation of the factor analyses shows that there are at least two identifiable sources of variance. Both have substantive meaning in terms of Neal's framework. The first factor represented by a relatively tight cluster of items embodies Neal's pre-Vatican orientation. The second factor includes a cluster of items relatively independent from the first and represents Neal's post-Vatican orientation. However, there is a third cluster of items which relate to both factors. Taking an explanatory rather than taxonomic view of factor analysis (Hakstian and Muller, 1973: 461-463), we find that these items measure more than one property. Close

examination of the items in this cluster suggests that, depending on their overall orientation, priests responded in different ways to many of the items. It is reasonable to suggest that, since these items measure more than one property, they do not embody psychological contraries. Thus, the first factor does not represent an overall orientation in which traditional and modern items are seen as opposites. It is possible that some of these items belong to different domains and are correlated with both factors.

More importantly, from a measurement point of view, the ambiguous items do not belong in a measure of the first factor. But, in the original index, six of the seven modern items are from the ambiguous set. These items contribute little to the overall reliability of the measure. Yet because these items are included in the index, Schoenherr concludes that the index measures a "traditional-modern" continuum. The error is obvious. Schoenherr endows the index with meaning not on the basis of empirical interrelationships, but solely on the basis of item content. By taking both into consideration we find that modern values measures traditional values. But since these terms are ambiguous, it is more accurate to state that modern values, given Schoenherr's scoring method, measures disagreement with pre-Vatican beliefs. By removing the dubious items we can improve the validity without loss of predictive power. To demonstrate this, it is necessary to reconstruct the index.

The thirteen items chosen on the basis of the factor analyses were combined to form an index. All thirteen were used in modern

values. Following Neal's (1970) terminology, it is entitled "pre-Vatican beliefs." Given Schoenherr's scoring method, it was decided that a high score should indicate strong disagreement, and a low score strong agreement, with pre-Vatican beliefs. The items were summed and divided by the number of parts validly answered. If seven or fewer parts were answered, a case was declared missing. This was necessary for only 96 of 5,155 cases. As Armor (1972: 22) notes, the reliability estimate may vary depending on the method of scoring. But in this case there is only a trivial difference between the reliability estimate calculated on the basis of a factor analysis of the thirteen items ( $\theta = .918$ ) and the coefficient calculated on the basis of the scoring method ( $\alpha = .916$ ). For modern values, the reliability is only slightly higher ( $\alpha = .935$ ).

Nonetheless, the pre-Vatican belief index explains 92 per cent of the variance of modern values ( $r = .96$ ). To the extent that the ambiguous items included in the index also measure negations of traditional positions, these items increase the index's reliability. On the other hand, to the extent that these items measure more than one property, they contribute to the error variance of the measure--i.e., the unexplained 8 per cent. It is likely, therefore, that these items do not add much to the predictive power of the measure. This conclusion can be illustrated through the use of "semi-partial" correlation (Nunnally, 1967: 154-155), also known as "part-correlation." Semi-partial correlation is useful here since it provides a means to calculate partial scores on pre-Vatican belief from modern values

without removing pre-Vatican belief as a systematic source of variance in a predicted variable. The semi-partial correlation will provide an estimate of the increase in predictive power due to the inclusion of ambiguous items in modern values.

Discussion of the differences in predictive power will also provide a context in which to discuss the different conclusions that emerge from the use of a reconstructed index. But since the present study limits itself to reconstructing modern values, this discussion will raise more questions than can be answered. In other words, it is not within the scope of this study to nuance the statements of relationship between pre-Vatican belief and other variables by reference to the position of respondents with respect to post-Vatican beliefs. To further limit discussion, the following remarks will focus only on the sociological variables included in the Greeley and Schoenherr (1974) path model explaining future plans of priests.<sup>1</sup> Since we are not reproducing the path model, the present discussion will focus on bivariate correlations.

Table 11 presents the correlations between the two measures of belief and seven variables used in the Greeley and Schoenherr path model. The third and fourth columns of the table present the semi-partial correlation and its square controlling for modern values. These data show, that at most, modern values explains five per cent

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<sup>1</sup>One variable used in the path model, inner directedness, is a psychological measure and is omitted from consideration here.



TABLE 11

CORRELATES OF THE "MODERN" VALUES  
AND PRE-VATICAN MEASURES  
(r)

Correlates <sup>1</sup>	Modern Values	Pre-Vatican Beliefs	Semi-Partial Controlling Pre-Vatican	Square
Age	-.62	-.60	-.16	2.6%
Family Tension	.21	.20	.06	0.4
Religious Experiences	-.13	-.14	-.02	0.04
Job Satisfaction	-.02	.01	.10	1.0
Loneliness	.37	.33	.19	3.6
Desire to Marry	.43	.38	.23	5.3
Future Plans	-.46	-.42	-.20	4.0

<sup>1</sup>Variable Definitions:

Family Tension - Recollection of mostly tense and strained rather than close and intimate relationships between one's parents and between oneself and each parent; a continuous scale with a range of 1.0 - 5.0.

Religious Experiences - High frequency of having felt close to God or Christ in the past two or three years; an integer scale with a range of 3 - 12.

Work Satisfaction - Of seventeen short-phrase descriptions, agree with few unpleasant and many pleasant sounding phrases; an integer scale with a range of 1 - 52.

Loneliness - High personal importance ascribed to the problem of loneliness of priestly life on a day-to-day basis; an integer scale with a range of 1 - 4.

Desire to Marry - High certainty of wanting to marry if celibacy for priests became optional; an integer scale with a range of 1 - 5.

Decision to Continue - High certainty regarding one's decision to stay in the public ministry; an integer scale with a range of 1 - 5.

Source: Greeley and Schoenherr, "Role Commitment Processes and the American Catholic Priesthood." American Sociological Review, 1974 39(June): 414. (Coefficients vary slightly from those reported by Greeley and Schoenherr. Their analysis focuses on Diocesan priests only; the above coefficients are for all active priests from the priesthood study.)

more of the variance after controlling for pre-Vatican belief. Thus, the new measure can substitute for modern values. It is also possible that, given the inclusion of items which measure more than one property, the residual correlation reflects the influence of post-Vatican beliefs. However, since the residuals are small this influence is minor; modern values is in fact a measure of pre-Vatican beliefs. In other words, a high score on modern values (as well as pre-Vatican beliefs) actually reflects disagreement with traditional theological perspectives and has few implications about a respondent's attitude toward modern positions. How does this alter conclusions based on use of the index?

Cast as dependent variable, Greeley and Schoenherr (1974: 414) conclude that those who subscribe to modern values are younger, slightly more likely to come from tense family situations, and are somewhat less likely to report religious experiences. On the surface, these are plausible conclusions. In common sense terms, modern and younger express the same expected combination as traditional and older. It is equally plausible to assert that younger priests are less likely to report endorsement of a traditional perspective without suggesting that specific views such as a post-Vatican orientation have taken the place of pre-Vatican beliefs. Younger priests may not endorse pre-Vatican beliefs, but this does not imply that younger priests strongly endorse post-Vatican themes. Perhaps younger priests do not strongly endorse either perspective. Defining theological perspectives in terms of a traditional-modern continuum precludes the examination of this possibility. On the other hand, by reconstructing the index we can raise

this question as a distinct possibility.

Cast as an independent variable, Greeley and Schoenherr (1974: 414) conclude that priests who endorse modern values are more inclined toward leaving, perceive loneliness as a problem, and desire to marry. Again, it is equally plausible to assert that disagreement with pre-Vatican beliefs inclines one toward leaving, leads to feelings of isolation, and allows one to contemplate marriage as an alternative to the priesthood. Whether or not the post-Vatican orientation promotes these results is a different question. Without further study of the data, there is no way to conclude from the correlations presented in Table 11 that modern themes lead to these results. In the modern values index, Greeley and Schoenherr do not have a basis on which to conclude that post-Vatican perspectives are associated with any results.

As an overall observation, other variables positively associated with modern values cannot be interpreted as results (irregardless of plausible causal assumptions) of adherence to post-Vatican themes. Rather, given plausible causal connections, positive correlations with other variables indicate the effects of less attachment to the traditional model of reality expressed in the pre-Vatican orientation. In terms of the framework developed at the beginning of this thesis, the cognitive outcome--disagreement with pre-Vatican themes--indicates a weakened cathectic-evaluative attachment to the major theological model underpinning the post-Tridentine church. Whether or not a post-Vatican orientation substitutes as the theological perspective

underpinning current attitudes is another question. Even though the present analysis cannot answer that question, this study does provide the basis for raising the question which is its major result. Before assessing the implications for future research based on the critique of this study, it is necessary to reflect on the policy implications raised by recasting the findings of Greeley and Schoenherr.

From the viewpoint of American church leaders, the conclusions offered by Greeley and Schoenherr may provide a rationale for withholding major support from certain efforts at *aggiornamento*. Updating and renewal efforts such as the development of post-Vatican themes would appear to have destructive consequences. Although Vatican II represents a major change in the church's orientation toward the world, the pace at which change is introduced could be seriously affected by the conclusions drawn on the basis of modern values. Withholding major support may be seen as a strategy which would minimize the destructive effects of change. This could be a serious strategical error; it could aggravate the present situation.

Without further research these implications cannot be specified as more than possibilities. Thus, it is not clear whether or not a linkage exists between post-Vatican theological perspectives and undesirable outcomes such as loneliness or one's inclination toward leaving the ministry. The lack of coherence among the post-Vatican themes used in the priesthood study and the dimension indicating wide variation in support for pre-Vatican beliefs suggests a basic confusion and disorientation over theoretical assumptions, values, and goals.

Suppression or withdrawal of support might aggravate the situation; if the confusion is demonstrable by further study of the priesthood data, it calls for open discussion of differences. At a minimum, these observations suggest substantial reasons for further study of the priesthood data. The last section suggests some directions for this work.

## SUMMARY AND IMPLICATIONS FOR FUTURE RESEARCH

This thesis reconstructs the major belief index, modern values, used in a recent study of American priests. By tracing the origin and development of the index the thesis shows that the constructed index does not measure what it claims to measure. Recent critiques of the empirical study of belief suggest that the simple assessment of orthodoxy implies too narrow a definition of religious belief. New measures which pay explicit attention to the nuance embodied in various theological perspectives are necessary. This requires attention to specific belief systems and specific populations. The work of Marie Augusta Neal (1965 and 1970) incorporates these considerations into the design of two measures of religious belief for women religious. Two measures were necessary since the belief system under study, Roman Catholicism, currently contains differing perspectives due to the impact of the Second Vatican Council.

Greeley and Schoenherr, the principal investigators of a recent study of the American catholic priesthood (NORC, 1972), seek to follow an approach similar to Neal's. Greeley employs Neal's rationale for the study of religious belief. Like Neal, he synthesizes differing theological perspectives in terms of two dimensions but inflicts an ambiguity by labeling the perspectives as traditional and modern. These terms are used ambiguously to designate sometimes one, sometimes two dimensions; Greeley theorizes two dimensions and Schoenherr considers the belief items in terms of one dimension. In analyzing the

data from the priesthood study, Schoenherr uses factor analysis as an item analysis method rather than as a means to test whether or not various theological perspectives can be synthesized in terms of two dimensions. On this basis he constructs the modern values index and claims that it measures a "traditional-modern" continuum.

Reanalysis of the data shows at least two fairly strong and identifiable sources of variance. Employing Neal's framework, the two factors are seen to have substantive meaning as representations of her pre- and post-Vatican orientations. However, there is another cluster of items which relate to both factors. Taking an explanatory view of factor analysis, these items are seen as measures of more than one property. Examination of the items in this cluster suggests that, depending on their overall orientation, priests responded in different ways to these items. It is reasonable to suggest, therefore, that the first factor is not an overall orientation in which modern and traditional perspectives are seen as psychological contraries. More importantly, from a measurement point of view the items of the ambiguous cluster do not belong in a measure of the first factor if the index is constructed by simple summation. Yet six of the ambiguous modern items were included in the modern values index. As was demonstrated earlier, this was the basis for defining the index as a measure of a "traditional-modern" continuum. Thus, modern values measures traditional values, or in Neal's terms, a pre-Vatican orientation.

The index was reconstructed by selecting those items which unambiguously represent the first factor and renamed Pre-Vatican belief.

The new index attains a reliability of  $\alpha = .92$  which compares favorably with the reliability of modern values ( $\alpha = .94$ ). Through the use of "semi-partial" correlation it was demonstrated that the new index can substitute for modern values without loss of predictive power. Since the new index more accurately reflects the first factor (which represents Neal's pre-Vatican orientation) conclusions based on the old index were re-interpreted. Although new conclusions emerge, the analysis is insufficient for drawing out precise policy implications since it leaves the role of post-Vatican beliefs unexamined. Thus, while this thesis achieves its goal of providing a critique of modern values and suggesting a reconstructed index, it stops short of a full solution to the problem. Several assumptions of the present analysis should be carefully examined before conducting further research.

First, attitude measurement in sociological survey research has generally assumed clear cut definitions of attitude domains. Thus, survey research instruments are constructed in terms of numerous sub-scales which are then used in multivariate research as independent and dependent variables. Often the causal priority of these variables is highly questionable. It may be more fruitful to define attitude domains in more general terms. For the priesthood study, it would be possible to define beliefs as a general domain and include in a factor analysis of this domain all the various sub-scales such as modern values, modern priests, sexual morality, ecumenism attitudes, and other items which relate to specific objects of belief (e.g. religious experiences). Guidance for this style of analysis could be sought



from psychologists' experience (e.g. Nunnally, 1967: 426-468) in the study of human abilities. Also, the strength of the analysis would be enhanced by consideration of various multidimensional scaling techniques (Shepard, et. al., 1972).

For large sample surveys like the priesthood study it is possible to consider review of a second general domain assumption. For example, the strong correlation between age and modern values as well as pre-Vatican belief suggests the dependence of the factor solutions on this population characteristic. It may be the case that among the older age groups traditional and modern perspectives are seen as opposites while among younger age groups pre- and post-Vatican themes form two identifiable dimensions. In this scheme, factor analysis is not a means of scale construction but the product of analysis achieved through successive approximations. Approaching the problem in this manner might demonstrate that both Neal and Greeley and Schoenherr are right for specific populations. Consideration of bishops who have special theological training might add new insights about the way in which a specific group differs from the priesthood as a whole. Further analysis of the priesthood study data should profit from these suggestions.

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**APPENDIX A**

Table A.1

## Thirty-one Belief Items

NORC ITEM  
NUMBER

## STATEMENTS\*

11. I feel that everything that has value in human life will somehow be retained in heaven. (M)
12. The mystery of the Trinity is so profound and so central that I feel I should humbly accept it as given and not seek to plumb its depths. (T)
13. The experience of dialogue among persons who are open and trusting provides the human analogy for understanding the Trinity as a life of communication and communion. (M)
14. I think of God primarily as the Supreme Being, immutable, all powerful, and the Creator of the universe. (T)
15. The Catholic Church is the one true Church established by Christ with St. Peter and his successors as its head. (T)
16. For me, God is found principally in my relationships with people. (M)
17. God's Word comes to us through some of the great prophetic men of our times such as Mahatma Gandhi and Martin Luther King. (M)
18. I think of Jesus as the man who has given me my ideals for truly human living. (M)
19. Today's Christian must emphasize more than ever openness to the Spirit rather than dependence of traditional ecclesiastical structures. (M)
20. If God has meaning, I can recognize Him only in Jesus the Christ who makes God plausible and credible. (M)
21. The important thing to stress when teaching about Jesus is that He is truly God, and, therefore, adoration should be directed toward Him. (T)
22. I feel that diversity in individual men, among peoples, and in many cultures helps me appreciate the meaning of the Incarnation. (M)

\* T: Traditional; M: Modern.



Table A.1  
(cont.)

NORC ITEM  
NUMBER

STATEMENTS\*

23. The principal meaning of Christ's resurrection for me is that it proved his Divinity. (T)
24. I think of Jesus Christ as the God who humbled Himself by becoming man and dying for my sins. (T)
25. To doubt one article of faith that is de fide is to question the whole of revealed truth. (T)
26. I think of heaven as the state in which my soul will rest in blissful possession of the Beatific Vision.
27. I feel that the most important thing to recognize about the sacraments is that they are channels for receiving grace. (T)
28. I think of the Mass as a sacramental event which anticipates heaven as the joyous union of humanity: risen, redeemed, and glorified in Christ. (M)
29. I think that priests who feel called to do so ought to be witnessing to Christ on the picket line or speaking out on controversial issues. (M)
30. A Christian should look first to the salvation of his soul; then he should be concerned about helping others. (T)
31. When I experience moments of deep communication and union with other persons, these sometimes strike me as a taste of what heaven will be like. (M)
32. The contemplative and mystical life is absolutely essential for Christianity. (T)
33. People can be good Christians without spending much time in solitary reflection and prayer. (M)
34. In a secular age like our own, the Church must abandon much of its past emphasis on the sacred. (M)
35. The Church should be a place of refuge and of quiet reflection away from the world. (T)

\* T: Traditional; M: Modern.

Table A.1  
(cont.)

NORC ITEM  
NUMBER

STATEMENTS\*

36. The primary task of the Church is to encourage its members to live the Christian life rather than try to reform the world. (T)
37. For the most part, the Church has been inadequate in facing up to the civil rights issues. (M)
38. Faith means essentially belief in the doctrines of the Catholic Church. (T)
39. Faith is primarily an encounter with God in Christ Jesus, rather than an assent to a coherent set of defined truths. (M)
43. There are times when a person has to put his personal conscience above the church's teaching. (M)
44. One's faith may be jeopardized by studying Protestant theologians. (T)

\* T: Traditional; M: Modern.

Table A.2

Distributions of the  
Thirty-one Belief Items  
(Per Cent)

NORC ITEM NUMBER	RESPONSE*				
	SA	A	U	D	SD
27. Primacy of Sacraments for Grace . . . . .	44%	22%	3%	20%	12%
21. Primacy of God as Christ . .	32	22	4	28	13
26. Heaven as possession of Beatific Vision . . . . .	44	21	9	14	12
23. Resurrection Proves Divinity . . . . .	39	21	3	22	15
14. God as all powerful . . . . .	39	20	2	22	17
38. Faith as belief in church doctrine . . . . .	23	20	3	28	26
30. Primacy of personal salvation over others . . . . .	26	22	3	24	25
24. Jesus as redeemer . . . . .	62	26	1	9	2
12. Accept Trinity as wholly other . . . . .	29	20	5	23	24
25. Faith as absence of all doubt . . . . .	34	14	6	20	27
15. Catholic Church is only true church . . . . .	71	17	3	6	3
35. Church as place of refuge from the world . . . . .	9	20	4	31	36

\*Response categories:

SA - Agree Strongly

A - Agree Somewhat

U - Uncertain

D - Disagree Somewhat

SD - Disagree Strongly

Table A.2  
(cont.)

NORC ITEM NUMBER	RESPONSE*				
	SA	A	U	D	SD
36. Church's task is to encourage virtuous living, not reform . . . . .	25%	27%	5%	37%	16%
13. Analogy of human community and Trinity . . . . .	28	36	22	7	6
31. Deep personal communication as analogy of heaven . . . .	28	38	16	10	6
22. World as valuable because of Incarnation . . . . .	32	33	22	7	6
11. Heaven in terms of human fulfillment . . . . .	47	26	17	6	4
16. God found principally in personal relationships . . . .	22	37	5	33	14
20. Jesus makes God plausible and credible . . . . .	30	29	6	22	13
32. Contemplative life is essential for Christianity	34	30	13	15	8
33. Good Christians without solitary reflection . . . . .	15	38	6	26	15
34. Abandon past emphasis on sacred . . . . .	7	17	6	27	43
17. God's Word through prophetic men of our time . . . .	24	36	8	14	18
19. Openness to Spirit rather than depend on structure . .	32	33	6	18	10

\*Response categories:

SA - Agree Strongly

U - Uncertain

D - Disagree Somewhat

A - Agree Somewhat

SD - Disagree Strongly

Table A.2  
(cont.)

NORC ITEM NUMBER	RESPONSE*				
	SA	A	U	D	SD
39. Faith as encounter rather than assent to truths . . . .	40%	31%	4%	15%	11%
37. Inadequacy of Church's role in civil rights . . . .	31	39	7	15	8
28. Mass as joyous anticipa- tion of heaven . . . . .	47	34	6	10	4
18. Primacy of Christ as man . .	34	28	3	17	18
43. Accept possibility of conscience over church . . .	22	28	7	9	34
44. Protestant theology . . . . .					
jeopardizes faith . . . . .	31	26	5	26	11

## \*Response categories:

SA - Agree Somewhat

A - Agree Strongly

U - Uncertain

D - Disagree Somewhat

SD - Disagree Strongly

**APPENDIX B**

Table B.1

## Correlation Matrix: Thirty-one Belief Items

	27	21	26	23	14	38	30	24	12	25	15	35	36	13	31	22	11	16
27	—																	
21	.62	—																
26	.70	.59	—															
23	.64	.61	.56	—														
14	.58	.57	.58	.55	—													
38	.61	.57	.58	.54	.52	—												
30	.60	.54	.58	.52	.50	.52	—											
24	.54	.49	.55	.50	.44	.43	.42	—										
12	.46	.43	.43	.46	.48	.43	.41	.32	—									
25	.51	.58	.54	.44	.40	.55	.47	.41	.33	—								
15	.50	.43	.51	.43	.40	.44	.41	.59	.28	.45	—							
35	.41	.41	.40	.38	.38	.43	.41	.29	.34	.35	.27	—						
36	.39	.37	.36	.35	.37	.41	.44	.31	.30	.30	.30	.36	—					
13	-.26	-.20	-.24	-.20	-.23	-.26	-.25	-.15	-.24	-.20	-.16	-.19	-.18	—				
31	-.30	-.26	-.29	-.24	-.27	-.30	-.26	-.20	-.22	-.21	-.18	-.20	-.22	.46	—			
22	-.23	-.14	-.22	-.15	-.19	-.22	-.22	-.13	-.17	-.18	-.16	-.17	-.16	.42	.43	—		
11	-.16	-.12	-.15	-.13	-.12	-.14	-.16	-.09	-.08	-.11	-.07	-.10	-.09	.37	.35	.27	—	
16	-.25	-.22	-.26	-.17	-.17	-.27	-.28	-.20	-.09	-.28	-.24	-.18	-.19	.33	.37	.32	.20	—
20	-.04	-.09	-.04	-.02	-.01	-.04	-.05	-.02	-.06	-.03	-.05	-.01	-.01	.19	.17	.22	.18	.26

Table B.1  
(cont.)

	27	21	26	23	14	38	30	24	12	25	15	35	36	13	31	22	11	16	20
32	.06	.09	.10	.03	.01	.12	.10	.10	.04	.18	.14	.43	.41	.06	.09	.08	.09	-.13	.06
33	-.03	-.06	-.07	-.01	-.01	-.08	-.04	-.06	.04	-.13	-.10	-.07	-.04	.02	.03	.05	.01	.18	.01
34	-.35	-.32	-.34	-.28	-.26	-.36	-.33	-.28	-.19	-.34	-.38	-.20	-.21	.19	.23	.19	.10	.32	.15
17	-.50	-.45	-.47	-.43	-.42	-.51	-.48	-.34	-.36	-.45	-.37	-.36	-.36	.42	.44	.38	.24	.42	.14
29	-.45	-.43	-.43	-.38	-.39	-.47	-.43	-.31	-.34	-.40	-.34	-.37	-.36	.36	-.31	.30	.22	.34	.13
19	-.44	-.38	-.42	-.35	-.35	-.48	-.43	-.32	-.26	-.44	-.36	-.30	-.28	.39	.40	.35	.24	.47	.24
39	-.41	-.34	-.38	-.35	-.34	-.47	-.40	-.25	-.28	-.39	-.29	-.26	-.22	.35	.36	.29	.22	.37	.20
37	-.34	-.32	-.34	-.28	-.27	-.34	-.33	-.24	-.20	-.34	-.27	-.26	-.22	.24	.25	.21	.14	.27	.12
28	.24	.21	.25	.21	.18	.17	.18	.26	.13	.19	.19	.12	.11	.14	.13	.18	.14	.07	.18
18	-.05	.03	.05	.07	.01	-.04	-.06	-.08	.05	-.13	-.12	-.02	-.05	.21	.22	.22	.15	.38	.27
43	-.50	-.50	-.47	-.50	-.42	-.40	-.56	-.49	-.37	-.32	-.54	-.44	-.34	.33	.28	.34	.16	.38	.13
44	.40	.38	.40	.36	.32	.46	.42	.30	.29	.44	.34	.32	.31	-.27	-.27	-.25	-.16	-.35	-.12



Table B.1  
(cont.)

	32	33	34	17	29	19	39	37	28	18	43	44
32	--											
33	-.25	--										
34	-.18	.24	--									
17	-.02	.10	.34	--								
29	-.03	.10	.33	.61	--							
19	-.10	.16	.42	.57	.54	--						
39	-.04	.12	.33	.48	.43	.53	--					
37	-.09	.12	.32	.41	.44	.41	.35	--				
28	.12	-.04	-.10	-.04	-.05	.00	.06	-.06	--			
18	-.06	.08	.18	.24	.14	.32	.22	.13	.12	--		
43	-.15	.18	.44	.55	.52	.57	.49	.43	-.11	.19	--	
44	.12	-.07	-.29	-.44	-.40	-.45	-.38	-.29	.04	-.18	-.44	--

Table B.2

Distribution Characteristics  
of the thirty-one items

NORC ITEM NUMBER	Mean	Variance	Cases	Pct. Missing
11	1.937	1.221	5007	2.9%
*12 +	2.945	2.533	5081	1.4
13	2.258	1.240	4955	3.9
*14 +	2.570	2.466	5095	1.2
*15 +	1.533	1.041	5107	0.9
16 +	2.683	1.921	5061	1.8
17 +	2.639	2.029	5079	1.5
18	2.562	2.340	5039	2.3
19 +	2.412	1.862	5059	1.9
20	2.590	2.064	5007	2.9
*21 +	2.691	2.214	5062	1.8
22	2.203	1.283	4972	3.5
*23 +	2.528	2.355	5089	1.3
*24 +	1.639	1.060	5081	1.4
*25 +	2.924	2.748	5071	1.6
*26 +	2.280	2.069	5056	1.9
*27 +	2.329	2.177	5064	1.7
28	1.912	1.290	5019	2.6
29 +	2.397	1.833	5070	1.6
*30 +	3.011	2.497	5064	1.8
31	2.276	1.345	4998	3.0
32	2.318	1.658	5060	1.8
33	2.876	1.840	5071	1.6
34	3.816	1.777	5077	1.5
*35 +	3.658	1.888	5021	2.6
*36 +	2.835	2.152	5005	2.0
37 +	2.294	1.601	5059	1.9
*38 +	3.125	2.416	5048	2.1
39 +	2.263	1.921	5015	2.7
43 +	2.933	2.549	5038	2.3
44 +	3.723	1.788	5069	1.7

\* Indicates items used for pre-Vatican beliefs.

+ Indicates items used for Modern Values.

APPROVAL SHEET

The thesis submitted by David F. Schwartz has been read and approved by the following Committee:

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The final copies have been examined by the director of the thesis and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the thesis is now given final approval by the Committee with reference to content and form.

The thesis is therefore accepted in partial fulfillment of the requirements for the degree of Master of Arts.

May 17, 1975  
Date

Thomas M. Gannon, S.J.  
Director's Signature