DIRECTED AND CONTINGENT VALUE CHANGES IN AMERICAN AND BRITISH POLITICAL DOCUMENTS[*]

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Where choice exits, value preferences make a difference. To understand how nation-states make choices in the face of ever pressing and changing problems, one certainly needs to know these problems and their material conditions. But information is also needed about the predominant value concerns of the respective society.

To describe changing value concerns in British and American society, Namenwirth (1973) analyzed American party platforms (AAP) in Presidential elections (Porter and Johnson, 1968). Subsequently Weber (1978) analyzed British Speeches From the Throne (ESFT) (Hansard, 1812; 1804-1972) since 1689.¹ The analysis of these documents raises a number of methodological and theoretical questions: 1) How can one decompose observed value changes into their component parts? 2) What is the nature and meaning of such value components? and, 3) What are the dynamics of these changes in value concerns?

The platform analysis addressed 31 campaigns (1844 through 1964)² with one Democratic and Republican document for each campaign,³ 62 documents in all. The words in the texts were classified by a set of computer programs developed by Philip J. Stone and associates (1966). Each word or word sense⁴ in the text is located in one of 73 thesaurus-like word lists (i.e., content categories).⁵ These lists are based largely upon Harold Lasswell's value scheme (Lasswell and Kaplan, 1963; Namenwirth and Weber, 1974).

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For each content category the data consist of 31 observations for the Democratic and Republican platforms; these are the "raw" data representing the level of concern with that category over time. Each series of value concerns is subsequently decomposed into two types of processes. The first type consists of those processes which are a function of time, which we refer to as directed processes producing directed change. The second consists of those processes which are independent of time, which we refer to as contingent processes. The relative part played by either directed or contingent processes is unknown and must be estimated from the "raw" data. The assessment of contingent and directed changes from the American and British data entails the resolution of a number of methodological problems.

Methodological Issues

In the absence of factual information, it was necessary to make a number of <u>a priori</u> assumptions about directed changes in societal value concerns. The first assumption was that such directed changes are continuous rather than abrupt or discontinuous.⁶ Secondly, the change in the rate of value change must fall into one of three major categories:⁷

(1) There is no change in the rate of change as typified by the linear equation

$$\hat{\mathbf{y}} = \mathbf{a} + \mathbf{b}\mathbf{t}$$
 (1)

(2) The change in the rate of change is a constant as typfied by the equation

$$\hat{\mathbf{y}} = \mathbf{a} + \mathbf{b}\mathbf{t} + \mathbf{c}\mathbf{t}^2 \tag{2}$$

(3) The change in the rate of change is a function of time itself

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with the following two examples

 $\hat{y} = a + bt + ct^{2} + dt^{3}$ (3) $\hat{y} = a + b \sin(t)$ (4)

In general, the level of value concern y is considered a function of time t and a random component, so that

$$y = a + f(t) + e \tag{5}$$

and since $\hat{y} = a + f(t)$,

$$\hat{\mathbf{y}} = \mathbf{y} - \mathbf{e} \tag{7}$$

(6)

in which case \hat{y} is the theoretical curve of directed value change and the residual e is a measure of contingent value change which is random with respect to time.

Briefly put, directed value change is a curve of one kind or another.⁸ To chose amongst all possible families of curves requires further assumptions: (1)<u>Predictability</u>: the true family of curves best fits the data at hand (as well as future ones⁹); (2)<u>Comprehensiveness</u>: the true family of curves will fit all (or most) of the time series; (3) <u>Economy</u>: the true family of curves is simplest in form, i.e., its mathematical equation has the fewest parameters.

For the APP data, a provisional assessment of underlying curves (i.e., directed changes) was based on visual inspection of the "raw" data after applying a filter based on five point moving averages.¹⁰ This inspection suggested linear trends in many variables and non-linear ones in others. In the latter case, the directed changes appeared as parabolic. Hence, it was decided inductively to estimate the long-term trend as a function of a polynomial expansion¹¹

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| | | у | | a | + | bt | + | ct ² | + (| dt ³ | + | е | | (8) |
|-----|-------|---|---|---|---|----|---|-----------------|-----|-----------------|---|---|--|-----|
| and | since | ŷ | = | a | + | bt | + | ct ² | +d1 | t ³ | | | | (9) |

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$$y = y - e.$$
 (10)

The respective correlations between the level of value concerns y and the functions t, t^2 , and t^3 (after transformation) estimate the linear, squared, and cubed functions of time to directed value changes. Inspection of Table 1. strongly suggests that these directed changes are largely linear: there is considerable goodness-of-fit of the linear model for a great number of variables. At first sight, this linear model seems to meet our a priori assumptions: it provides predictability, or at least postdictability; it is comprehensive; it has great economy. Upon further consideration, however, it was realized that postdictability does paradoxically preclude predictability, at least in this case where time is the predictor, ¹² and therefore, the linear model did not meet our predictability criterion.

Further inspection of the curves based on five point moving averages strongly suggests that directed change would be better estimated by a curve of the form¹³

 $y = a + b \sin(\theta) + e$ (11) and since $\hat{y} = a + b \sin(\theta)$ (12)

$$y = y - e \tag{13}$$

and where

$$\theta = 3.1415 \, t/C,$$
 (14)

C being the number of years in the cycle as estimated by inspection. The beginning of the cycle is set at an estimated point of inflection in the curves so that at t = 0, θ = 0, and sin(θ) = 0. In

Table 1

CORRELATIONS BETWEEN VALUE SCORES OF SELECTED VALUE CATEGORIES AND VARIOUS FUNCTIONS OF TIME t*

| | 1 | | t ² | | t ³ | | |
|------------------------------------|------|-----|----------------|------|----------------|------|--|
| CATEGORY ^{\$} | D+ | R× | D ⁺ | RX | D+ | RX | |
| Transsetics | | | | | | | |
| Indulgence | . 82 | .72 | | | | | |
| Selves | .81 | .54 | | | | | |
| Base Indicator | .70 | .79 | | | | | |
| Transaction | . 48 | .51 | | | | | |
| Respect Total | 48 | 66 | | | | | |
| Scope Indicator | .79 | .85 | .45 | | | | |
| Skill Other | .78 | .66 | | 31 | | | |
| Wellbeing Somatic | .72 | .54 | .48 | | | | |
| Power Conflict | | | . 32 | .52 | | | |
| Undefined | | - | .69 | .30 | | | |
| Power Cooperation | 37 | | .55 | . 36 | | | |
| Others | 32 | 70 | | . 46 | | | |
| Power Authoritative | 44 | | 42 | | | | |
| Power Authoritative Participant | 55 | | | 42 | | | |
| Positive Affect | .59 | .30 | 43 | | 30 | | |
| Enlightenment Total | | | .52 | .38 | | 32 | |
| Power Participant | -,37 | 36 | 32 | | | 36 | |
| Wealth Other | .74 | .73 | | | 30 | 34 | |
| Power Indulgence | .73 | .58 | | | | . 30 | |
| Affection Total | 51 | 37 | | | | .51 | |
| Rectitude Scope Indicator | 63 | 66 | | | .34 | | |

*After transformation, see note 11. All correlations of < |.30| omitted as trivial.

⁺Democratic Platform [×]Republican Platform \$ The meaning of these categories will be defined when needed for substantive reasons.

| | Line | ara | Polynomial ^b | | Sine ^C | | Ratio | |
|------------------------------|----------------|------|-------------------------|-------|-------------------|------|-------|------|
| CATEGORY | D ⁺ | RX | D | R | D | R | D | R |
| | | | | | | | | |
| Transaction | 82 | 72 | 82 | 70 | 01 | 71 | 0.0 | 1.00 |
| findurgence | .02 | .14 | .02 | . / 2 | .01 | .74 | .90. | T*00 |
| Serves | .01 | . 54 | .81 | .54 | * 81 | .55 | 1.00 | 1.04 |
| Base Indicator | . 70 | .79 | . 70 | ,79 | .68 | .84 | .94 | 1.13 |
| Transaction | . 48 | .51 | .48 | .51 | .51 | .50 | 1.13 | .96 |
| Respect Total | 48 | 66 | .48 | .66 | . 46 | . 70 | .92 | 1,12 |
| Scope Indicator | . 79 | . 85 | .91 | .85 | .92 | . 84 | 1.53 | .98 |
| Skill Other | . 78 | . 66 | .78 | .73 | .83 | .71 | 1.13 | 1.42 |
| Wellbeing Somatic | ,72 | .54 | ,87 | .54 | . 86 | .56 | 1.47 | 1.08 |
| Power Conflict | 0 0 0-0 | | .32 | .52 | .48 | .58 | 2.25 | 1.24 |
| Undefined | ala iza ba | | .69 | .30 | .68 | | .97 | 0.0 |
| Power Cooperation | 37 | | .66 | , 36 | .67 | . 45 | 1.55 | 1.56 |
| Others | 32 | 70 | .32 | .84 | | . 80 | 0.0 | 1.36 |
| Power Authoritative | 44 | | .61 | | .59 | | 1.40 | - |
| Power Authoritative | | | | | | | | |
| Participant | 55 | | .55 | . 42 | .53 | | .93 | 0.0 |
| Positive Affect | .59 | . 30 | . 79 | .30 | .79 | | 2.00 | 0.0 |
| Enlightenment Total | | | .52 | .50 | .52 | | 1.00 | 0.0 |
| Power Participant | 37 | 36 | .49 | .51 | .47 | | 1.38 | 0.0 |
| Wealth Other | .74 | .73 | .80 | .81 | . 83 | . 85 | 1.63 | 1.65 |
| Power Indulgence | .73 | .58 | . 73 | ,58 | .69 | .60 | . 89 | 1.07 |
| Affection Total | 51 | 37 | .51 | . 63 | . 55 | . 62 | 1.16 | 1.45 |
| Rectitude Scope Indicator | 63 | 66 | . 72 | .66 | .61 | . 66 | 1.08 | 1.00 |

Table 2

 $a_r < |.30|$ omitted as trivial. $b_r < |.30|$ omitted as trivial. Values of time transformed; see note 11. $c_r < |.45|$ omitted for reasons given in text. Time is in radians. $d_{Variance Ratio} =$ Mean Square Variance (1SV) explained by sine function (s)/MSV explained by polynomial function (p), or:

V.R. = R_s^2 (d.f. p/R_p^2 (d.f.) where d.f. = degrees of freedom (2 for sine and 2, 3, or 4 for polynomial)

⁺Democratic Platform

*Republican Platform

addition, the beginning of the cycle is chosen so that at the first maximum point θ will have the value 1.57 so that

$$sin(\theta) = 1.0$$

(15)

Subsequently, an iterative computer program utilizing least squares criteria to maximize goodness-of-fit determined the parameters of the curve given in equation 11 for all content variables.¹⁴

Table 2. indicates that in most cases the sine curve fits the time series as well if not better than the linear model or the polynomial expansion. Considering its comprehensiveness, economy, and predictability, the sine curve seems a good model of directed value change. Nevertheless, the fit is imperfect.

The residuals from the various sine curves, upon inspection, reveal further directed change (i.e., deviations are not random with respect to time.) Indeed, a second sine curve of shorter duration and smaller amplitude was indicated in 13 categories which also displayed the first cycle. The first cycle will hence be called the long-term cycle, the residual cycle, the short-term cycle.¹⁵ In formal terms, the raw data y is in principle decomposed into three parts: \hat{y} , \hat{z} , (both measures of directed value change), and e_{gh} . Recall that it has been established that

 $y = a + b \sin(\theta_{10}) + e_{10} \quad \text{and} \quad (11a)$ $\hat{y} = a + b \sin(\theta_{10}), \quad (12a)$

where subscript lo indicates the long-term cycle, and where $\sin(\theta_{10})$ has a model wavelength of 152 years and variable origin. The residuals from the long-term cycle can be detrended with another sine function. Therefore, we define

e, =z so that

(16)

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 $z = v + c \sin \left(\theta_{sh}\right) + e_{sh}, \qquad (11b)$

where subscript sh indicates short-term directed change and where $\sin(\theta_{sh})$ has a modal wavelength of 48 years and variable origins. Since the expected value of e_{lo} is zero and since the origin is manipulated to make $\sin(\theta_{sh})$ zero at time zero, v will always be zero. Therefore,

$$z = c \sin(\theta_{sh}) + e_{sh}$$
(17)

$$\hat{z} = c \sin(\theta_{cb}).$$
 (18)

Simple addition of equations 11a and b results in the detrending equation 19 and subsequent substitution in equation 20. Thus,

$$y = a + b \sin(\theta_{10}) + c \sin(\theta_{sh}) + e_{sh}$$
(19)
$$y = \hat{y} + \hat{z} + e_{sh}.$$
(20)

The functions \hat{y} and \hat{z} were estimated in a stepwise manner.¹⁶ For small values of b, b was set to zero and consequently, there was no curve \hat{y} ; for small values of c, c was set to zero and there was consequently no curve \hat{z} .¹⁷

The decomposition of the content categories of the APP investigation into two directed cycles and contingent change is expressed in Table 3. The symbols $\sin(\theta_{10})$ and $\sin(\theta_{sh})$ in the equations are simplifications. Considering the variable lengths of the cycles (there is dispersion about the modal length) and the variable origins, it is not possible to compare equations across parties and content categories without an additional transformation to be described shortly. Even so, the similarity in these components of value change in both party platforms is quite striking. This is as illustrated in the decomposition of value concerns in one value category, WEALTH-OTHER. To interpret these POUATIONS OF STRUCTURAL VALUE CHANGE DECOMPOSING PER CENT VALUE CONCERN INTO LONG TERM, SHORT TERM, AND RESIDUAL CONTINGENT VALUE COMPONENTS

Table 3

69. .62 66 64 ° ·52 . 89 20. 80 58 .46 59 84 ----+14 · .84 .61 11. . 86 . 56 ----24 8 h .4 sin 0 sh e sh $2_{c}8 + 1_{o}3 \sin \theta_{10} + .4 \sin \theta_{sh}$.2 sin θ_{10} + .1 sin θ_{sh} 1.6 + 1.0 sin θ_{1o} + .2 sin θ_{sh} $.3 \sin \theta_{10} + .3 \sin \theta_{sh}$ + .2 sin 9sh .6 sin θ_{10} + .6 sin θ_{sh} .2 sin θ_{1o} + .2 sin θ_{sh} .3 sin θ_{1o} + .2 sin θ_{sh} $2.9 + 1.1 \sin \theta_{10} + .4 \sin \theta_{sh}$ 4 sin + .2 sin FINAL DETRENDING EQUATIONS REPUBLICAN PLATFORMS .3 sin 010 .2 sin 9₁₀ .5 sin 910 .4 sin 310 .2 sin 010 .3 sin 010 .4 sin 0 lo .3 sin 0 lo + 9. 1.7 + 1.0 + + 1. + 6. 2.5 + 5.9 + 1.9 + + 1. + 8. 1.1 + + +* 1.8 + + 6. 1.1 + .68 .53 .83 .52 .47 16. .76 . 72 .86 .68 .80 59 .68 ***6*** •65 100 81 81 51 .62 . 83 M $2 \sin \theta_{10} + 1 \sin \theta_{sh}$.4 sin θ_{10} + .2 cin θ_{sh} sh $3.0 \div 1.6 \sin \theta_{10} \div .7 \sin \theta_{sh}$.3 sin θ_{10} + .2 sin θ_{sh} + "3 sin 3 $1.1 + .3 \operatorname{sin} \theta_{10} + .3 \operatorname{sin} \theta_{sh}$.6 + .3 sin θ_{10} + .2 sin θ_{sh} .2 sin θ_{10} + .2 sin 3_{sh} + .1 sin FINAL DETRENDING EQUATIONS DEMOCRATIC PLATFORMS .3 sin 010 .5 sin 8 lo .3 sin 010 .3 sin 010 .2 sin 0₁₀ .8 + .4 sin 010 .5 sin θ_{10} $1.7 + .4 \sin \theta_{10}$.2 sin 9₁₀ $5.1 + 1.6 \sin \theta_{10}$ $6.3 \pm 1.3 \sin \theta_{10}$ $2.5 \pm 1.0 \sin \theta_{10}$ 1.1 + .5 sin θ_{10} + 1. + 1. 2.1+ + 6. 1.8+ 1.2 + + + * 1.7 + + 1. + 8 • 2 + Rectitude Scope Indicator Transaction Indulgence Enlighterment Total Power Authoritative Power Authoritative Power Participent Wellbeing Somatic Power Cooperative Power Indulgance Affection Total Positive Affect Scope Indicator Power Conflict Base Indicator Respect Total Wealth Other Participant Transaction Skill Other Undefined CATECORY Others Selves

 $\dot{\kappa}_{Long}$ term trend r only .42; retained for theoretical reasons.

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graphs, one can see that in the Republican platform of 1844 (see Figure 2) there was about 3.1% concern with WEALTH-OTHER which the analysis decomposed into 2.0% long-term (\hat{y}) , 0.5% short-term (\hat{z}) directed value changes, and 0.6% contingent value change (e_{ab}) .

In the British (BSFT) analysis long-term value changes were similarly decomposed with a few important alterations. First, the British speeches vary in length between 180 and 1000 words. The American platforms vary between 350 and 16,000 words. Consequently, error variance is likely to be greater in the ESFT documents. Another source of error stems from the three month to almost three year intervals between speeches. The estimation procedures assume equal intervals. To compensate for both sources of error two alternative data transformations were applied, namely a moving average filter of the form:

 $y_t = 1/m (y_t + y_{t+1} + y_{t+2} \cdots y_{t+m})$ (21) where y_t is the transformed (filtered) value and m is the length of the filter; and a filter based on the aggregation of speeches occuring in each four year interval. Directed value change was assumed only if the estimated curves replicated across both filters, thus controlling for methodological artifacts such as cycles produced by the filter process itself.

Second, the detrending equation (19) assumes that there is no trend in the mean. Inspection of the ESFT data reveals that this assumption of the model is not met in a large number of content categories. For this reason, 18 the linear trend was removed first according to

 $y_t = a_{+}bt + e_{1in}.$ (22)

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The best estimated of y_+ is given by ¹⁹

$$\hat{y}_{,} = a + bt.$$

Setting e_{lin}, the variation unaccounted for by the linear component equal to w, so that

$$y_{+} = a + bt + w;$$
 (24)

(23)

but since the expected value of w is zero, and substituting as before, the model for the detrending of the BSFT analysis is

 $y_t = a + bt + c \sin(\theta_{10}) + d \sin(\theta_{sh}) + e_{sh}$ (25) where y_t is a filtered measure of a sequence of value concerns as estimated by content analysis; bt, $c \sin(\theta_{10})$, $d \sin(\theta_{sh})$, and e_{sh} inferred measures of respectively a secular trend, directed long-term, short-term, and contingent value changes; and a, b, c, and d are constants of uncertain theoretical status.²⁰

Third, while the APP analysis assumed continuity in value change, the BSFT data made this assumption untenable:²¹ the directed changes (secular, long and short term cycles) were of different kinds in early and late epochs and only seperate analysis of each epoch provided tenable results. Since the findings of the early epoch have no equivalent in the APP analysis, they will not be reported here.

In reporting our findings we wish to examine directed and contingent value changes as a structured set of interdependent variables rather than seperately for each content category. This requires comparisons among these variables which is frustrated by the differing amplitudes and wavelengths of cyclical changes and differing averages (see note 20) and slopes.²² Assuming that cyclical value changes proceed at one frequency rather than many

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(Namenwirth, 1973: 659-660), the estimated peaks were standardized to the modal (in the AAP) or median (in the ESFT) cycle and peak year by the formula

LAMBDA

where P_{STD} is the standardized peak, P_0 is the estimated peak in terms of years from the origin; median lambda is the median (or modal) wavelength; and lambda is the estimated wavelength of each and all value categories which display cyclical changes.

The Long Cycle

Once all long-term cycles have been standardized, they vary only with respect to their respective origins, and consequently, the point of time where each of these categories have their minima and maxima. The sequence of maxima of these content-analytic variables can be displayed along a time axis, but since the period has been assumed to be the same for all, the time axis can be presented as a circle. Therefore, in the APP data the sequence of maxima is plotted on the rim of a circle whose circumference represents a period of 152 years (Figure 3). The Republican mexima are displayed on the inside of the circle; the Democratic ones on the outside.The categories which are at a maximum at one point (e.g., 1932) are at a down-turn 1/4 cycles later (e.g., 1970), at a minimum 1/2 cycle onward (e.g., 1856) and at an up-turn 3/4 cycle forward. The inverse is true for value categories which are at a maximum in 1856.



FIGURE 3 : THE INTERNAL STRUCTURE OF LONG TERM VALUE CHANGES (Cycle lengths set at 152 years, Variable Origins)

In interpreting these findings, we shall not deal with each content category taken seperately, but with combinations of variables. Content categories that covary (i.e., which have their maxima at about the same time) express some common value concern, or theme. Around 1856 there is maximal concern with AFFECTION, RECTITUDE, and RESPECT.²³ This suggests a maximum concern with Expressive value issues and questions about the "true" nature of society, its boundaries, identity and purpose. During the 1890's there is maximum concern with political leaders and authorities (POWER-AUTHORITATIVE-PARTICIPANTS)²⁴ and with power as a facility of the collectivity as such (POWER-AUTHORITATIVE)²⁵: i.e., with the power required to attain collective and common goals. Hence, the interpretation of these value concerns as expressing an Adaptive theme. Around 1932 we note in both platforms maximum concerns with various WEALTH categories.²⁶ One finds in this period a preoccupation with economic matters, with problems of the adaptation of society to nature, with the production of the wherewithal required for the attainment of collective goals. Hence, this is interpreted as the Productive theme. During the 1970's the primary questions focus on the distribution of power among contending factions, classes, sectors and other social groups. Thus, there is maximum concern with POWER-CONFLICT, POWER-COOPERATION, and POWER-DOCTRINE. 27 Clearly, AAP at that time expresses a maximum concern with problems of Integration. Textual excerpts would be required to further confirm these interpretations but space limitations make this impossible here.





If we present the sequence of maxima in long-term trends which were found in the British Capitalist period, then the results are rather similar even though some differences are noticeable. Let us consider the similarities detailed in Figure 4. first The Expressive-Productive contrast is certainly very similar. On the Expressive side we find a predominant concern with Rectitude, on the Productive side we find a predominant concern with WEALTH. The Integrative-Adaptive axis is rather dissimilar. For one, it is not indicated by the same categories as in the APP analysis. The Adaptive theme includes a great variety of POWER as well as Respect categories. The Integrative theme is also different and perhaps poorly defined. To justify these interpretations which are certainly at variance with the APP findings, we would have to provide lengthy textual illustrations (see Weber, 1978) which, however, is not feasible here.28

In the BSFT the two axis which define the phase sequences are non-orthogonal for unknown reasons: the four phases may indeed be of unequal length, or they may only appear to be so because of measurement errors of one kind or another.

The explanation of the long cycle (Weber, 1978) is based on the conceptualization of social systems as information processing, open cybernetic social systems (e.g., see Euckley, 1967; Bertalanffy, 1968; Deutsch, 1966; Kuhn, 1974; Weinburg, 1975). In cybernetic systems there is a self-monitoring or self-awareness whereby the system monitors its current state relative to some goal. In the long run the goals of society are identified during the Expressive phase of the long cycle (Namenwirth, 1973).

At least with respect to adaptation, the interaction between' culture and society (the latter taken to means social interaction and social structure) also constitutes an open cybernetic system. Input into this system in the form of information (in the sense of "facts") is mapped by the system into meaning (or shared understandings). The output of the system is both meaning and action. The relationship between the internal equilibrium of the system and external adaptation is another way of stating the problem at hand. Information from within and without is organized and given meaning on the basis of the internal needs of the system. Hence external adaptation is always constrained by the internal processes of the system. Finally, the resolution of all four problems (Adaptive, Expressive, Integrative, and Productive) is required for system adaptation (Parsons, Bales, and Shils, 1953; Parsons and Shils, 1951; Bales, 1950; Namenwirth, 1973)

Given the four phases, it may be asked why there is not equal concern with all problems at all times. It seems incontestable that, except at some theoretical limit, social systems have a limited supply of whatever resources are necessary for problem-solving. Some resources will always be devoted to all problems. However, a more effective and efficient utilization of these resources is obtained by devoting more than average resources to one problem at a time. Finally, it is also assumed that efficiency and effectiveness in adaptive problem-solving maximizes the likelihood of adaptation. Taken together, these facts and assumptions provide a plausible explanation for the existence of phase movement in adaptive problem-solving.

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Above we noted similarities and differences in the progression of cycle maxima through time as they appeared in American and British political documents. Even if we were to agree about the interpretation of the long cycles, the fourfold divisions of problem-solving phases, their sequence and dynamics, there remains one important difference between the American and British systems. In the American case the Productive phase is centered about 1932, the Expressive phase about 1856, in the British case the Productive phase centers about 1817 and 1965, the Expressive phase about 1890. In general, the two systems are about a quarter of a cycle out of phase. While the system of long cycles is likely to be very similar and the result of similar dynamics in both countries, they are nevertheless differently situated. For instance, during the 1860's the Expressive theme in America concerns the Civil War and the union of states. The Expressive theme in Britain also concerns conflicts expressed in territorial terms, but here it is the Irish cuestion of the 1890's (see, Weber, 1978). Hence the identity of the system is discussed at different times in both societies, but in different but analogous terms.

Having examined the long-term cycle of changing value concerns, we take up the shorter cycle noted above.

The Short Cycle

The short cycle has a (modal) period of 48 years in the APP data. Figure 5 illustrates the internal structure of peaks in the level of concern for the several content categories in which the short cycle was observed. Once again the rim of the circle represents the length of the cycle, here 48 years. On the outside

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(Democratic party) and inside (Republican party) of the circle the points indicating the year of maximal value concern for each category have been plotted. For example, about 1932 (and again in 1884 and 1980) there is maximal concern with the several WEALTH categories.

The polarities of the cycle are interpreted as a four phase sequence of themes: Parochial, Progressive, Cosmopolitan, and Conservative. At the top of the circle there is maximal concern with the WEALTH (TRANSACTION, TOTAL, OTHERS).²⁹ The platforms of this period indicate an overwhelming concern with the economic performance of the nation. The concern with one single issue internal to the nation is interpreted as the Parochial theme.

Moving to the right of the circle (to 1896, 1944) there appears in the platforms of both parties an increasing concern with political strife, as indicated by POWER-CONFLICT and POWER-COOPERATION. There also appears at this time an associated interest in the formulation and justification of political innovation, intervention, and programmatic politics in general (as indicated by POWER-DOCTRINE, RESPECT, RECTITUDE, and TRANSACTIONS).³⁰ The combined concerns of conflict and programmatic means and justifications to alleviate these tensions is interpreted as the Progressive theme.

Moving to the bottom of the circle, there appears in both parties an increasing concern with deliberations about future goals.³¹ In the Republican platforms there is also an increasing concern with technology, industry, and training, if not with education in general (SKILL).³² In both platforms there is maximum

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concern with the world at large (NATIONS).³³ Finally, at the end of this sector of the value circle Republican platforms become less value-laden (UNDEFINED),³⁴ but also, if concerned with value matters, they become more ambiguous and tentative (UNDEFINABLE)³⁵ than in other times. This combination of concerns with long-range planning and programs, international in orientation; the preoccupation with the future of industry and education; and the decreasing value references of the Republican platforms constitutes the Cosmopolitan theme.

In the "9 o'clock" sector of the circle there is maximal concern with the granting of power (POWER-INDULCENCE),³⁶ the federal government and other governmental agencies (POWER-AUTHOR-PARTICIPANTS). Concern with these categories indicates a conservative preoccupation with authoritative restoration of former structures and values.

In summary, these value concerns represent a 48 year sequence of waxing and waning concern with four themes: Parochial, Progressive, Cosmopolitan, and Conservative. Before considering the explanation for this sequence, we consider the short cycle in the BSFT analysis.

In the ESFT analysis the median wavelength of the shorter sine curves is 52 years, which is virtually identical to the wavelength of the American short cycle. The points of maximal concern have been plotted on the rim of a circle representing the 52 year wavelength. The clusters in Figure 6 are also interpreted as a Parochial, Progressive, Cosmopolitan, and Conservative sequence. (Note that the Parochial theme is at the bottom rather than at the

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Table 4. Estimated Minima and Maxima of Economic and Value Cycles in Great Britain and America.

| | Minima[*] Economic Cycle | Parochial Value Phase | Maxima[*] Economic Cycle | Cosmopolitan Value Phase | |
|----------|--------------------------------|-----------------------------|--------------------------------|--------------------------------|--|
| | | | | | |
| Britain: | 1789 1849 | 1790 1842 | 1819 1873 | 1816 1868 | |
| | 1896 1932 [#] | 1894 1946 | 1920 | 1920 | |
| | | | | | |
| America: | 1790 1849 | 1788 1836 | 1814 1866 | 1812 1860 | |
| | 1896 1932 | 1884 1932 | 1920 | 1908 | |

Except where otherwise noted, the estimates for the economic cycle are adapted from Kondratiff (1935, p. 110) Table I.

* Kondratieff did not estimate the minima corresponding to the "Great Depression." 1932 is used as a rough estimate for both Great Britain and America. top of this circle). We briefly point out similarities and contrasts between the Eritish and American results and then proceed to the explanation of this cycle.

At the bottom of the circle there is the co-occurrence of the various WEALTH categories that indicate the Parochial theme. Unlike the American platforms, the Progressive theme is indicated by a concern with SKILL and with authoritative actors in the power arena (POWER-AUTH-PARTICIPANTS). As in the APP analysis there is also concern in this quadrant with some RECTITUDE and RESPECT categories. The Cosmopolitan and Conservative themes are indicated by a very different set of categories in the British than in the American texts. In the BSFT, the Cosmopolitan theme is indicated by POWER-CONFLICT and POWER-COOPERATION, WELL-BEING (TOTAL and SOMATIC). 37 and by RESPECT (OTHER and TOTAL), and by the increasing of knowledge or understanding (ENLIGHTENMENT-INDULGENCE³⁸). The Conservative theme in the BSFT is indicated by the loss WELL-BEING (DEPRIVATION), 39 PARTICIPANTS in the WEALTH and POWER arenas; TIME-SPACE. 40 negation (NOT). 41 and by more general value arenas (ARENAS).42

Economic Fluctuations and the Short Cycle

It is our view that the short thematic cycle is caused by economic expansions and contractions known as the "Kondratieff wave" (Kondratieff, 1935; Mandel, 1975; Wright, 1978).⁴³ At the bottom of the economic cycle value concerns are Parochial, i.e., a preoccupation with the one single issue of the economic performance of the nation. As the economy begins to rise, there is a mood of optimism. There is also a willingnesss to tinker with existing social and economic arrangements in order to ameliorate economic and social injustices. As the economy reaches its peak, there is a concern with international matters, often in an aggressive or adventurous tone. We believe that wars and foreign interventions are more likely during this than during the other three short cycle phases. As the economy turns downward there is a return to traditional values coupled with fiscal restraint. Fleas for taxcutting, budget balancing, and other economic retrenchments are frequent. Finally, as the economy reaches its nadir, there is a return to Parochial matters and the cycle begins anew. Table 4 presents the relationship between economic maxima and minima as estimated by Kondratieff (1935) and our estimates of the corresponding Cosmopolitan and Parochial phase in Britain and America.

The causes of the Kondratieff are disputed. Schumpeter (1939), for example, suggests that each upswing represents the exploitation of some new technology or invention. This innovation eventually becomes unprofitable and the economy declines until a new innovation is adopted. More recently, some (Gordon, 1978; Mandel, 1975; Wright, 1978) have suggested that the cycle represents the workings of the "Law of Falling Profits" as put forth by Marx (1976). Following Gordon (1978) and Wright (1978:Ch 3), we believe that each minima or "crisis" occurs because there is some structural impediment to profits which must be removed through structural reorganization. In a dialectial fashion, however, each cure eventually becomes a problem. What has been the nature of these restructurings since the 1790's?

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The upswing of the 1790's resulted from the generalization of hand-made machinery throughout manufacturing. The upswing of 1848 resulted from the generalization of machine-made machinery. The upswing of the 1890's resulted from the lessening of competition through monoply capital; i.e., through the social organization of big business firms. Finally, the upswing after the depression of 1932 resulted in part from a war economy, but in America at any rate, from a change in the relationship between business and the state. In short, the government guaranteed profits by becoming responsible for the aggregate level of demand. In return, business, at least in America, agreed to social welfare programs that did not redistribute wealth, or at least limited redistribution to part of the increasing national product. It has not escaped our attention that another structural realignment of western political economies is due shortly after 1980.

We have examined directed changes in value concerns in Eritish and American political documents. We turn next to the relationship between contingent changes in value concerns and election outcomes in American Presidential campaigns.

A Preliminary Model of Contingent Value Changes

Returning to the APP analysis, the data for 42 detrended or trendless content categories were subjected to principle component analysis, first seperately for Democratic and Republican platforms and then jointly for the 10 categories which produced near identical⁴⁴ factor structures. These we shall call the "joint" factors. The remaining 32 categories were subsequently analyzed seperately, producing Republican and Democratic factors.⁴⁵ After

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interpretation of both joint and specific factors, we then computed factor scores for each campaign year, thus creating composite measures of contingent changes in value concerns. Since these measures are in part the product of our detrending procedures, we would certainly increase confidence in both content-analytic and detrending procedures if we could demonstrate that our contingent measures are systematically related to more commonly accepted indicators of social and political realities and processes.

Since the outcomes of American Presidential elections and unemployment statistics certainly fit the latter bill, we were very pleased to note that a few of these contingent value measures in combination with unemployment statistics materially contribute to the accurate prediction of such election outcomes. The selection of the contingent value measures was admittedly based on empirical rather than theoretical considerations. We chose those measures which were most highly correlated with election outcomes and least highly correlated with the economic measures. What were our various measures?

Our criterion was the outcome of elections between 1892 and 1964; i.e., the party affliation of the winning Presidential candidate. The predictor variables were: (1) change in unemployment during the year of the election; (2) change in unemployment during the year preceeding the election; (3) the Democratic scores on the Democratic factor "Effective Government"; (4) The Democratic scores on the Democratic factor "Protagonists"; and, (5) the Republican scores on the joint factor "Survival." Finally, discriminant analysis constituted the predictive model.⁴⁶

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The unemployment variables (1 and 2) are therefore first order difference measures. The Democratic factor "Effective Government" differentiates between two types of party platforms: those which argue that effective government is secured by "trust of the people" (+), and those which argue that it is secured by "trust in laws and rules" (-). Similarly, Democratic platforms differentiate between two classes of "Protagonists": These are seen as either individual heros, most likely heroic characters, presidents, generals and other high status personalities, or, in contrast, as collectivities such as the party or the nation as a whole. 47 Both Democratic and Republican platforms are concerned with the question of "Survival" of the political system and society at large. Platforms differ about the nature of this threat. Some see this threat in the changing state of the economy (+); others see this threat in the actuality of war (-). Each theme represents an issue; each polarity a contrasting approach to the resolution of the problem.

Table 5 presents the prediction results which show the following: The Democrats win the presidency when Democratic platforms stress people rather than laws as instruments of effective government; when these documents dwell on collective rather than individual protagonists; when Republican platforms concern themselves with wealth rather than war; when the unemployment rate decreases during the election year and when it increases in the year prior to the election.

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Table 5a. Discriminant Analysis for Thematic and Economic Variables, 19 Elections, 1892-1964.

| Variables | Unstd. Discrm. Coefs. | Std. Discrm. Coefs. | |
|-------------------------------------|-----------------------------|---------------------------|--|
| | | | |
| Effective Gov't(D) Survival(R) | .117 | . 106 | |
| Protagonists(D) Chng. Unemp. Cur | 830 | 619 | |
| Chng . Unemp 1yr pre (Constant) | .226 | .619 | |

Table 5b. Predictions by Discriminant Function, 19 Elections, 1892-1964.

| Obs. | Year | Victor | Prob. Repub. | Prob. Demo. |
|------|------|--------|-----------------|----------------|
| | | | - | |
| | | | | |
| 1 | 1892 | Dem | .001 | .999 |
| 2 | 1896 | Rep | -977 | .033 |
| 3 | 1900 | Rep | .999 | .001 |
| 4 | 1904 | Rep | .794 | .206 |
| 5 | 1908 | Rep | .968 | .032 |
| 6 | 1912 | Dem | .001 | .999 |
| 7 | 1916 | Dem | .002 | .998 |
| 8 | 1920 | Rep | .998 | .002 |
| 9 | 1924 | Rep | 1.000 | .000 |
| 10 | 1928 | Rep | .996 | .004 |
| 11 | 1932 | Dem | .026 | .974 |
| 12 | 1936 | Dem | .001 | .999 |
| 13 | 1940 | Dem | .000 | 1.000 |
| 14 | 1944 | Dem | .002 | .998 |
| 15 | 1948 | Dem | .016 | .984 |
| 16 | 1952 | Rep | .995 | .005 |
| 17 | 1956 | Rep | .998 | .002 |
| 18 | 1960 | Dem | .892 | . 108 |
| 19 | 1964 | Dem | 002 | 800 |

Democratic victor = 1; Republican victor = 0.

In contrast, Republicans tend to win the presidency when their platforms stress war rather than wealth as a survival theme; when Democratic platforms stress laws rather the people as instruments of effective government and when these same documents stress individual rather than collective protagonists; when the unemployment rate is on the increase during the election year and decreases in the year prior to the election.

As Table 5 indicates, the predictive results are certainly acceptable. With the exception of the 1960 election, all elections are correctly predicted. The two economic variables and the Protagonist factor make a far greater contribution to the prediction than the remaining two contingent value variables. While an acceptable prediction model, the discriminant analysis tells us little about the causal sequence between changing material or economic conditions and contingent ideational or value changes. As an approach to causal inquiry it is only a first step and further elaborations are already in progress.⁴⁸

Conclusion

Variations in value concerns in American and British political texts have been statistically decomposed into directed and contingent changes. Two independent directed changes are of particular interest. The first is a 150 year cycle of fluctuating thematic concerns observed in American party platforms and British Speeches From the Throne since 1795. These were inferred from clusters of content categories which covary. The interpretation of the themes was validated by examination of the documents themselves, although examples from text were not presented here.

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The thematic sequence of the long cycle was interpreted as: Adaptive, Productive, Integrative, and Expressive. This is a variation of the well-known Bales-Parsons AGIL scheme. These themes represent concern with four problems whose resolution is required for the adaptation of the system to its social environment.

The second directed change was a shorter cycle of some 48-52 years also observed in both' British Capitalist and American political text. This cycle is caused by the Kondratieff economic cycle. The Kondratieff cycle, in turn, is believed related to periodic restructurings of western economies necessitated by structural limitations to profits and economic growth.

In Capitalist Britain and America the long cycles are about a quarter of a cycle out of phase with each other (about 38 years): The American Expressive phase occurs during the Eritish Integrative phase. The phases of the respective short cycles are almost exactly in phase: the American Parochial phase occurs during the British Parochial phase. These findings bring quantitative support to Wallerstein's (1974) concept of world systems. A world system is comprised of several nation-states linked via their economies, but whose political dynamics are independent. Thus comparative content analysis provides one approach to the study of international linkages.

While these long-term dynamics have different causes and perhaps different consequences, they nevertheless are related in an important conceptual manner. There are two contrasting approaches to the concept of "power" (Cf. Parsons, 1969; Lehman, 1977). The first, represented by structural-functionalism, for example, in.

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primarily concerned with the power of the system as an actor. The power of the system (e.g., a nation-state) is a feature of the whole, over and above the power of its constituent elements. The contrasting position, long associated with Marxist writings, views power as zero-sum: if one group gains power it is necessarily at the expense of others. The long cycle is a problem-solving cycle intimately related to the power of the nation-state as a whole. Here power is not zero-sum; it is utilized in the adaptation of the system to its larger social environment. The short cycle, in contrast, is related to competition within society for the limited supply of goods and services. The production and division of material wealth is the focus of the short cycle. We conclude, therefore, that theories which do not take both holistic and zero-sum views of power into account are deficient. In fact, rather than some analytical synthesis of the predominant theoretical positions (e.g., Lenski, 1966), we believe that both conceptions are independently useful in explaining social change.

We note that contingent changes in value concerns in American party platforms together with changes in unemployment rates are good predictors of election outcomes. Contingent themes represent contrasting resolutions to the issues of the day. Our preliminary analysis suggests that themes in text have some effect on election outcomes over and above changes in the material realm. Future studies may profitably integrate results from survey analysis of issue salience (e.g., Jackson, 1975), economic changes (e.g., Kramer, 1971; Nordhaus, 1975; Tufte, 1978), and appeals to the electorate identified through computer-based content analysis.⁴⁹

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Finally, these results indicate that the decomposition of time-series data generated by computer content analysis reveals features of cultural change which otherwise might not have been observed, and which are interpreted in light of two major and disputed theoretical paradigms in Western macrosociology. We conclude, therefore, that the analysis of historical documents by computer-aided content analysis may profitably shed light on the classical paradigmatic disputes within social science.

NOTES

1. The choice of these kinds of documents requires justification. Essentially, such political documents express the major value issues of their times; they are readily available for long periods; they appear at (more or less) regular intervals.

2. Prior to 1844 the institution of party platforms and party conventions had not yet been established (Porter and Johnson, 1968:1;Bain and Parris, 1973). The platform research was concluded before the election of 1968. For an extension of this research see note 9.

3. At this stage of the investigation the research was restricted to major party platforms. Whether the platforms of minor (and often incidental) parties conform to similar regularities remains to be proven.

4. Many content-analytic variables were not included in the analysis for reasons of reliability, validity, and cost. The selection of included variables was based on technical and not substantive reasons.

5. Many words in most languages have more than one sense; they have ambiguous meanings. In the ESFT analysis, word senses rather than words were classified using contextual disambiguation routines (Kelly and Stone, 1975). The computer not only classifies words or word senses, it also counts the number of times each category occurs in the text of each document. It then converts these absolute frequencies into percentages of all words counted, thus controlling for the variable length of the documents. These percentages are the basic data for all subsequent analyses.

6. In the BSFT analysis, the "raw" data forced a reconsideration: they strongly suggested the existance of two epochs where directed changes are continuous within epochs but discontinuous between epochs. See Weber, 1978 for details.

7. The rate of change and the change in the rate of change define the distinctions between these categories; i.e., dy/dx and d^2y/dt^2 . 8. A straight line is but a limiting case.

9. Prediction studies for the campaigns of 1968, 1972, and 1976 based on directed and contingent dynamics presented here are in progress.

10. Moving averages are defined mathematically in Equation 21 below.

11. The theoretical interest is in the independent contribution of the linear, parabolic, and higher order time components to the curve y, but because the values of t, t², and t² are highly intercorrelated, an orthogonal transformation of the polynomial expansion is in order. This also eliminates the otherwise frustrating problems of multicollinearity. After this transformation the contributions of t, t², and t² are no longer intercorrelated (Anderson and Houseman, 1942: 598, 615;Cf. Beyington, 1969:134ff). 12. The linear trend cannot be a general model because: 1) a linear trend with positive slope (for example) suggests directed change in the future in excess of 100% and in the past of less than zero percent which is patently absurd. 2) The slope of the linear regression is determined by the more extreme (or outlying) values of t: the more recent or ancient the observation, the greater its determination of the slope.

13. Theoretically, the first family of curves which would come to mind is the logistic one because directed value change is often conceived of as a process of relative growth and decay which (in s-shaped fashion) is limited by minimum and maximum values.

14. Maximization is accomplished by iterative computer procedures with initial parameter estimates base on visual inspection. Details are available from the authors.

15. Four variables displayed short-term cycles in both Democratic and Republican platforms, 3 in Democratic platforms only, and 4 in Republican ones only. The correlations ranged between .41 (.40 being the cut-off point) and .66 with a median of .48.

16. In the APP analysis the long-term trend was first estimated in all cases and, if present, short-term trend was estimated subsequently. In the ESFT analysis, the linear trend was estimated first, in most cases in long term trend second, the short term trend third. But in a few cases the last two were estimated in reverse order.

17. If we had substantially more observations for each time series then spectral analysis could be utilized (e.g., see Granger, 1964). 18. This procedure conflicts with our earlier objections towards the linear model and its polynomial expansion since it can have only limited applicability. At this point we presume that the linear trend may well be an approximation to the mid-section of a more extended logistic curve.

19. Substantive interpretation of the linear (or secular) trends is omitted for reasons of space (see Weber, 1978, Ch. 4). In general, there is an increasing concern with POWER, WEALTH, and SKILL or instrumental values, and a decreasing concern with RECTITUDE and RESPECT, or expressive values. These findings are compatible with much of the modernization literature. The five value categories just mentioned are defined below.

20. The average concern with a particular content category in (for example) APP documents is probably a function of the nature of the category, the number of words which constitutes the category and their frequencies, in these documents, in political documents in general if not in all written or even spoken language. But the relative contribution of each of these sources of variation remains unknown. The same is true for the slope of the linear trend (b) and the amplitudes of the cyclical components (c & d). The sources of variation of these "constants" across content categories and between classes of documents remains therefore also unknown.

Principle component analysis (Kim, 1975:486ff: 21. Rummel. 1970:112-113) of the content variables for each of the two epochs seperately, and subsequent transformation analysis (Rummel, 1970: 463-471) revealed an intraclass correlation of only .52. (Weber, 1978: Appendix B). Clearly, the two factor structures were dissimilar. The first epoch or "mercantilist period" includes the years 1689-1800 and the second or "capitalist period" includes the vears 1700-1972. The years 1790-1800 are included in both epochs because the exact point of demarcation is uncertain. The differences between epochs pertain to all the constants of the general detrending equation including the value for each content variable.

22. The issue was resolved by abstracting from these sources of differences, thus setting all slopes and amplitudes (i.e., b, c, and d in eq. 17) either +1 or -1, and all averages (i.e., a) at zero.

23. The category AFFECTION comprises the values of love and friendship. The Category RECTITUDE comprises the moral values of virtue, goodness, righteousness, and so on. The category RESPECT entails the values of status, honor, recognition, and prestige.

24. POWER-AUTHORITATIVE-PARTICIPANTS contains references to official actors in the power arena, such as "Prime Minister."

25. POWER-AUTHORITATIVE contains references to the expected and legitimate posession of power.

26. WEALTH is defined as income, services and goods, and persons involved in wealth transactions.

27. Three sub-categories of POWER. indicating collisions among actors and actions in the pursuit of power; the integration of diversified perspectives; and the names of various recognized systems of political thought.

28. It will be noted that different categories can in principle and in fact express the same theme, while the same categories may produce different ones. This paradox reflects the fact that the same matters may be discussed in different terms as operationalized by our content classification scheme.

29. WEALTH-TOTAL is the total of all wealth sub-categories; WEALTH-OTHER contains all references to wealth which are not transactions or participants; WEALTH-TRANSACTIONS contains references to the transfer of wealth.

30. TRANSACTION is a residual category; its entries indicate neither gain nor loss, but merely the process of exchange in values. 31. SCOPE values are this pursued as ends rather than means, such as "achievement" and "progress."

32. SKILL is proficiency in anything, arts or crafts, trade or profession.

33. A list of names of all countries, past and present.

34. UNDEFINED contains words with amibiguous value implications.

35. UNDEFINABLE contains words with no value implications whatever.

36. POWER-INDULGENCE indicates concern with the granting or gaining of power.

37. WELL-BEING contains references to the health and safety. WELL-BEING-SOMATIC indicates concern with physical health and issues of life and death.

38. ENLIGHTENMENT-INDULGENCE contains references to the granting or increasing of knowledge and understanding.

39. This category contains references to the loss of WELL-BEING.

40. This category contains references to time and to space.

41. The category NOT includes entries which indicate denial of one sort or another and its frequent usage indicates feelings of defensiveness.

42. ARENAS contains references to realms in which value transactions are carried out, but the exact nature of the value process is unknown or ambiguous; e.g., "environment" and "session." 43. The existence of the Kondratieff cycle is disputed (e.g., Burns and Mitchell, 1946; Gordon, 1952).

44. The identity of the factor structures was determined by transformation analysis. The two factor solution of the joint factor analysis explained over 50% of the total variance, the "survival" factor alone some 30%.

45. The seperate factor analyses of these remaining 32 categories explained 58% of the total variance in the Democratic platforms and 59% in the Republican platforms each producing 5 factors with eigenvalues greater than 1. In addition, the "Effective Government" and "Protagonists" factors each explained 10% of the total variance. Further details must be omitted here.

46. There is a determinant relationship between binary discriminant analysis and ordinary multiple regression (Cf. Kleinbaum and Kupper, 1978: 420-422).

47. In addition, the great hero response (+) to the Protagonists issues argues for free will, the collectivist response (-) argues for impersonal, anonymous, and determined agents of history.

48. The long standing dispute between materialists and idealists about the "true" nature of social causation may well be furthered by our planned elaborations. Certainly, it would not surprise us if both structural and ideational forces affect election outcomes.

49. We surmise that directed value changes represent society wide value changes while contingent value changes represent appeals to the electorate based upon elite perceptions and manipulations.

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