13: Religion, culture and attitudes: correlations and causation.

"general culture of mind is the best aid to professional and scientific study"

J.H.Newman, The Idea of a University.

"The spectator of Anna Karenina, who has sympathised with Anna, pitied her, foreseen the coming tragedy and watched helplessly as her body was crushed beneath the train, the spectator who has by that fact gained greater insight into himself and other people, has increased his fitness both as an individual and as a member of society. Likewise with ... other cultural mechanisms..."

Nick Humphrey, Consciousness Regained.

"The liberal arts have a legitimate place in medicine, not as gentle accoutrements and genteel embellishments of the medical 'art', or even to make the physician an educated man. Rather they are as essential to fulfilling the clinician's responsibility for prudent and right decisions as [are] the skills and knowledge of the sciences basic to medicine."

Pellegrino (1979b; p.192)

Summary.

The attitudes of medical students in the Birmingham study are analysed to find the correlations of those attitudes with measures of culture and of religion, and a cross-lagged panel correlation is then used to assess the causal relations implicit in such correlations. It is concluded that changes in religion cause changes in libertarianism, whereas changes in tough-mindedness cause changes in cultural activity.

To understand the 'art' of medicine we must look at the attitudes of doctors and the factors which determine them. Medical training per se has little effect upon changes in attitudes, the exceptions being attitudes to '6:Medical Control', '8:General Practice', '3:Liberalism', and 'II:Tough-mindedness (see chapter 9). Two major candidates arise for non-medical causal determinants – religion and culture. The relations between religion, culture and attitudes (perhaps in some ways better considered as politics or ethics) are complex, with almost all possible causal relations between them having been proposed.

Eysenck (1954) has suggested that social attitudes may be described in terms of two orthogonal dimensions; liberalism-conservatism (describing the traditional left-right dimension of politics) and tough-mindedness – tender-mindedness (a dimension which differentiates extremist political views from more central positions). In considering religion, attitudes and culture it is necessary to think clearly in terms of both of these two dimensions; most theorists do not explicitly differentiate them, but most are probably concerned with an integral of the two components, although there are exceptions.

An overview.

Conventional theology suggests that religion is the prime mover, and it therefore determines both acceptable attitudes and the nature of cultural behaviour (although see Niebuhr (1952) for an account of the complexities and subtleties of modern theological thought). In so far as religion is time-less, the attitudes are conservative and unchanging (see Woolf, 1937, pp175-195; Tawney, 1938, p.87; and Trilling (1982; p.48) "Almost to a man the Oxford [movement of the 1830s] condemned political, economic and social change"). In that culture in a broad sense can

modify attitudes by encouraging independent thought, culture is not
encouraged. As a specific example see item 18 in Newman (1902; p.296)'s
list of items of liberal theory with which he explicitly disagrees. As a
general example consider mediaeval European culture, which was
essentially a theocracy, the arts were subservient to the church,
independent thought was strongly discouraged, and attitudes were
essentially conservative, in the sense that they were both illiberal and
tough-minded. The model of the relationships may be represented:-

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                        -ve  \
        Increased ........\ Increased
        religion          /   culture
            .            /      .
             .          /       .
              .                 . +ve
        -ve    .                .
                .          \ . /
               .  |         \ ./
                . |          \/
               ___|
                        Liberal
                        attitudes
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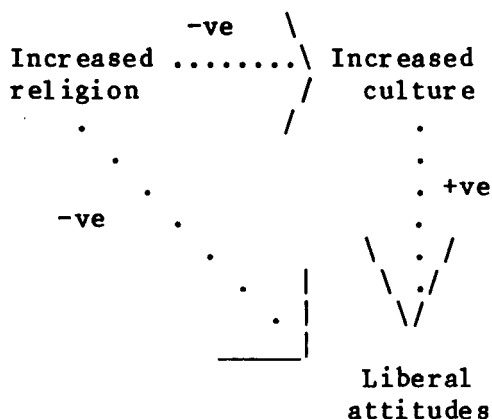
<u>Traditional liberal theories</u> (for philosophical introductions to
which see Russell, 1946, and Brubacher, 1982, pp74-93; for historical
accounts see Chadwick, 1975, chapter 2, and Arblaster, 1984; and for a
more informal view see Bell, 1938, p.149 <u>et seq</u>) take the view that
culture, in the form of a broad education, produces a direct liberalising
effect on attitudes, and also acts to decrease the influence of religion.
Sidgwick (1867) in his contribution to Farrar's <u>Essays on a Liberal
Education</u> stated that:

> "... a liberal education has for its object to impart the
> highest culture, to lead youths to the most full, vigorous and
> harmonious exercise, according to the best ideal attainable, of
> the active, cognitive and aesthetic faculties" (p.87).
> "... if so many professional persons· confine their
> extra-professional reading to the newspapers and novels; if
> the middle-class Englishman ... is narrow, unrefined,
> conventional, ignorant of what is really good and really evil
> in human life; if 'he is the tool of bigotry, the echo of
> stereotyped opinions, the victim of class prejudices, the great

stumbling block in the way of a general diffusion of higher cultivation in the this country´, ... it is because the education has not been ... literary" (p.129).

According to Matthew Arnold, "culture, which is the study of perfection, leads us ... to conceive of true human perfection as a <u>harmonious</u> perfection, developing all sides of our humanity; and as a <u>general</u> perfection, dev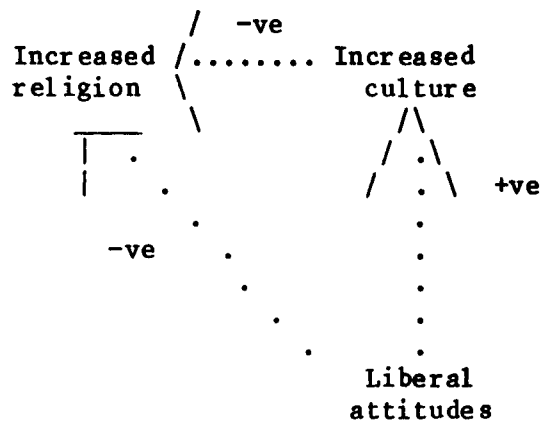eloping all parts of our society" (Arnold, 1868; see also Trilling, 1982, pp.252-291 and 371; Connell, 1950, pp.157-169). As Williams (1963, p.124) puts it, after citing the above passage, culture "is not merely the development of ´literary culture´, but of ´all sides of our humanity´". Of course the influence of education on attitudes had been recognised long before the age of Mill, Arnold and Sidgwick. Thus in 1807 the President of the Royal Society spoke in the House of Commons, opposing the introduction of elementary schools, since, "giving education to the labouring classes of the poor ... would render them factious and refractory ... it would enable them to read seditious pamphlets, vicious books, and publications against Christianity; it would render them insolent to their superiors..." (cited in Woolf, 1937, p.93). Culture in liberal theory is represented through the all-pervasive influence of education, acting on the <u>tabula rasa</u> of the human psyche, and the causal model may therefore be represented:

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                    /  -ve
     Increased     /........ Increased
     religion      \            culture
     ____          \              .
      |  .          \             .
      |    .                      .  +ve
            .                     .
       -ve     .           \    . /
                  .          \  ./
                    .         \/
                      .
                   Liberal
                   attitudes
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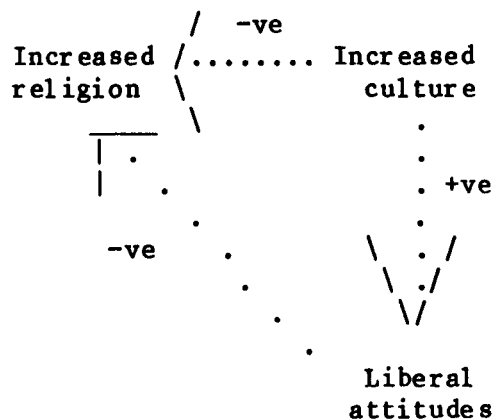
Some theorists, for instance Jaspars (1960) and Durkheim (1925), argue that culture and aesthetics are important in developing the mind, but do

not specify any specific direction of influence; rather the suggestion is that culture perhaps makes people less extreme in their views e.g. "Art is a noble form of play; it is morality extending its action into our hours of leisure and marking it with its own character" (Durkheim, p.273; my emphases).

Psycho-analytic theories stress the primacy of attitudes, which arise from fundamental conflicts within the psyche ("I want to state the conclusion that the beginnings of religion, ethics, society and art meet in the Oedipal complex"; Freud, An Autobiographical Study, p.207). A particular attitude is a neurotic response to parental rejection, and the consequence is an increase in religious behaviour. If on the contrary the person adjusts to the universal neurosis then he develops an interest in culture in compensation for the earlier ´cultural rejection´ which he had suffered. In addition cultural knowledge can decrease religious involvement. The model is therefore best stated as follows, although Philp (1956) has suggested how difficult it is to be entirely sure of Freud´s position on these topics:-

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                    /  -ve
        Increased  /........ Increased
        religion   \          culture
         ___        \          /\
        |   .        \        /  .\
        |   .         \      /   . \   +ve
                .              .
            -ve    .           .
                     .         .
                       .       .
                         .     .
                          Liberal
                          attitudes
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Fromm (1950) changes this model slightly and suggests that psychoanalysis is only a threat to what he calls ´authoritarian religion´. Later workers have suggested that the relationship between attitudes and culture in the psychoanalytic system may be more interactional, Culler

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(1976; p.72) describing how "Freud made it apparent ... how the culture suffices the remotest parts of the individual mind" (see also the quotation by Winnicott on the title page of chapter 10).

A fourth position which must be mentioned is that of <u>Marxist</u> <u>theory</u>. Marx and his followers have attempted to create a comprehensive theory of man and his societies, and as such the theories might be expected to make statements about the relations of religion, culture and attitudes. However in practice Marx makes no specific analysis of these problems, and his followers have been obscure to the point of near incomprehensibility (the essays of Althusser (1967) being a case in point). More difficult is that many of the causal inter-relations appear to be dialectical rather than directional, with each component influencing the other in an interactionist spiral. A crude interpretation of Marx is that the economic infra-structure of a society is the root cause of all facets of the supra-structure, which must include the attitudes, religion and culture of that society. However that is a sociological rather than a psychological analysis (and may itself be wrong, since, as Dupre (1983) has pointed out, Marx himself treated culture and aesthetics as being of greater importance than his followers have realised). At the individual, psychological level, and ignoring the mass consequences of individual actions feeding back upon the collective consciousness of society, Marx probably felt that economics determined fundamental attitudes, and that it was those attitudes which subsequently created interests in religion or culture (although culture itself could feed back directly upon attitudes - see Dupre (1983; p.274)); "The foundation of irreligious criticism is this: man makes religion, religion does not make man" (Marx, 1844). The relation betwen culture and religion is probably that the increased social awareness induced by culture will indirectly cause a decrease in

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unsophisticated religious indulgences (Marx's "opium of the people"). Marx's theory is in some ways similar to Freud's, the major difference being in the origin of attitudes, be it in the conflicts of the psyche or the economics of class conflict, although Marx's theory potentially encapsulates aspects of liberal theory with his emphasis upon the primacy of culture as a source of insight and hence change. Because of this lack of clarity in the theory it will not be considered further.

The three theories, theological, liberal and psycho-analytic, between them contain all three factors as the primary motivator. All contain the assumptions that individuals with strong religious beliefs should be less liberal and less cultured, and that individuals with liberal attitudes should be more cultured. Where they differ is in their attribution of causality between the variables.

Two separate types of empirical question must therefore be asked:-

1. Are there <u>correlations</u> between attitudes, religion and culture, and are these correlations in the predicted direction?

2. Is there evidence for <u>causal</u> relations between attitudes, religion and culture, which are compatible with any of the theories?

Before considering the empirical questions by reference to data it is necessary to consider the various correlations and causations in turn, illustrating in turn what has been proposed about each. Most of the illustrations will come not from psychological studies <u>per se</u> but from 'critical studies' (in their widest sense), from education, from philosophy, from political theories, and from sociology. No apology is made for this emphasis; it simply reflects the relative lack of interest of the behavioural sciences in these broad questions. An inevitable interpretative problem however is that sometimes it is not clear whether

theorists are speaking at the individual, attitudinal level, or at a broader more social, or even anthropological, level. There is no sense in which these descriptions will be complete: a history of western intellectual thought could be compiled around the response of thinkers to these profound problems.

1. Culture and Religion. Pascal restated the classic view of the relation of culture and religion, when he suggested that man has "a secret instinct which impels [him] to seek amusement", but that such escape from the "constant unhappiness" which besets him is dangerous since "All great diversions are a threat to the Christian life", tending to destroy the heightened consciousness of our inner selves produced by solitude and contemplation (see Lowenthal, 1961; p.17).

   T.S. Eliot considered the relationship of culture and religion most carefully, although not in the clearest way; indeed he says that, "the way of looking at culture and religion which I have been trying to adumbrate is so difficult that I am not sure I grasp it myself except in flashes ..." (p.30). Eliot starts by criticising Matthew Arnold who, in his Culture and Anarchy (1868) "gives the impression that Culture (as he uses the term) is something more comprehensive than religion" (i.e. that religion is a sub-set of culture). In Arnold's sense culture must determine religion. Eliot substituted the view that culture and religion are "different aspects of the same thing" (p.29), that neither can survive without the other. This theory therefore predicts a positive correlation between religion and cultural involvement. The situation however becomes more complicated, for later Eliot tells us that, "the identity of religion and culture remains on the unconscious level, upon which we have super-imposed a conscious structure wherein religion and culture

are contrasted and can be opposed" (p.68). In this latter position, which implies a negative correlation between culture and religion, Eliot explicitly states that he is talking, "from the point of view of the sociologist, and not from that of the Christian apologist" (p.68). Eliot's second theory is far closer to psycho-analytic theory, where Freud argues that religion and culture are alternatives, there being a negative correlation between the two (e.g. The Future of an Illusion, p.68; Civilisation and its Discontents, p.74).

Bertrand Russell clearly saw culture and religion as being alternatives, in opposition to one another: "For those to whom dogmatic religion can no longer bring comfort, there is need of some substitute ...what is needed is not this or that specific piece of information, but such knowledge as inspires a conception of the ends of human life as a whole; art and history, acquaintance with the lives of heroic individuals, and some understanding of the strangely accidental and ephemeral position of man in the cosmos – all this touched with an emotion of pride in what is distinctively human, that power to see and to know, to feel magnanimously, and to think with understanding" (Let the People Think, pp 90-91). In short, culture is a necessary substitute for religion and should be negatively correlated with it.

2. Culture and attitudes. One of the clearest statements of the liberal-idealist relation of culture is that of Schiller; "art has for its object not merely to afford a transient please ...; its aim is to make us absolutely free" (Lowenthal, 1961; p.26).

Russell was clearly considering tough-mindedness, when he said in his essay on '"Useless" knowledge' that "some of the worst features of the modern world could be improved by a greater encouragement of [culture] and a less ruthless pursuit of mere professional competence" (p.85); "there is in untrained human nature a very considerable element of cruelty ... Now while it must be admitted that highly educated people are sometimes cruel, I think there can be no doubt that they are less often so than people whose minds have lain fallow" (p.87). Russell suggested not only a correlation but also a causal relation: "Culture gives a man less harmful forms of power and more deserving ways of making himself admired" (p.87).

George Steiner is not convinced about "the axiom ... which correlates humanism - as an educational programme, as an ideal referent - to humane social conduct" (In Bluebeard's Castle, p.60). He argues that the lesson of two World Wars must be of the fragility of culture as "a barrier against political bestiality" (p.31). "Nothing in the next-door world of Dachau impinged on the great winter cycle of Beethoven chamber music played in Munich. No canvases came off the museum walls as the butchers strolled reverently past, guide-book in hand" (p.54); "Men such as Hans Frank who administered the 'final solution' in eastern Europe were avid connoisseurs and, in some instances, performers of Bach and Mozart. We know of personnel in the bureaucracy of the torturers and of the ovens who cultivated a knowledge of Goethe, a love of Rilke" (p.63). One is reminded of Adorno's remark that "to write poetry after Auschwitz is barbaric" (Jay, 1984, p.19). Steiner hints that we should perhaps reject "the boisterous confidence in the immediate correlation of better schooling with an improved society -

particularly in American progressive doctrines and Victorian socialism" (p.61) and ask instead whether "it is more realistic to perceive in humanistic culture express solicitations of authoritarian rule and cruelty?" (p.31), pointing out that "Great art, music and poetry, the science of Bacon and Laplace, flourish under more or less totalitarian modes of social governance ... Is not the very notion of culture tautological with elitism?" (p.69). A different viewpoint which also suggests that the humanities might render individuals more conservative and less liberal is that of Thorstein Veblen (1899; p.377), who argues from an economic analysis of leisure.

Within medicine there is a recurrent belief that its practitioners should be 'cultured', and the implication is that ethical practice is not possible without it. Flexner (1925) in his Medical Education comments on Bilroth's Lehren und Lernen der medicinischen Wissenschaften of 1876; "Very significantly, Bilroth called his book a study in the history of culture" (p.18). The Royal College of Surgeons in its evidence to the Pilkington Commission (Royal Commission, 1960) felt that it was necessary to have at least a nucleus of "students from cultured homes" (Ferris, 1967, p.13). Sinclair (1972) argues that culture is important in some sense ("too many people qualify in medicine in ignorance of most of the glorious span of English literature" (p.118)), although he is also quite clear that culture cannot be made a part of the curriculum; "the fact is that culture cannot be enforced" (p.96) – culture being seen to have its effects precisely because it is a voluntary exploration of the world of ideas, rather than a compulsory part of a course. A rejoinder to that argument must of course be that all other subjects in the pre-clinical and clinical course are probably in a similar position. Constable (1975), writing about the MRCP exam, suggested

that "the examination remains partly a test of culture although knowledge of Latin, Greek, French and German is no longer required ...". Several recent workers (Clouser, 1971; Pellegrino, 1974; Moore, 1976, 1977, 1978; Reynolds and Carson, 1976) have argued for 'medical humanities' in the curriculum; "to perceive and understand health and disease in social and cultural context requires some knowledge of history, sociology, anthropology and religion ..." (Reynolds and Carson, 1976). Schwartz et al have however argued that the greatest disillusionment in American medical students can be in those who have contemplated careers in either medicine or the arts, "perhaps like Goethe's Faust they might complain 'two souls; alas, dwell within my breast'" (p.184).

Within the psychological literature the clearest statement on the relation between culture and attitudes is that of Murphy and Likert (1938; p.100 et seq) who, after finding a correlation between measures of radicalism and scholarship, argued that the intervening variable is probably 'bookishness'; "This consists in a love for and application to the printed page as a serious and vital factor in one's thinking and living". Bookish men, it is argued, are more radical since the world in general at that time was a radical world, and hence the majority of published books would have been radical in tone, and thus individuals would be more likely to be influenced in a radical direction; in 1760 it is suggested the world was conservative and hence the bookish would then be more conservative. Waples et al (1940) state the empirical problem most clearly. "Reading can supply information and can develop attitudes which make for social tolerance, co-operative enterprise, and good government. Whether reading does carry such values to any section of the community at any given time would need to be determined" (p.25;

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emphases in original).

3. Attitudes and religion. The relationship between political and social attitudes and religious commitment has ben well-studied by psychologists. There seems to be general agreement (e.g. Argyle, 1958; Eysenck, 1954; Bem, 1970; Scobie, 1975) that religious people are more conservative in their voting behaviour and their political attitudes, are more authoritarian, are more racially prejudiced, and less humanitarian (Kirkpatrick, 1949). In addition there is a strong suggestion that the relation between attitudes and religion may be curvilinear; "out-and-out atheists and agnostics are less [racially] prejudiced than church members who never go to church, while more frequent attenders are also less prejudiced. It is not the genuinely devout who are prejudiced but the conventionally religious" (Argyle, 1958; p.84). The curvilinearity may in part be explained by Fromm's (1950;p.42) description of the separate phenomena of "authoritarian and humanistic religion ... [which] can exist within the same religion", and by Jung's suggestion that "a creed coincides with the established church, or, at any rate, forms a public institution whose members include not only true believers but vast numbers of people who can only be described as 'indifferent' in matters of religion and who belong to it simply by force of habit" (Jung, 1957).

Correlation of attitudes, culture and religion.

In this section each of the three inter-relationships will be examined in turn to consider whether the medical student data provides evidence for correlations.

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1. <u>Culture</u> <u>and</u> <u>religion.</u> Figure 13-1 shows the mean score of each of the seven religious groups on the five orthogonal culture scales and on the general C:´Culture´ factor. Significances of differences between groups, in terms of linear, quadratic and ´deviation´ terms were assessed by a weighted one-way analysis of variance, using the SPSS program suite, and are shown in Table 13-2. Data from the Birmingham and St. Mary´s studies are considered separately. Significant linear trends are shown in the Birmingham study (which was the the larger of the studies) for all six measures; significant trends are found for three of the six scores in the St. Mary´s study, with almost significant trends (p<.1) for two of the remaining three variables. In general therefore the more religious students have lower scores on 1:Literary culture, 2:Low-Brow culture, 3:Travel, 4:Popular culture and C:´Culture", and higher scores on 5:Non-literary culture. With the exception of non-literary culture, there is therefore strong evidence for an antithesis between culture and religion.

Only two of the variables showed significant quadratic trends; 2:Low-brow culture, for which there is a suggestion that the atheists and the regular church-going Christians score more highly than predicted on a linear model; and 4:Popular culture for which regular church-goers have particularly low scores. 1:Literary culture shows a highly significant non-linear, non-quadratic trend, which seems to show that the highest scorers are agnostics and Christians in the middle-range of church-going. C:´Culture´ also shows a non-linear, non-quadratic trend due to the relatively high scores of the same groups, reflecting the fact that 1:Literary Culture is partially contained within C:´Culture.

In summary these data provide support for the hypotheses of Eliot and Russell, that culture and religion are in opposition to one another, at least in what Eliot would call sociological terms.

2. <u>Culture and attitudes.</u> Table 13-1 shows, separately for Birmingham and St. Mary's samples, the correlations between the attitude scales and the culture scales. Considering the two super-ordinate attitude scales, and the general C:'Culture' factor it is clear that the more cultured individuals are more also libertarian and less tough-minded in their attitudes. The correlation of attitudes with C extends to all the first five attitudes which comprise attitudes I and II, the correlation being particularly strong on the 3:Liberalism dimension, although significant on all of the others. High culture scorers were also more sympathetic to 7:Sex education, but showed no correlation with attitudes 6 and 8. Examining the culture scales in more detail in relation to attitudes I and II, all show correlations in the direction expected given the correlation of I and II with C, with the important exception of 5:Non-literary culture, which shows correlations in the opposite direction to that predicted, high scorers being less liberal and more tough-minded.

Table 13-1 does not examine the possibility that culture and attitudes are related non-linearly, and in particular that there may be a quadratic relation, whereby cultured individuals are less extreme in their attitudes than non-cultured individuals. Before asking this question statistically we should examine the scattergrams of the two attitude scales against the culture scale. Figure 13-2 shows attitude I:Libertarianism as a function of C:'Culture', separately for the Birmingham and St. Mary's samples. Although curvilinearity is present this is almost entirely due to change in

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variance of the attitude scale as one passes up the culture scale. Cultured individuals are mostly libertarian and show little variation, whilst individuals with low culture scales apparently have much greater variance, and take on a much wider range of libertarianism values. The significance of the heteroscedasticity is confirmed by Cochran's C test performed after grouping the culture scale into six portions (<-1; -1 to 0; 0 to 1; 1 to 2; 2 to 3; and >3); for the Birmingham sample C=.223, p=.005, and for the St. Mary's study, C=.468, p<.001. Figure 13-2 shows evidence of a significant quadratic term in both the Birmingham study (F(1,986)=17.94, p<.001) and the St. Mary's study (F(1,335)=10.68, p<.005). However these quadratic terms provide no no support for the hypothesis of a U-shaped relation between liberatarianism and culture, but rather it just demonstrates mild curvilinearity.

Figure 13-3 shows scattergrams of attitude II:Tough-mindedness in relation to C:'Culture'. In these plots there is once more evidence of heteroscedasticity (Birmignham study, Cochran's C=.257, p<.001; St. Mary's study, C=.314, p=0.002), and also of a significant quadratic trend in the Birmingham study (F(1,986)=30.76), p<.001), although not in the St. Mary's study (F(1,335)=2.64, p=0.10), although as with figure 13-2 the suggestion is of mild curvilinearity rather than a frank U-shaped distribution. In conclusion, there is no evidence that culture shows a U-shaped relation to attitudes, such that those with more extreme attitude scores differ in culture from those with more middling views; rather the more cultured are more libertarian and less tough-minded.

3. Attitudes and Religion. Figure 13-4a and b shows the mean score of each of the religious groupings on the eight orthogonal attitude scales, and the two super-ordinate attitude scales, significance levels being shown in table 13-2. Four of the attitude scales show a strong linear relation with religion, the most religious individuals having lower scores on 1:Vital libertarianism, 3:Liberalism, 4:Personal libertarianism, and I:Libertarianism. In the particular case of 1:Vital Libertarianism there is a strong non-linearity, the regular church-goers having particularly low scores. 8:General practice has a weak relation in both studies, which is only significant in the Birmingham study, Christians being more in favour of general practice. Three of the variables show a highly significant quadratic trend in the absence of a linear trend, 2:Social tough-mindedness, 5:Economic Conservatism, and II:Tough-mindedness having higher scores in Christians who attend church irregularly than in either Atheists or regular church-going Christians. Several variables show non-linear, non-quadratic trends, but none of these are in the absence of linear or quadratic trends, and are thus difficult to interpret.

In summary these data provide support for the suggestions of several writers that religious individuals are more conservative on the libertarianism scale (broadly equivalent to Eysenck's Liberalism-Conservatism dimension), and that tough-mindedness is particularly prevalent in those whom Argyle described as "not genuinely devout ... but ... conventionally religious" (see above).

Causal relations between attitudes, culture and religion.

Given that attitudes, culture and religion show clear inter-relations one with another, the question of greatest interest concerns the causal relations between them; do changes in attitude cause subsequent changes in religion, or do changes in religion subsequently cause changes in attitude? And similarly for relations with culture. These questions may, in principle, be answered by considering cross-lagged correlations between variables assessed at different times. Given two variables, A and B, measured at times 1 and 2, is the correlation higher between A1 and B2 than between A2 and B1? If so, then A is causing B rather than vice-versa (Kenny, 1979).

Questions of causation may be answered in the Birmingham study by considering those subjects who completed the questionnaires on two separate occasions, separated by an interval of from 1 to 4 years. These subjects were considered in four separate groups, according to the follow-up interval (the groups being considered separately since differences between groups in mean score by year would otherwise have masked more interesting differences). For each group the correlations between attitude, culture and religion on the two occasions were calculated, and the weighted mean of these correlations then found (the correlations being transformed to Fisher's Z-scores, weighted by the sample size, averaged, and then back-transformed to correlations). The ten attitude scores were considered separately in relation to the religious grouping, and the general C:´Culture´ factor, and the correlations are shown in figures 13-5 to 13-14. Differences between synchronous correlations and between cross-lagged correlations were tested for significance using the Pearson-Filon test for correlated correlations (Peters and VanVoorhis, 1940).

1. <u>Culture</u> <u>and</u> <u>religion.</u> This relation is obviously identical in all of figures 13-5 to 13-14 and is included in each in order to facilitate inspection of relationships. In the restricted sample used for the longitudinal study there is only a small negative correlation between religion and culture, although it is in the predicted direction. Scrutiny of the cross-correlations reveals no significant differences, and we can conclude that neither culture causes religion nor vice-versa. Any correlational relationship must be determined by a third variable.

2. <u>Culture</u> <u>and</u> <u>attitudes.</u> Consider firstly the two super-ordinate attitudes, shown in figures 13-13 and 13-14. Attitude I:Libertarianism shows a positive correlation with culture, and this correlation is significantly higher on the second occasion than the first. However examination of the cross-correlations reveals no significant difference between them, suggesting the absence of a causal relation.

    Attitude II:Tough-mindedness shows a negative correlation between tough-mindedness and culture. The cross-lagged correlations are significantly different ($p < .05$) and the direction of the difference suggests that changes in attitude cause subsequent changes in culture, rather than vice-versa. If we consider attitudes 2, 3 and 5 (Figures 13-6, 13-7, and 13-8) in their relation to culture, then although none shows evidence of significant differences in cross-lagged correlations in its own right, attitude 2:Social toughmindedness is the only one of those three attitudes contributing to II which shows a trend towards significance ($z = 1.416$), suggesting that this is the best candidate for the constituent of II:Tough-mindedness which is modifying culture.

Attitudes 6,7 and 8 are independent of attitudes I and II and must be considered separately. Attitude 6:Medical control shows a difference in cross-correlations that although not quite significant (z=-1.57) is suggestive of changes in attitudes causing changes in culture. Attitudes 7 and 8 show little evidence of differences in cross-correlations.

3. Attitudes and Religion. Consider once more the two super-ordinate attitudes in figures 13-13 and 13-14. Attitude I:Libertarianism shows negative correlations with religious group. The cross-lagged correlation shows a significant difference (P<.05), the implication being that changes in religion cause subsequent changes in attitude, rather than vice-versa. In addition the synchronous correlation is also significantly higher on the second occasion, suggesting that the relationship is becoming of greater importance. Attitude I:Libertarianism is primarily composed of attitudes 1, 3 and 4. Examination of these components in relation to religion shows that attitude 1:Vital Libertarianism shows a highly significant difference in cross-lagged correlations (P<.001), in the same direction as that between I:Libertarianism and religion. Attitudes 3 and 4 show no trend towards different cross-correlations. The major component of change in I:Libertarianism is therefore 1:Vital Libertarianism.

Attitude II:Tough-mindedness shows no correlation with religion, and none of its components, attitudes 2, 3 and 5, shows evidence of differences in cross-lagged correlations with religion. We may conclude that there are no causal relations between religion and tough-mindedness.
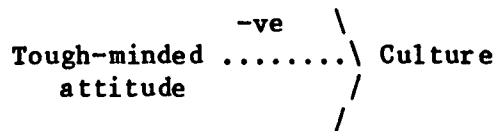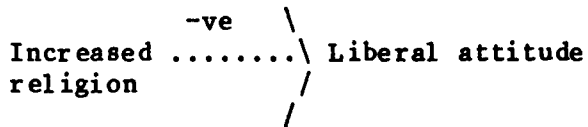
388

Attitudes 6:Medical control, 7:Sex Education, and 8:General
practice show no correlations with attitudes I and II, and must be
considered separately in relation to religion. Figure 13-10 shows no
evidence of an effect of religion upon 6:medical control. Figure
13-11 shows a difference between cross-lagged correlations which
although not significant (Z=1.433) is suggestive that changes in
attitude 7:Sex education are caused by changes in religion. With a
larger sample the difference might attain significance. Attitude
8:General practice shows an interesting pattern in that the sign of
the synchronous correlations changes, and this difference in
synchronous correlations is significant (P<.01); the more religious
are initially less sympathetic to general practice but subsequently
become more sympathetic. Examination of the cross-correlations
suggests that although none of the differences are significant that
changes in religion might be causing changes in attitude, rather than
vice-versa.

Discussion.

Analysis of the data from Birmingham and St. Mary's has confirmed
most of the correlational predictions of previous theorists; the
religious are generally less-cultured, and have less liberal attitudes
(and show a curvilinear relation to tough-mindedness, as other workers
have described); individuals with higher culture scores tend to be more
liberal and less tough-minded. However a causal analysis of change in
these variables finds a pattern of effects which is different from any of
those thus far described, the effects being different for the two major
dimensions of attitude, liberalism and tough-mindedness. Decrease in
religion causes an increase in liberal attitudes, as traditional

theological views would hold, and in opposition to Freudian or Liberal theories which propose the reverse direction of causation. However religion has no influence upon culture (in opposition to theological, Liberal and Freudian positions). Tough-minded attitudes are not influenced at all by religion, in opposition to all of the theories. Culture does not determine tough-minded attitudes (in opposition to theological and Liberal views) but rather it is determined by them, as Freudian theory would suggest to be the case.

We may summarise the causal relations in a design which is substantially different from the three presented earlier:-

```
                -ve     \
     Increased ........\ Liberal attitude
     religion           /
                        /



                        -ve     \
        Tough-minded ........\ Culture
          attitude           /
                             /
```

It should be noted that there is no evidence at all for liberal attitudes causing tough-minded attitudes, or vice-versa, the two dimensions being theoretically and empirically orthogonally.

There is little evidence for Steiner's suggestion that culture may precipitate more extreme political views, although an intriguing exception is the finding that high scorers on 5:Non-literary culture (which particularly includes musical activity) were less liberal and more tough-minded, a result in the opposite direction to that of culture in general, and which might be related to Steiner's amazement and despair that Nazi exterminators could also be proficient performers of Bach or Mozart.

Figure 13-1. Shows the mean score of individuals in each of the seven religious groups on the five orthogonal culture scales, and on the general 'Culture' factor. The Birmingham and St. Mary's samples are shown separately. Sample sizes for each group are shown at the top of the first column; it should be noted that the St. Mary's group of Christians who are non-church-attenders contains only eight individuals and should be interpreted with care. Significance levels for linear and quadratic trends are shown in table 13-2. Abbreviations: At: atheist; Ag: agnostic; C1: Christian never attending church; C2: Christian, attending church on festive occasions only; C3: Christian, attending church 3-10x/year; C4: Christian, attending church about once a month; C5: Christian, attending church every week.
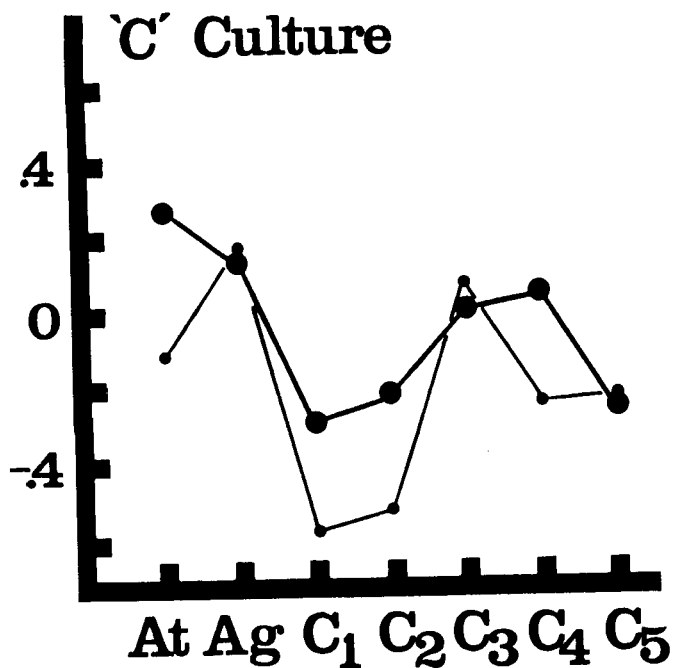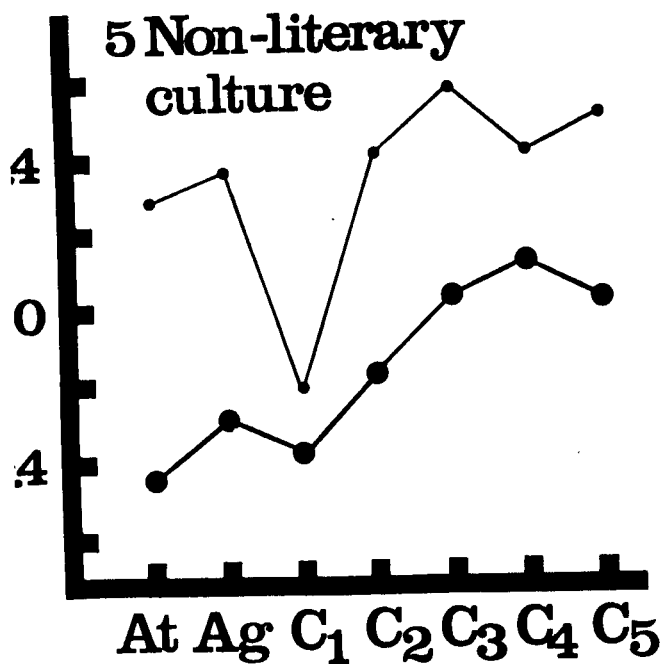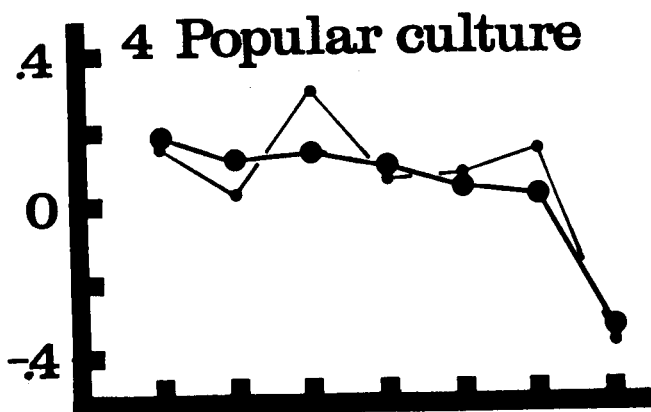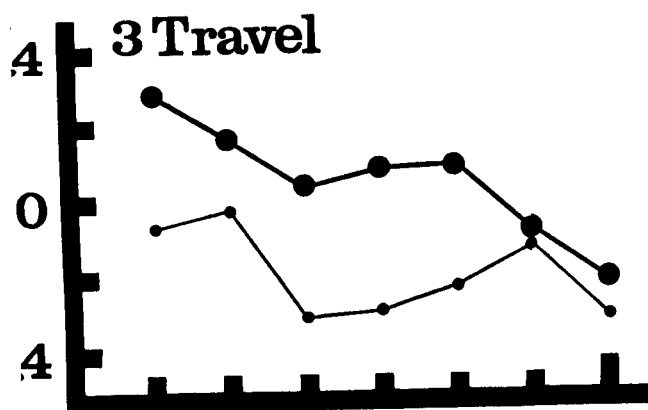
1 Literary culture

2 Low-brow culture

3 Travel

4 Popular culture

5 Non-literary culture

`C´ Culture

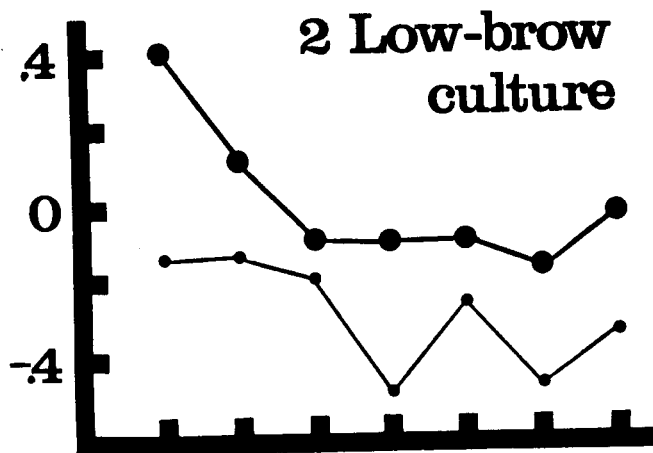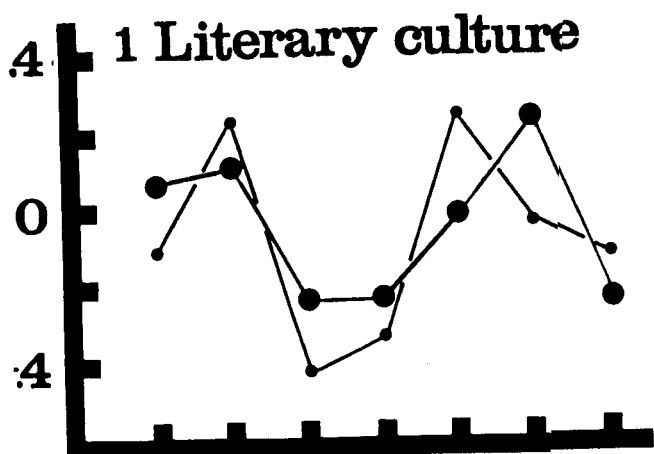At Ag C_1 C_2 C_3 C_4 C_5

At Ag C_1 C_2 C_3 C_4 C_5

ure 13-2: Shows scattergrams of C:'Culture' (across page) with I:Libertarianism
wn page).   An asterisk indicates a single subject, and an integer between 2 and 9
icates that many subjects at the same point on the graph.

Birmingham

```
 3.00  +
        I
 2.00  +                                                      2
        I                        *2   **  **      **       2
        I              **    2  *22        ***2  2   *** 2**
 1.00  +        **  *  22*3**225322 *222  42**42 *22 3** *22 2
        I          *  2*4252*34*2 3  *2**2*2*3**              2
itude            2 *324767744546 53*2222*3
I       I        **227555546 2 3434 24 2*2**2
 0.00  +     ***23533*68346334*42 2*         **
        I   42 *2*25*4*43222****  2* *      2*
        I    333*3*236*23432****  2*
        I     3247252332 223 ***
-1.00  +      2*2 2*2*24*** 2    *2*2
        I      24  3**32   *2*22 *
        I     2 *23 *32**3
        I       4        *2   *2
-2.00  +    **  ***    22 *2 * **
        I       ** **   *     *
        I     * * * *   *
-3.00  +
        I
        +--+----+----+----+----+----+----+----+----+----+----+----+----+
       -2.00      -1.00      0.00      1.00      2.00      3.00      4.00      5.00
                               C:'Culture'
```

St. Mary's

```
 2.00  +
        I        *            *
        I           2*    **
 1.00  +      *  *2  **  **  ***
        I    3   ** *3*23 *  2 2  2* 2
tude        *2 *223224*44**24222
 0.00  +  2* *3**22332 2* 2*    2
        I  *2*23*4*3**232***3
        I  *43*4224**4  32*3
        I   22332* 332222 **2
-1.00  +  2*2***2*23***2*  2
        I  *2 *   2   ***2  *
        I  *4*   2  **  **2
        I    *   ***
-2.00  +   *
        I        2
-3.00  +     *     *
        +--+----+----+----+----+----+----+----+----+----+----+----+----+
       -2.00      -1.00      0.00      1.00      2.00      3.00      4.00      5.00
                               C:'Culture'
```
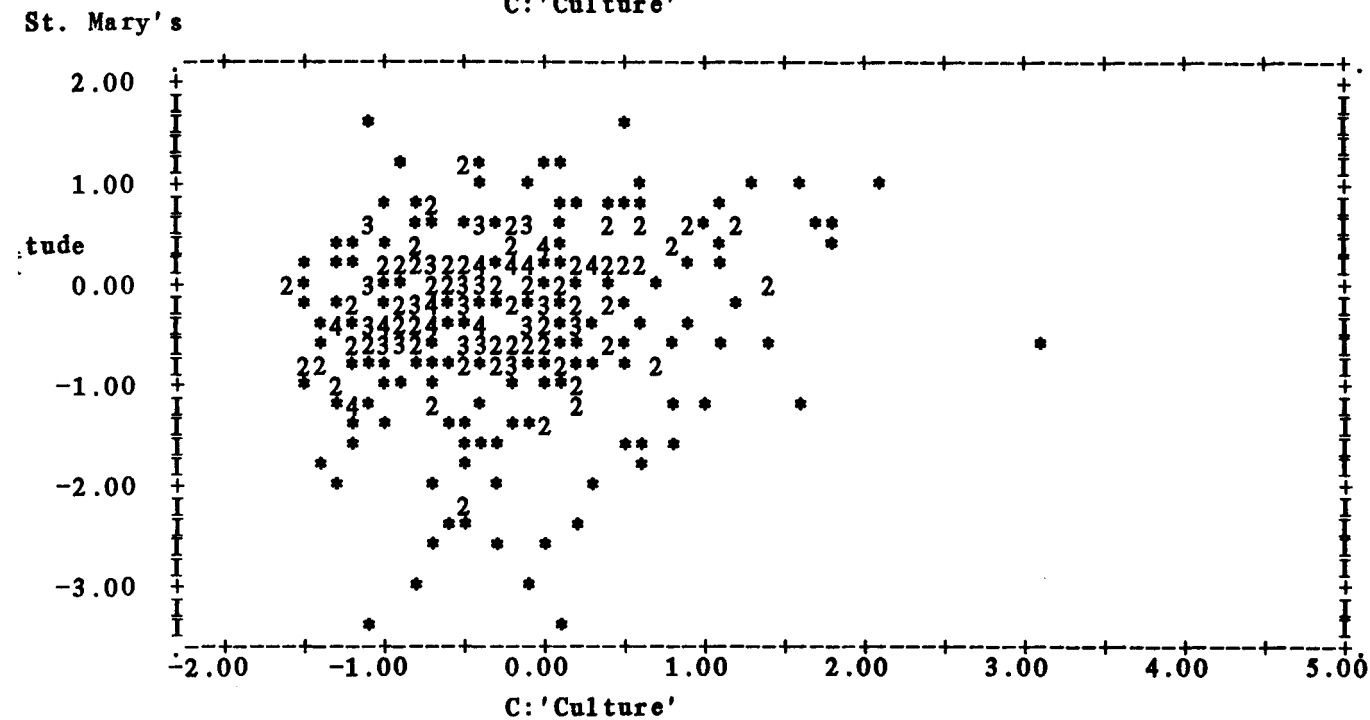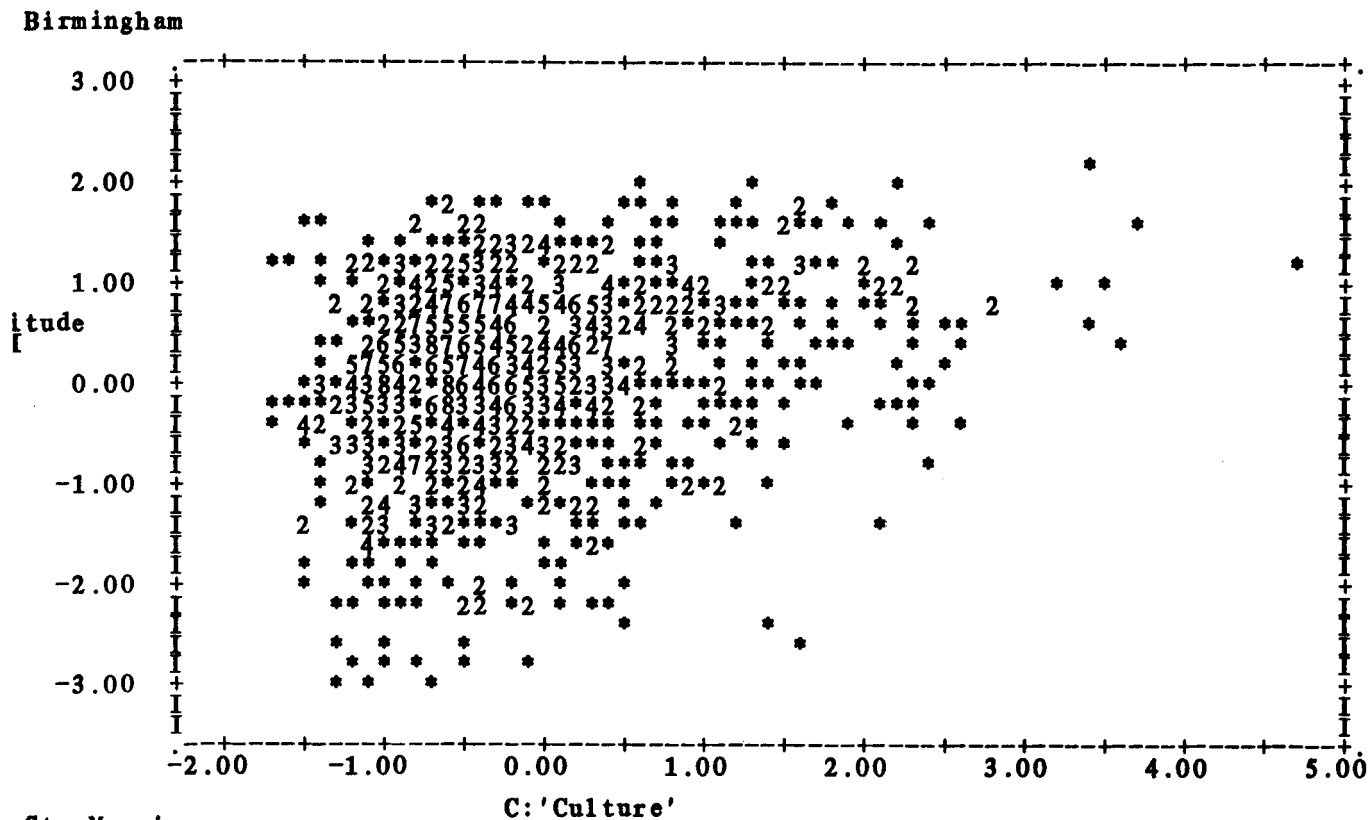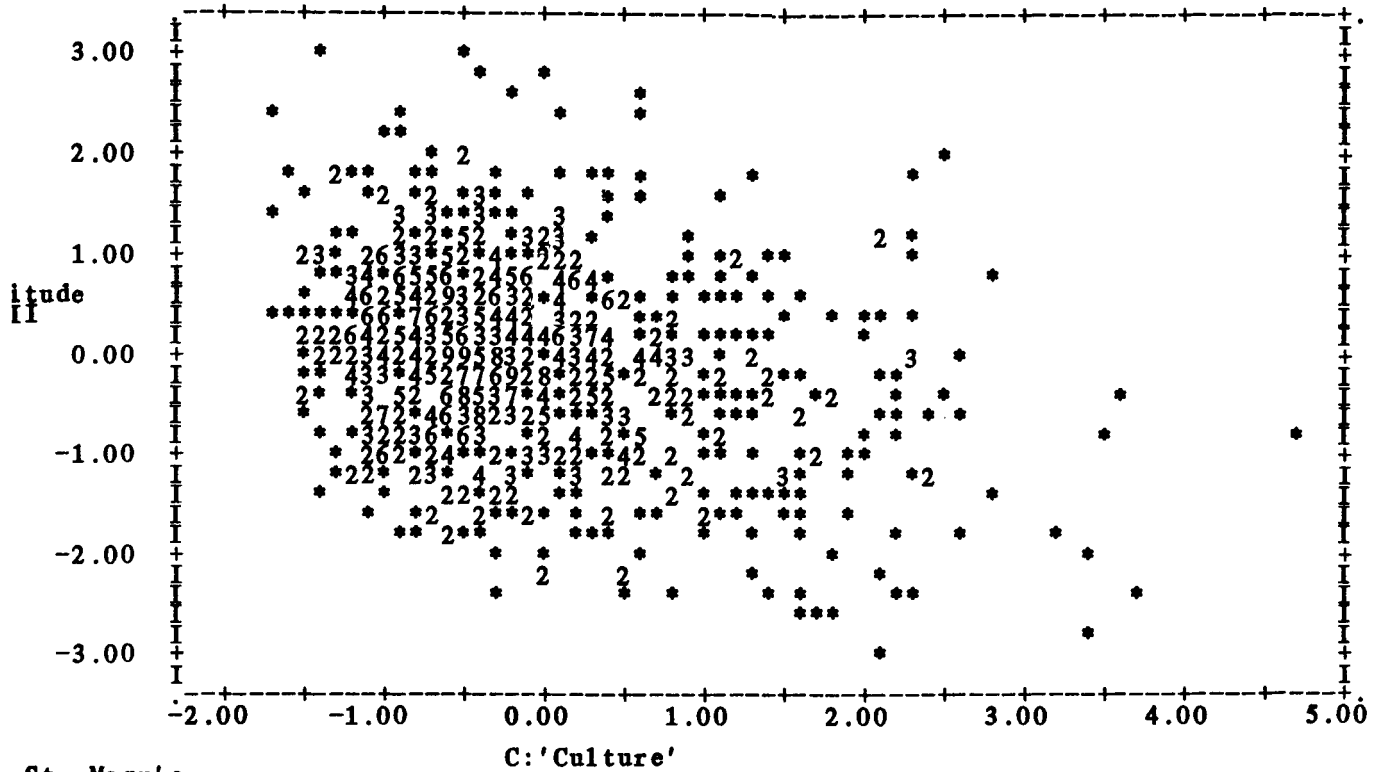
393

ure 13-3: Shows scattergrams of C:'Culture' (across page) with II: Tough-mindedness
wn page).   An asterisk indicates a single subject, and an integer between 2 and 9
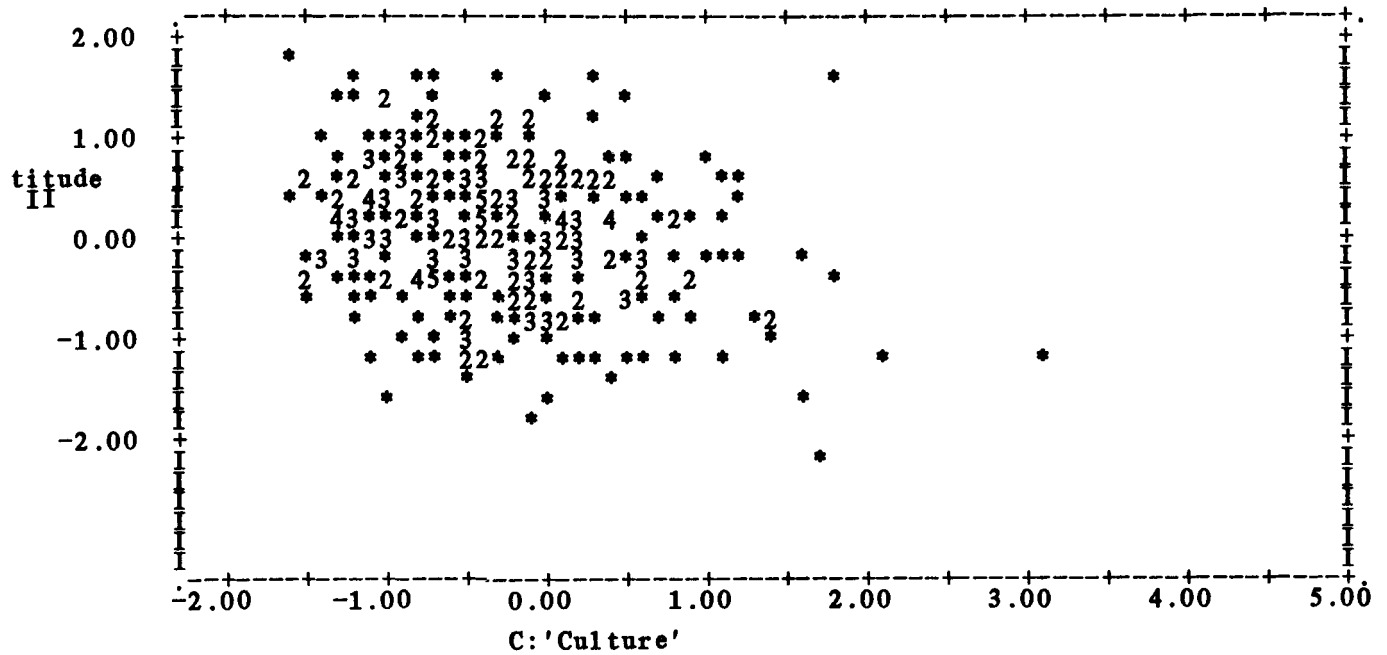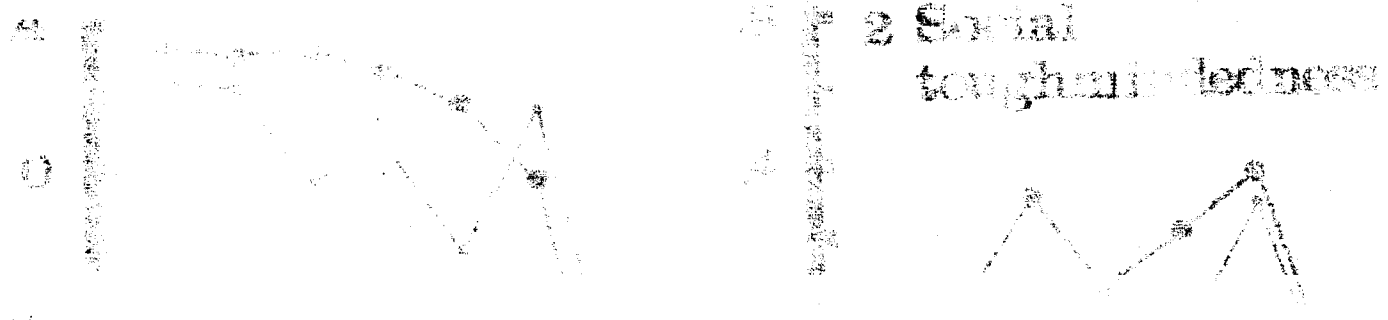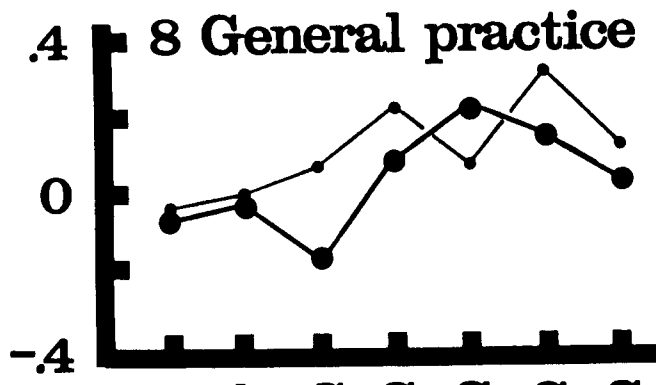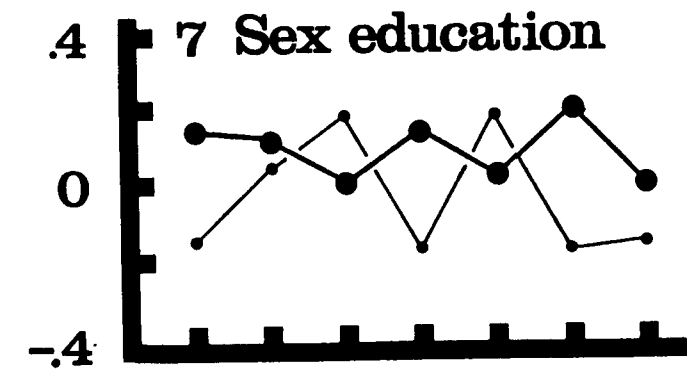icates that many subjects at the same point on the graph.

Birmingham

II itude

C:'Culture'

St. Mary's

II titude

C:'Culture'

Figure 13-4. Shows the mean score of individuals in each of the seven religious groups (abscissa) on the eight orthogonal attitude scales (figure 13-4a), and on the two super-ordinate attitude factors (figure 13-4b) (ordinates). The Birmingham and St. Mary's samples are shown separately, large dots indicating the Birmingham sample and small dots the St. Mary's sample. Sample sizes for each group are shown at the top of Figure 13-4b. It should be noted that the St. Mary's group of Christians who are non-church-attenders contains only eight individuals and should be interpreted with care. Significance levels for linear and quadratic trends are shown in table 13-2. Abbreviations: At: atheist; Ag: agnostic; C1: Christian never attending church; C2: Christian, attending church on festive occasions only; C3: Christian, attending church 3-10x/year; C4: Christian, attending church about once a month; C5: Christian, attending church every week.

1 Vital libertarianism

.4, 0, -.4, -.8

2 Social toughmindedness

.8, .4, 0, -.4

3 Liberalism

.4, 0, -.4, -.8

4 Personal libertarianism

.4, 0, -.4

5 Economic conservatism

.4, 0, -.4

6 Medical control

.4, 0

7 Sex education

.4, 0, -.4

8 General practice

.4, 0, -.4
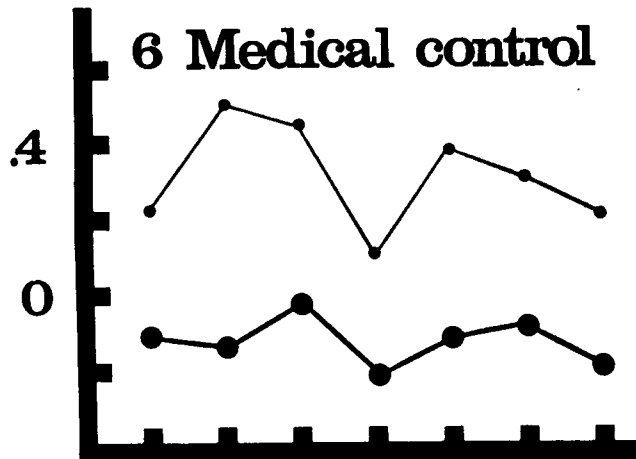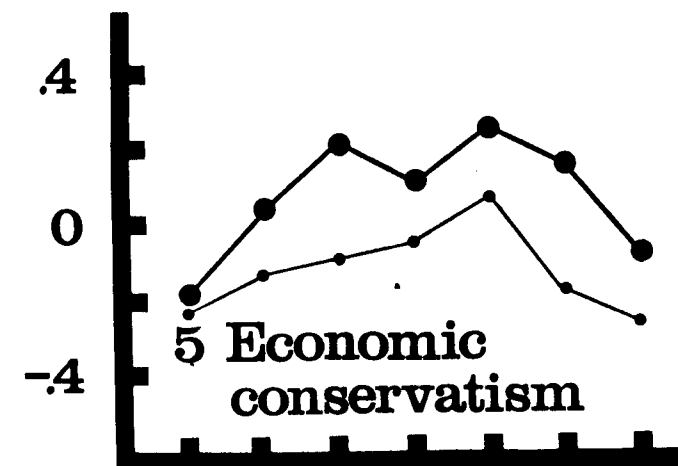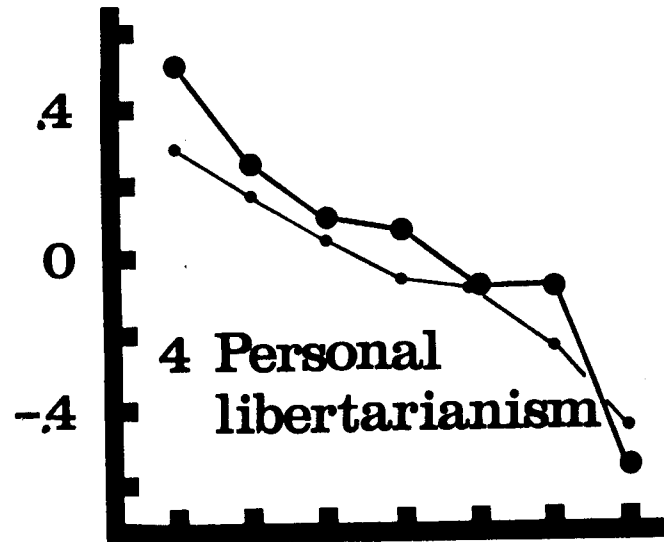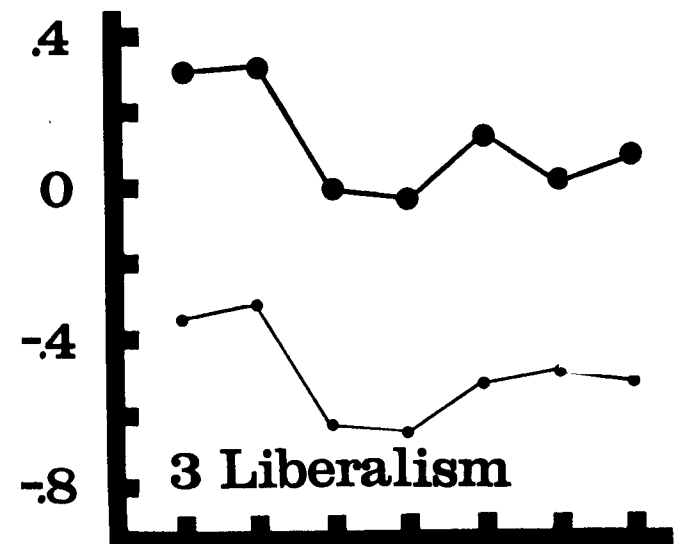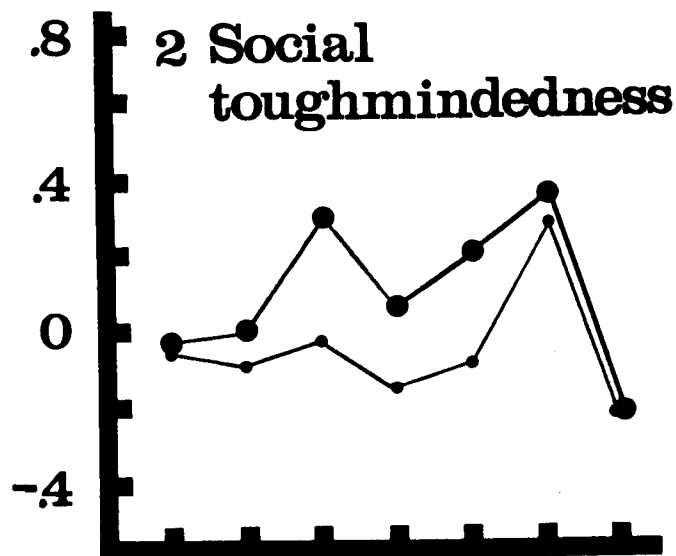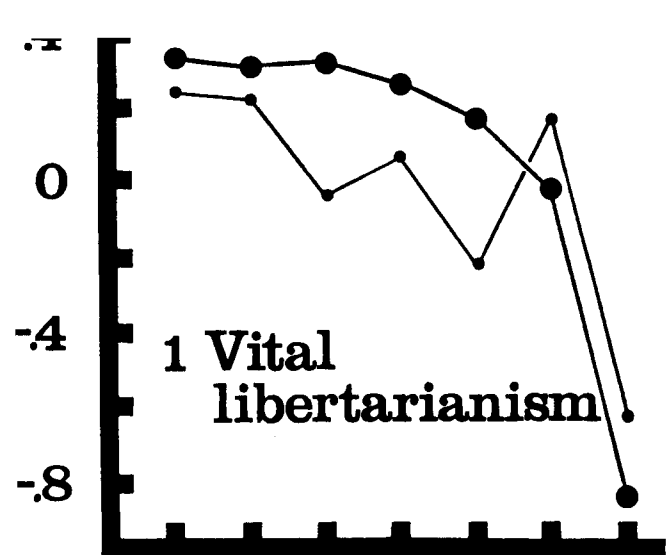
| 123 | 225 | 40 | 84 | 123 | 82 | 210 | Birmingham ● |
| 33 | 55 | 8 | 34 | 31 | 39 | 104 | St. Mary's · |

.4

0

-.4

-.8

I Libertarianism

.4

0

-.4

II Toughmindedness
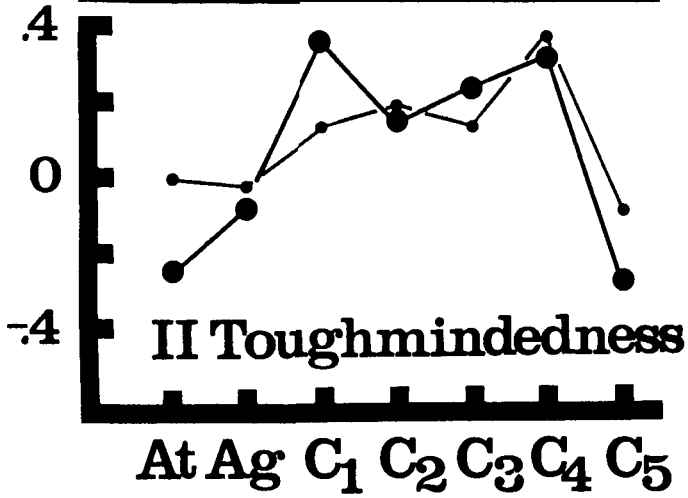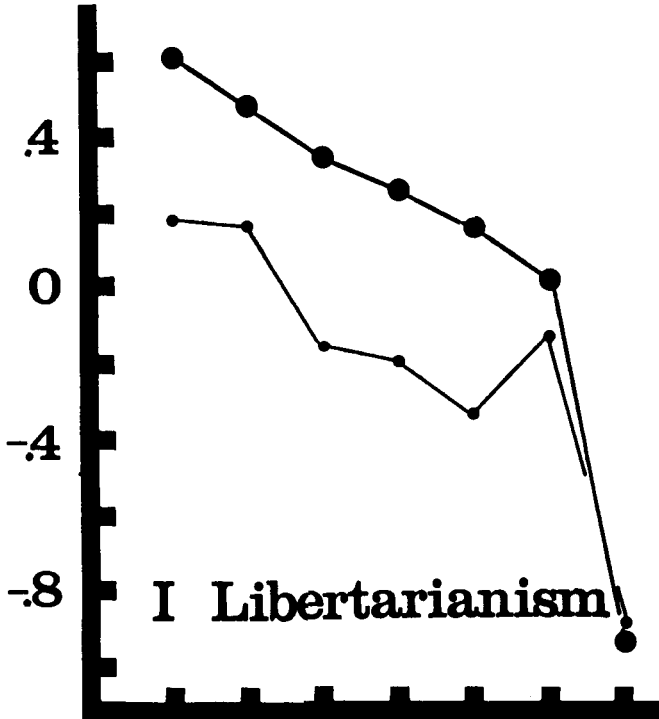
At Ag C_1 C_2 C_3 C_4 C_5

Figures 13-5 to 13-14. Show the auto-, cross-lagged and synchronous correlations between each of the attitudinal dimensions, religion and the general C:´Culture´ factor. Sample sizes are 153 for correlations involving religion and 190 for those not involving religion.

Figure 15-5.

Auto-, synchronous and cross-lagged correlations

Attitude-1 : Vital libertarianism

Significance testing
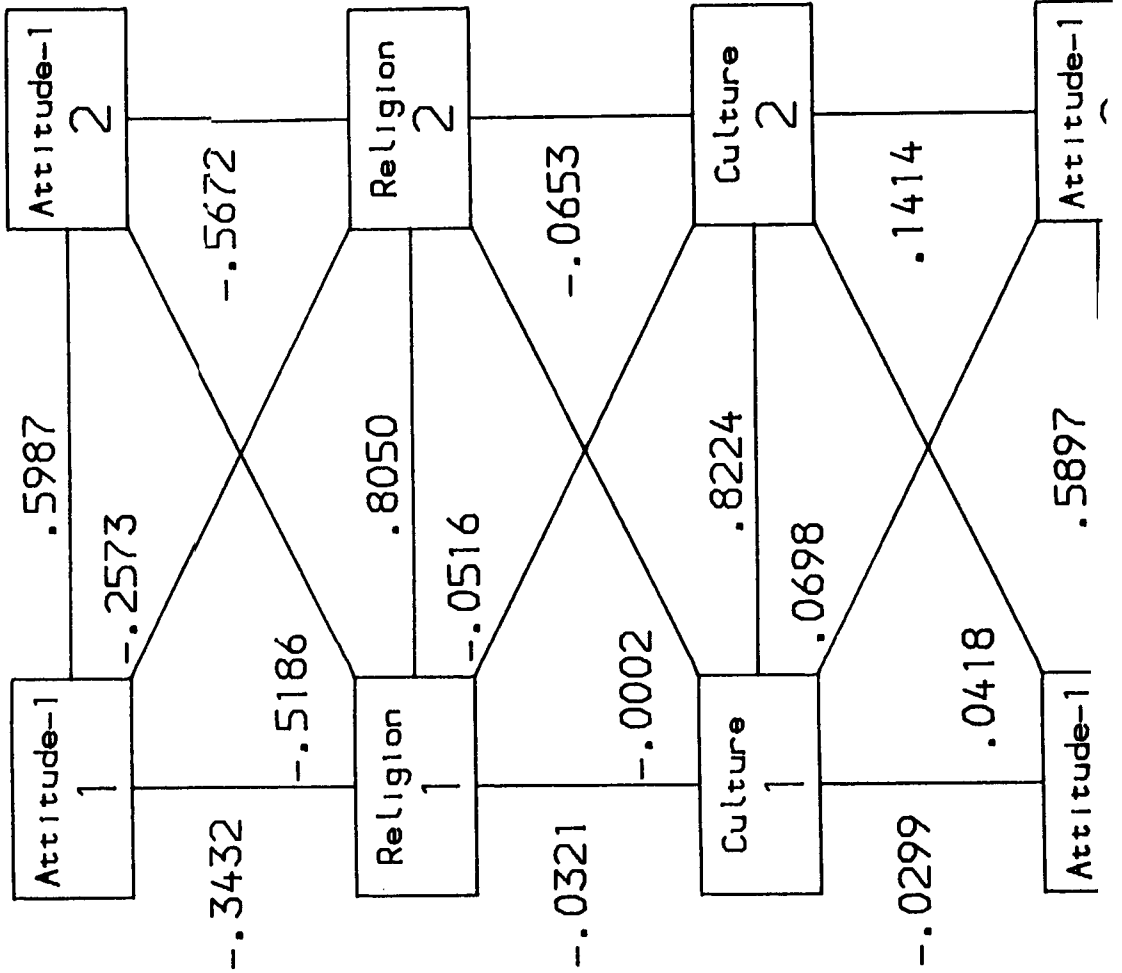
	Synchronous	Cross-lagged
	z= 3.252 **	z= 3.418 ***
	z= 0.501 NS	z=-0.773 NS
	z=-2.357 *	z= .379 NS

Figure 15-6.

Auto-, synchronous and cross-lagged correlations

Attitude-2 : Social tough-mindedness.

Significance testing

	Synchronous	Cross-lagged
	z= 0.567 NS	z=-1.206 NS
	z= 0.501 NS	z=-0.773 NS
	z=-0.923 NS	z= 1.416 NS


```
Attitude-2        -.0183        Attitude-2
   2                               1

        .6229              -.0310        .0662        .0276

Religion          -.0653        Religion
   2                               1
        .8050              -.0516        -.0002        -.0321

Culture           -.0379        Culture
   2                               1
        .8224              .0322         -.0728        -.0816

Attitude-1                      Attitude-1
   2                               1
        .6229
```

48
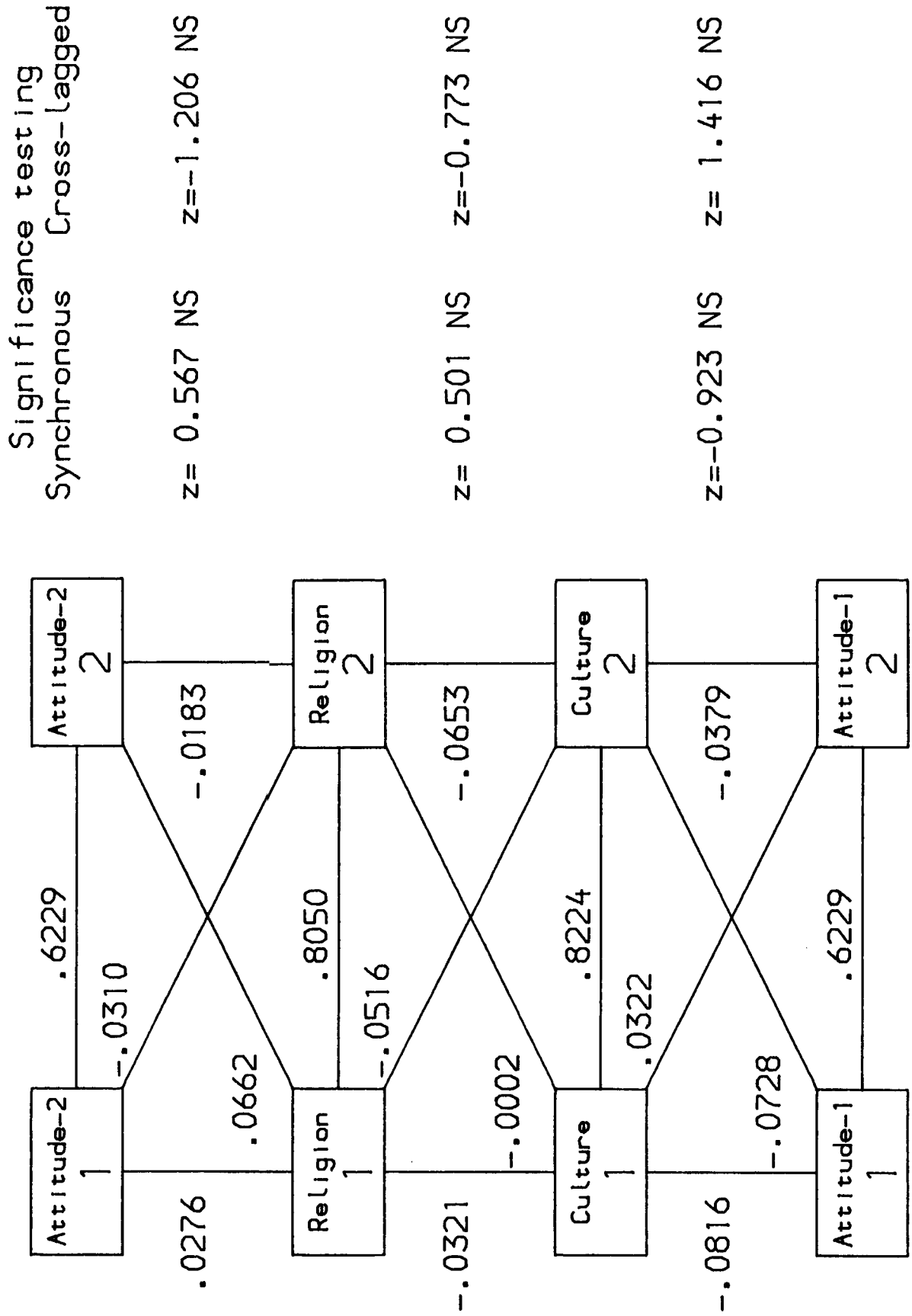
Figure 15-7.

Auto-, synchronous and cross-lagged correlations

Attitude-3 : Liberalism

Significance testing
Synchronous   Cross-lagged

z= 0.032 NS   z= 0.186 NS

z= 0.501 NS   z=-0.773 NS

z= 0.297 NS   z= 0.171 NS

Figure 15-8.

Auto-, synchronous and cross-lagged correlations

Attitude-4 : Personal libertarianism

Significance testing
Synchronous   Cross-lagged

z=-0.431 NS   z=-1.004 NS

z= 0.501 NS   z=-0.773 NS

z=-1.345 NS   z=-0.573 NS

Attitude-4
2

Religion
2

Culture
2

Attitude-1

Attitude-4
1

Religion
1

Culture
1

Attitude-1

.7298

-.4065

-.3376

-.4200

-.3923

.8050

-.0516

-.0321

-.0002

-.0653

.8224

.0820

.0279

.1187

.1148

.7298

402

Figure 15-9.

Auto-, synchronous and cross-lagged correlations

Attitude-5 : Economic conservatism

Significance testing

	Synchronous	Cross-lagged
	z=-0.993 NS	z=-0.779 NS
	z= 0.501 NS	z=-0.773 NS
	z= 0.373 NS	z= 0.500 NS

Attitude-5 2 — .0739 — Religion 2 — -.0653 — Culture 2 — -.0793 — Attitude-1 2

.6409   .8050   .8224   .6409

-.0013   -.0516   -.0290   -.0643

.0606   -.0002

Attitude-5 1 — Religion 1 — Culture 1 — Attitude-1 1

-.0049   -.0321   -.0531

Figure 15-10.

Auto-, synchronous and cross-lagged correlations

Attitude-6 : Medical control

Significance testing

	Synchronous	Cross-lagged
	z= 0.894 NS	z=-1.184 NS
	z= 0.501 NS	z=-0.773 NS
	z=-1.192 NS	z=-1.570 NS

Attitude-6 2

-.1607

Religion 2

-.0653

Culture 2

.1513

Attitude-1 2

.4653

-.1528

-.0514

.8050

-.0516

-.0002

.8224

.0131

.1394

.4653

Attitude-6 1

-.0807

Religion 1

-.0321

Culture 1

.0559

Attitude-1 1

404

Figure 15-11.

Auto-, synchronous and cross-lagged correlations

Attitude-7 : Sex education

Significance testing

Synchronous   Cross-lagged

z= 0.551 NS   z= 1.433 NS

z= 0.501 NS   z=-0.773 NS

z=-1.298 NS   z= 0.945 NS

	Attitude-7 2	Religion 2	Culture 2	Attitude-1 2
Attitude-7 1	.4396 / -.0415	-.1223		
Religion 1	-.1715	.8050 / -.0516	-.0653	
Culture 1		-.0002	.8224 / .0949	.1350
Attitude-1 1			.0176	.4396

-.0719

-.0321

.0296
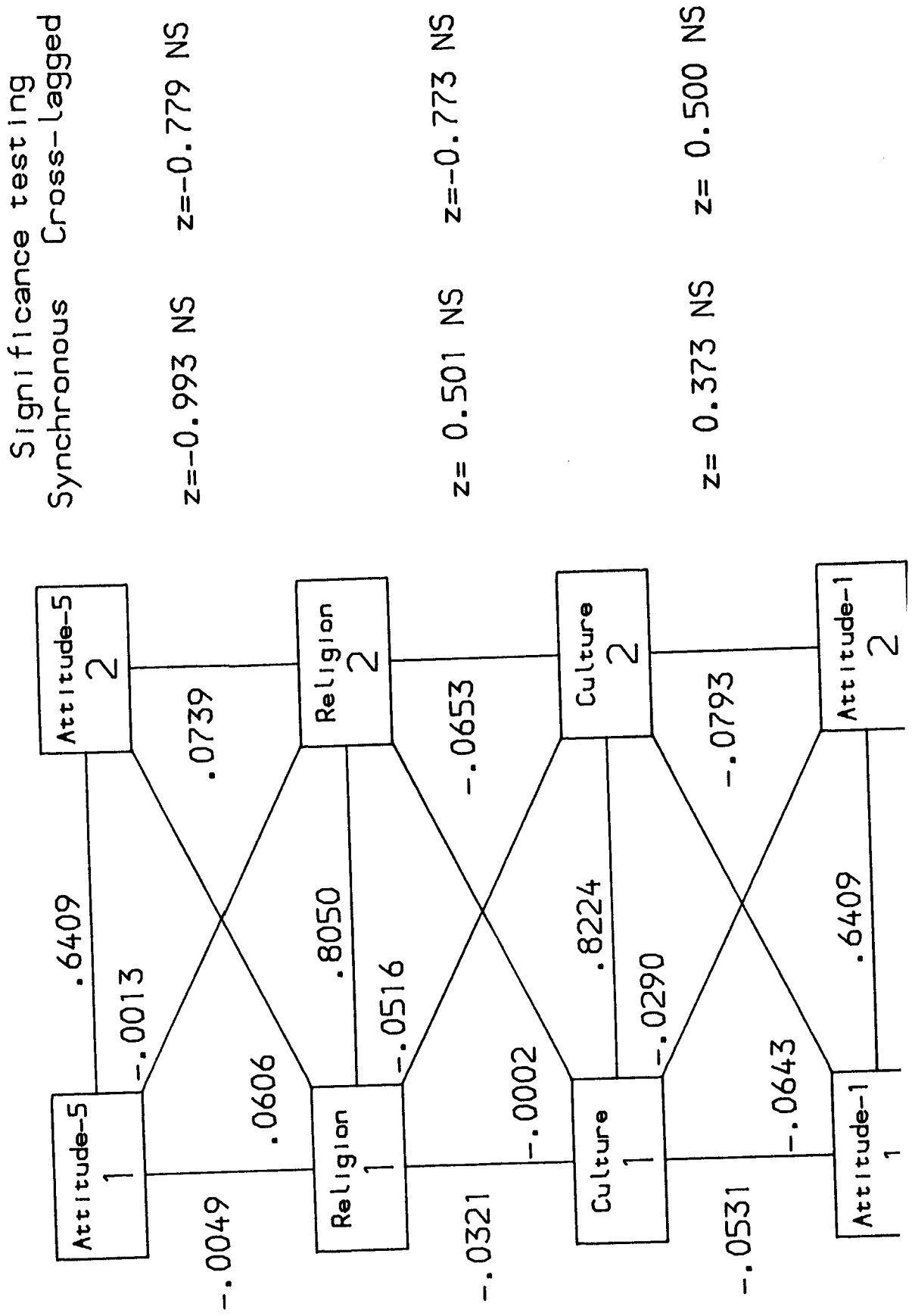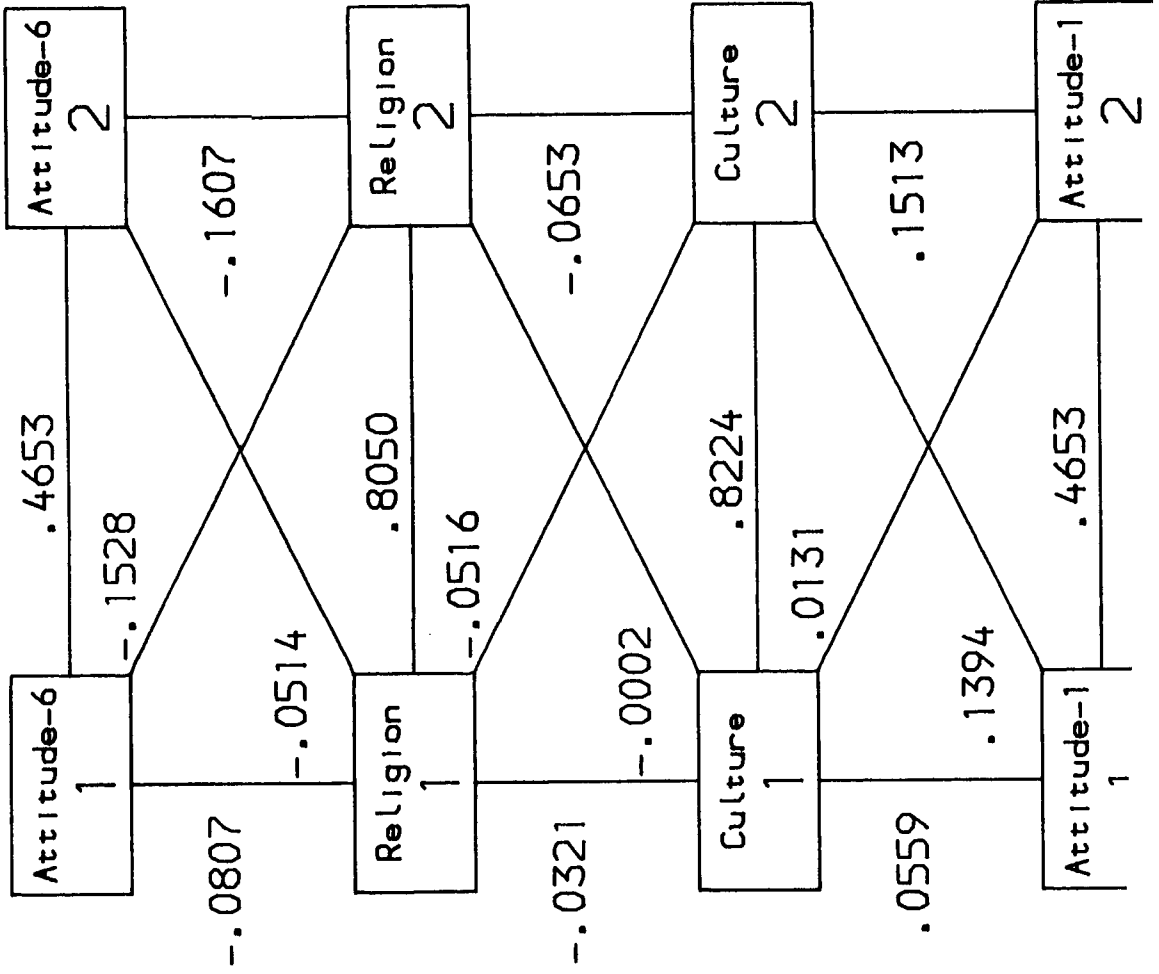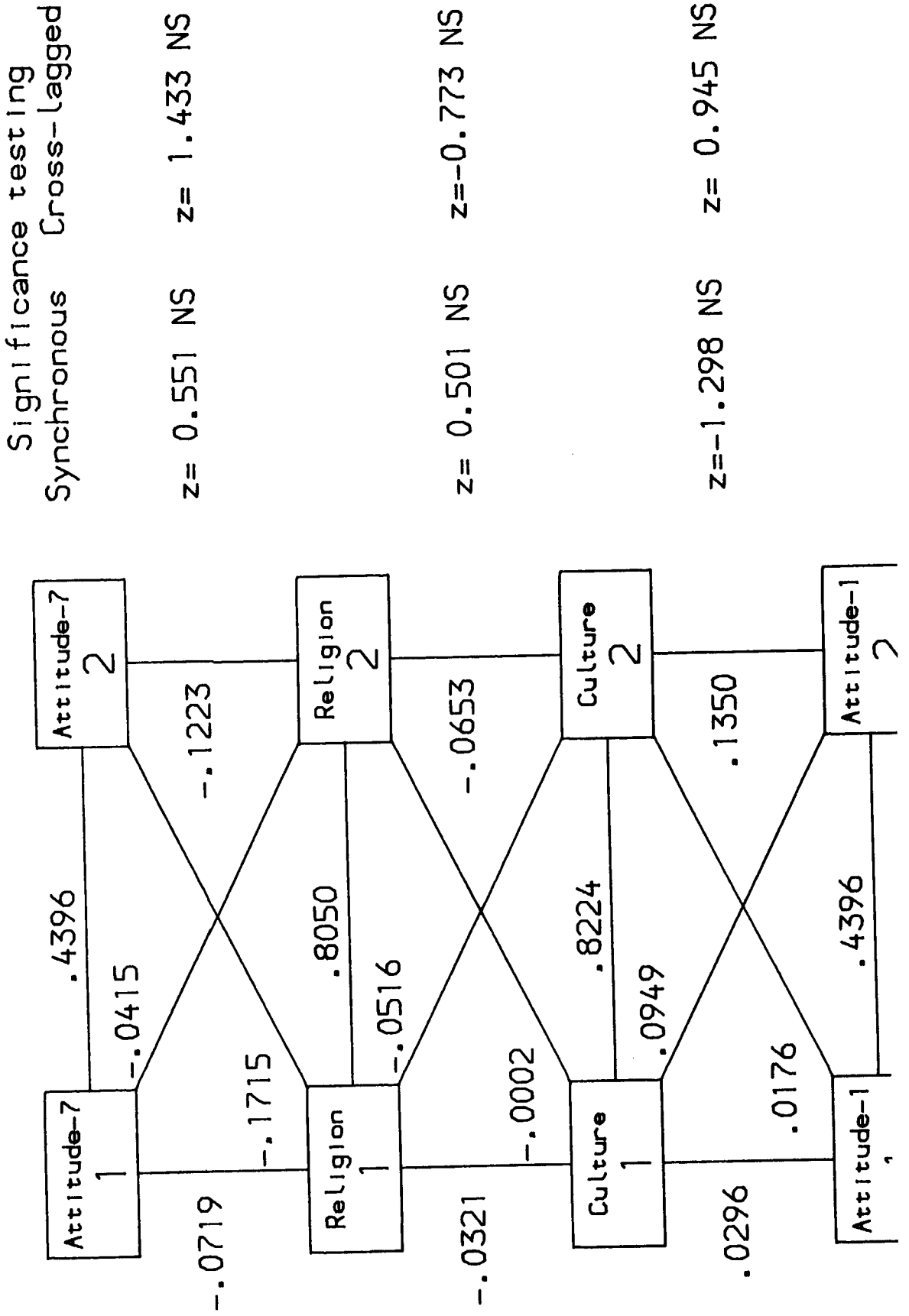
Figure 15-12.

Auto-, synchronous and cross-lagged correlations

Attitude-8 : General Practice
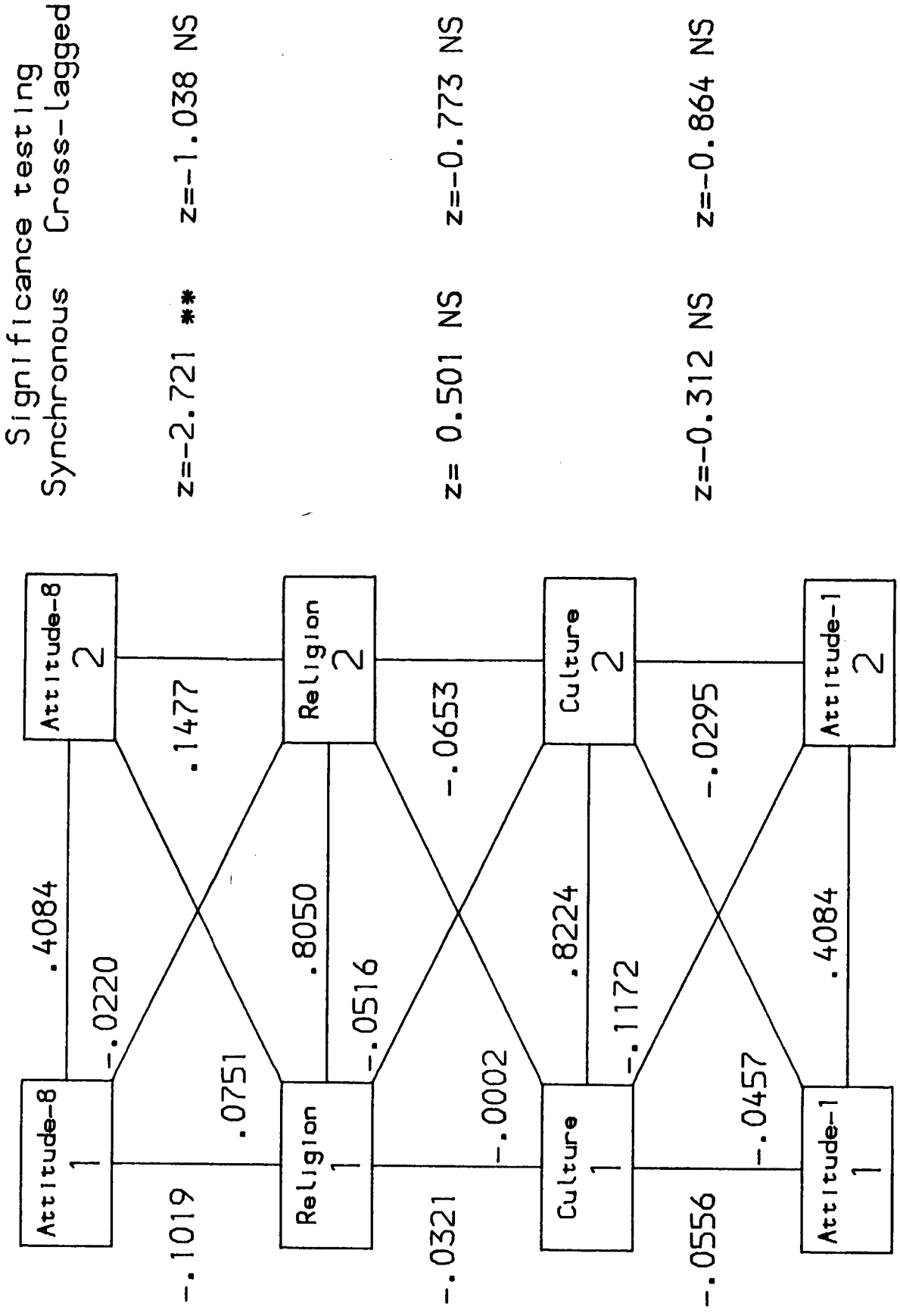
Significance testing
Synchronous   Cross-lagged

z=-2.721 **   z=-1.038 NS

z= 0.501 NS   z=-0.773 NS

z=-0.312 NS   z=-0.864 NS

| Attitude-8 2 | Religion 2 | Culture 2 | Attitude-1 2 |

.1477   -.0653   -.0295

.4084   .8050   .8224   .4084

-.0220   -.0516   -.1172   -.0457

.0751   -.0002

| Attitude-8 1 | Religion 1 | Culture 1 | Attitude-1 1 |

-.1019   -.0321   -.0556

Figure 15-15.

Auto-, synchronous and cross-lagged correlations
Attitude-I : Libertarianism

Significance testing

	Synchronous	Cross-lagged
	z= 2.241 *	z= 2.240 *
	z= 0.501 NS	z=-0.773 NS
	z=-2.546 *	z= 0.054 NS

407
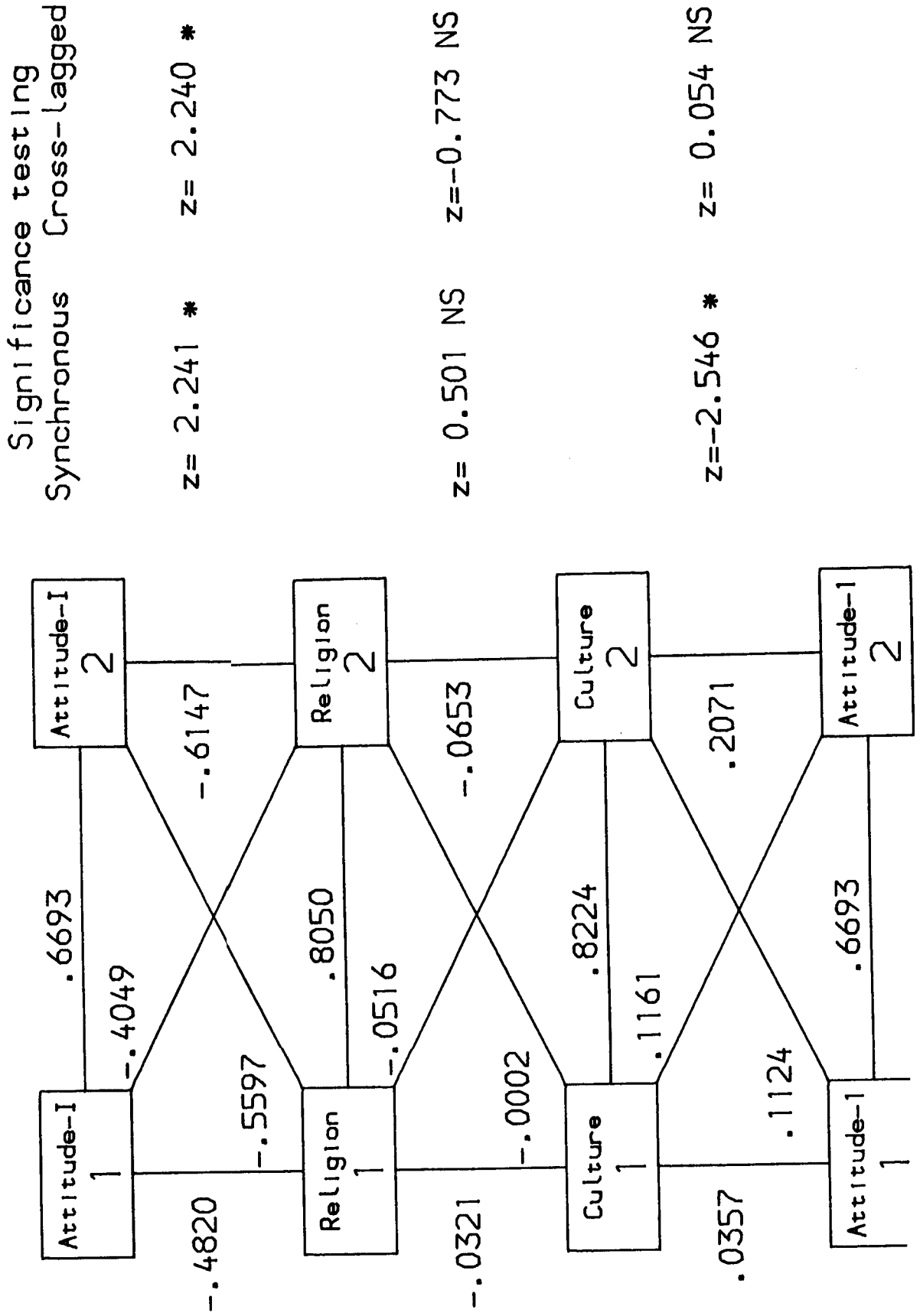
Figure 13-14.

Auto-, synchronous and cross-lagged correlations

Attitude-II : Tough-mindedness

Significance testing

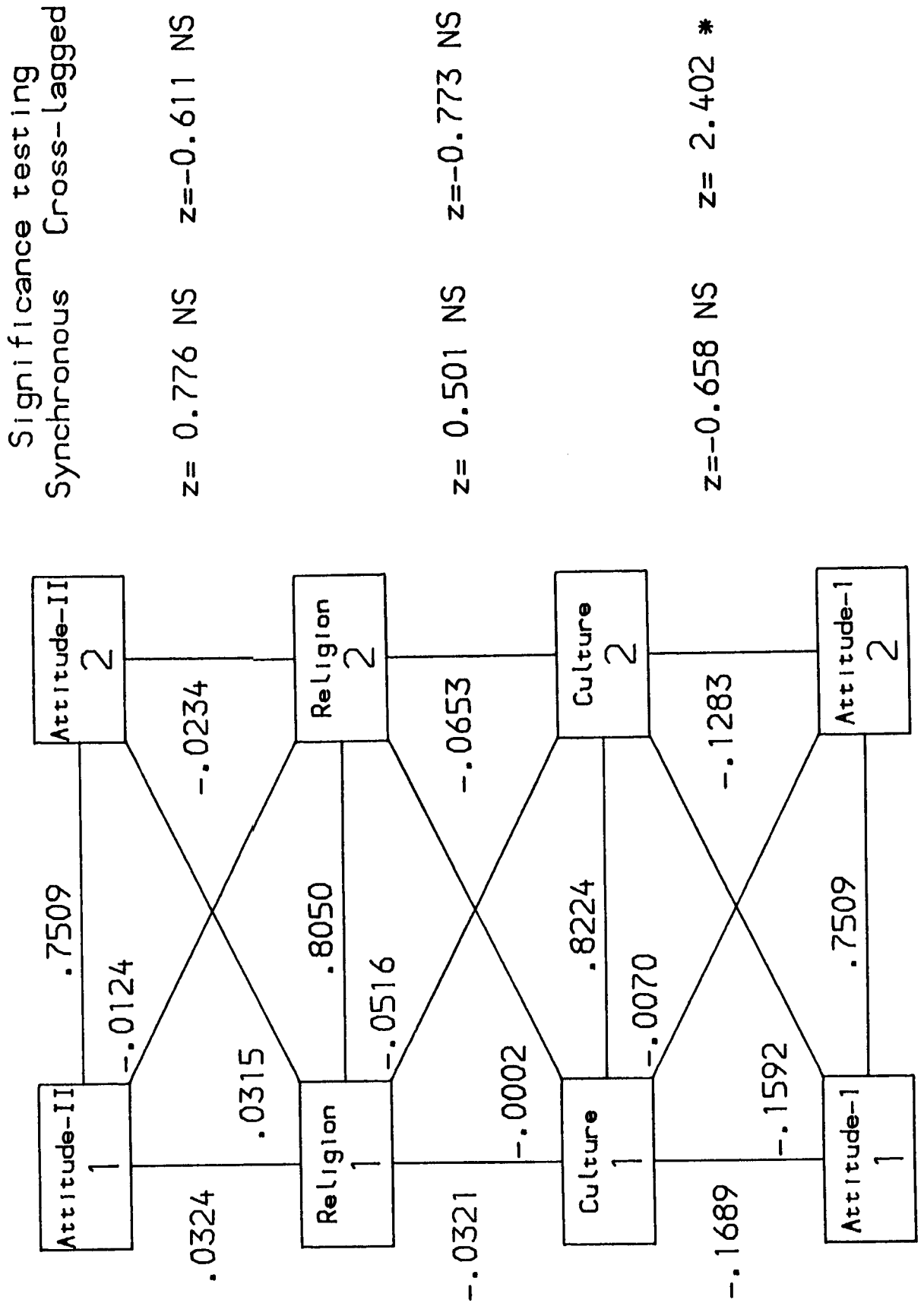|	Synchronous	Cross-lagged
	z= 0.776 NS	z=-0.611 NS
	z= 0.501 NS	z=-0.773 NS
	z=-0.658 NS	z= 2.402 *

408

Table 13-1: Shows the correlations of the five orthogonal culture scales and the general culture scale, with the eight orthogonal attitude scales and the two super-ordinate attitude scales. The upper value in each cell is for the Birmingham sample (N=989) and the lower value is for the St. Mary's sample.

Culture dimensions

	1:Literary culture	2:Low-brow culture	3:Travel	4:Popular culture	5:Non-literary culture	C:'Culture'
1:Vital libertarianism	.0916 **	.0794 *	.0798 *	−.0865 ***	−.0874 **	.1102 ***
	−.0016	.1362 *	−.0069	−.0960 +	.0163	.0693
2:Social tough-mindedness	−.0569 +	−.1013 ***	.0363	−.0898 **	−.0141	−.0800 *
	−.1300 *	−.0661	.0250	−.1337 *	−.0458	−.1240 *
3:Liberalism	.1973 ***	.3172 ***	.2304 ***	.0153	−.1232 ***	.3556 ***
	.1242 *	.2049 ***	.0748	.0019	.1123 *	.2447 ***
4:Personal libertarianism	.1364 ***	.1652 ***	.1314 ***	−.2956 ***	−.2055 ***	.1735 ***
	.1167 *	.0929 +	.1955 ***	−.2254 ***	−.0882	.1619 **
5:Economic conservatism	−.0089	−.2619 ***	.0018	−.1473 ***	.1139 ***	−.1273 ***
	.0559	−.1683 **	.0766	−.1115 *	.0431	−.0152
6:Medical control	.0596 +	−.0172	−.0587 +	−.0999 **	.0734 *	.0148
	.1041 +	.0975 +	.0218	.0330	.1002 +	.1549 **
7:Sex education	.1192 ***	.0738 *	.0081	.0361	.0608 +	.1288 ***
	−.0030	.0658	.0308	.0866	.0165	.0527
8:General practice	.0250	−.0765 *	.0198	−.0053	.0551 +	−.0075
	.0375	−.0507	.0255	.0415	.0823	.0289
I:Libertarianism	.2031 ***	.2152 ***	.1867 ***	−.2072 ***	−.1793 ***	.2706 ***
	.0793	.2067 ***	.1212 *	−.1842 ***	.0054	.1988
II:Tough-mindedness	.1426 ***	−.3286 ***	−.0680 *	−.1143 ***	.0862 **	−.2755 ***
	−.1476 **	−.2136 ***	−.0152	−.1614 **	−.0603	−.2320 ***

Table 13-2: Significance levels of linear and quadratic trends, and of deviations from those trends, for the data of figures 13-1, 13-4a and 13-4b.
+: p<0.10; *: p<0.05; **:p<0.01; ***:p<0.001.

		Birmingham			St. Mary's		
		Linear	Quad	Deviation	Linear	Quad	Deviation
Culture Factor:							
1	"Literary culture"	**	–	***	–	–	***
2	"Low-brow culture"	***	***	–	*	–	–
3	"Travel"	***	–	–	*	–	–
4	"Popular culture"	***	**	–	***	*	–
5	"Non-literary culture"	***	–	+	+	–	–
C	"'Culture'"	***	–	**	+	–	**
Ethical attitude Factor:							
1	"Vital libertarianism"	***	***	**	***	*	**
2	"Social tough-mindedness"	–	***	**	–	–	*
3	"Liberalism"	***	+	–	+	–	–
4	"Personal libertarianism"	***	–	*	***	–	–
5	"Economic conservatism"	–	***	–	–	*	–
6	"Medical control"	–	–	+	–	–	–
7	"Sex education"	–	–	–	–	–	–
8	"General Practise"	*	*	–	–	–	–
I	"Libertarianism"	***	***	***	***	*	**
II	"Tough-mindedness"	–	***	*	–	*	+

440