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ABSTRACT

A TECHNIQUE FOR ASSESSING THE CONCEPTUAL EQUIVALENCE OF INSTITUTIONAL VARIABLES ACROSS AND WITHIN CULTURE AREAS

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This technique was developed to cope with the problem of assessing the "equivalence" of observations made on political parties in different cultural contexts during the course of research on the International Comparative Political Parties Project. Called Z-Score Matrix Analysis, the technique is proposed as an alternative to principal components factor analysis to determine interrelationships among sets of variables thought to be equivalent indicators of the same concept. It is especially suited for studying interrelationships among indicators for small numbers of cases and for inquiring into the patterns of indicator covariation for specific cases. Both features are thought useful for the comparative study of political institutions.

Factor analysis is used initially to investigate the interrelationships among the indicators across all parties. The variables shown to be highly interrelated for all the cases are then subjected to a z-score transformation, and the z-scores of the indicators are summed to produce a mean z-score for each party over all the available indicators. Properties of the mean z-scores and the z-score matrix are then used to assess the patterns of interrelationships among the indicators without reference to correlation coefficients.

Z-Score Matrix Analysis, or more simply Z analysis, focuses on these properties in terms of four summary statistics: mean of the mean z-score, variance of the mean z-scores, mean of the variance, and variance of the variance. These statistics are interpreted respectively in Z analysis as the concept score, coefficient of concept variation, coefficient of indicator covariation, and coefficient of case variation. When these statistics are calculated for subsets of the original z-score matrix, which occurs when the parties are divided into culture groupings, one can investigate simultaneously both the within area interrelationships among the conceptual indicators and the within area patterns of means and variances. The insights offered by Z analysis are fundamentally different from those produced by factor analysis and are shown to be of great value for assessing the conceptual equivalence of a set of five indicators selected to measure institutionalization for 90 political parties in 33 countries.

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Introduction

The technique reported in this paper grew out of research into the characteristics of some 150 political parties operating in 50 countries during 1950-1962 that is being conducted within the International Comparative Political Parties Project.[2] The technique was developed to cope with the problem of assessing the "equivalence" of observations made on political parties in different cultural contexts--a problem which has been formulated in general terms for comparative inquiry as one of establishing "conceptual equivalence" (Przeworski and Tuene, 1970). The general issue of conceptual equivalence in the cross-national study of political parties is discussed at length in Janda (1971a), and specific findings on the diversities of political parties across and within nations grouped by different levels of industrialization are reported in Janda (1971b). This paper focuses on the specific technique employed in both papers to investigate and improve the conceptual equivalence of measures of major party variables when the variables are composed of multiple indicators that are mostly common across systems rather than specific to certain systems (see Przeworski and Teune, pp. 119-130).

The technique is called "Z Score Matrix Analysis" or simply "Z Analysis." I believe the technique is original, but further study may show its independent development earlier. Almost certainly, it has not been applied to comparative politics, particularly the study of political institutions. The technique is proposed as an alternative to principal components factor analysis when the problem is to determine interrelationships among sets of variables that are thought to be equivalent or nearly equivalent indicators of the same concept. By not employing correlation coefficients, it is more stable over small numbers of cases. By looking at indicator covariation, it is more conducive to examining patterns across indicators for specific cases. Both of these features seem especially suited to the comparative study of political institutions, for which the numbers of cases are apt to be small and the identities of individual cases of special interest. These features, and therefore the advantages of the technique, may be less relevant for cross-cultural survey research, where the numbers of cases tend to be very large and the respondents more or less anonymous.

Conceptual Equivalence and Measurement of Institutionalization

Based on theoretical literature dealing with parties, the conceptual framework of the ICPP Project identifies eleven major dimensions of variation, organized into two groupings according to a party's external relations with society or to its internal organization (Janda, 1970a). Due to their abstract conceptualization, none of these major dimensional concepts can be measured directly, and we must rely on sets of "basic variables" to indicate the amounts of these properties possessed by each party. One such concept, which will serve to illustrate the Z analysis technique, is "institutionalization"--defined similarly to McDonald (1955, pp. 16-17) and Huntington (1965, p. 394) as the establishment of recurring patterns of behavior within a persistent organization that exists apart from its momentary leaders (Janda, 1970a, pp. 87-88). I settled on six basic variables to indicate the extent of institutionalization:

1. The Year of Origin was chosen to represent actual persistence over time. The last two digits of the year--with origins before 1900 subtracted from 1900 and coded negatively (e.g., "1890" was coded "-10")--constituted our scale for party age. High scores indicate young parties and, presumably, low institutionalization.

2. Name Changes since 1940 were regarded as indicative of changing orientations to the electorate and thus another indicator of instability. An 18 point scoring matrix was created which incorporated the magnitude, frequence, and recency of name changes. A zero score meant no changes.

3. Organizational Discontinuity--as operationalized through a 19 point scoring matrix that incorporated the magnitude, frequencey, and recency of splits and mergers--was advanced as a disruptive influence on behavior patterns and thus an indicator of low institutionalization.

4. Leadership Competition--as evidenced by turnover in the top leadership position--was thought to indicate the presence of institutionalization rather than the reverse, for it demonstrated that the party existed as a social organization apart from its leaders. A 16 point scale was devised which gave more credit towards institutionalization for recent changes over earlier ones and for overt rather than covert processes underlying the changes. For this indicator, a high score meant high institutionalization.

5. Legislative Instability--as operationalized in terms of the coefficient of variation (mean deviation / mean) for the percentages of seats held in the lower house of the legislature during each year of our time period (1950-62)--reflected changes in party strength and thus instabilities in intraparty power relationships.

6. Electoral Instability--as operationalized again in terms of the coefficient of variation for the percentages of votes won (usually) in legislative elections held during our time period--reflected changes in party support and thus instabilities in party relationships to the electorate.

Additional conceptual considerations underlying each of these basic variables, the complete operationalizations, and the coding categories are described elsewhere (Janda, 1970b). This brief description of the basic variables selected as indicators of institutionalization should suffice for the present investigation.

If it is granted that these six indicators--taken together--more or less tap the dimension of institutionalization, the question arises whether they are--taken individually--conceptually equivalent indicators of institutionalization, both across and within cultures. That is, the issue of conceptual equivalence exists when our observations of phenomena in different social contexts are regarded primarily as indicators of an abstract concept involved in social theory and when there is some doubt that the observations mean the same thing for measuring the concept in the different contexts. In the more formal statement of Przeworski and Teune, "The question of equivalence arises if and only if system interference is present and measurement involves inference" (p. 106, italics omitted).

A general criterion of equivalence is offered by Przeworski and Teune:

> The similarity of the structure of indicators is the criterion for establishing the equivalence of measurement instruments. The similarity of structure can be defined in terms of the patterns of intercorrelations among the indicators (p. 117, italics, omitted).

The strategy they propose for assessing equivalence involves two other steps as well: conducting "univariate comparisons" of means and variances within systems and "comparing relationships" between variables within systems (pp. 42-45). This paper will pursue only the first two steps and then only to suit the illustration of the Z analytic technique. A more complete discussion of their strategy applied to the ICPP concepts is contained in Janda (1971a).

Studying Intercorrelations Through Factor Analysis

The general criterion of equivalence advanced by Przeworski and Teune is meant to be applied within each system--presuming that the indicators are satisfactorily correlated across systems. We must then first look at the overall results before determining whether to bother with sub-system analyses. Eventually, the ICPP Project will cover about 150 parties in 50 countries, chosen in random lots of 5 from each of 10 cultural-geographical areas of the world. At present, however, data have been collected and coded for only 90 parties representing 33 countries selected from each of the 10 areas with a slight under-representation of Western Europe and a stronger neglect of Latin America. Table 1 gives the intercorrelation matrix for the six indicators of institutionalization; Table 2 reports some statistics for the indicators plus the principal components factor analyses for different sets of these indicators; and the Appendix discloses the countries and parties involved in these analyses.[3]

TABLE 1: Intercorrelations of Six Institutionalization Indicators[a]

Indicators	1	2	3	4	5	6
1. Year of Origin	1.0					
2. Name Changes	.08	1.0				
3. Organizational Discontinuity	.20	.29	1.0			
4. Leadership Competition	-.52	.04	-.09	1.0		
5. Legislative Instability	.48	.08	.28	-.33	1.0	
6. Electoral Instability	.49	.14	.49	-.50	.71	1.0

[a]Missing data was excluded pair-wise in computing the correlations.

As the intercorrelation matrix shows, the variables are mainly correlated with one another in the expected direction. (Because Leadership Competition is the only variable scored "positively"--so that high values indicate institutionalization--negative relations between it and the other variables are expected.) The exception is the relationship between Leadership Competition and Name Changes, which should be negative and high but is positive and low. In fact, most of the correlations of variables with Name Changes are very low--with the exception of Organizational Discontinuity. Informative as it is, examination of the intercorrelation matrix becomes taxing before it becomes conclusive, so reference should shift to Table 2 and the factor analyses, which summarize the information in the matrix.

TABLE 2: Statistical Analysis of Institutionalization Indicators

Name of Indicator	No. of Cases:	Mean	Stnd. Devn.	Unrotated Factor Loadings and Pct. Explained Variance 45%	54%	63%
Year of Origin	90	34.1	26.6	-74	-75	-78
Name Changes	90	1.1	2.9	-22		
Organizational Discontinuity	88	7.8	6.9	-54	-51	
Leadership Competition	87	7.3	5.2	65	67	72
Legislative Instability	86	.55	.54	-79	-80	-80
Electoral Instability	65	.36	.42	-89	-89	-86

Factor analysis is a standard technique for determining the amount of shared variance among a set of variables. Usually, factor analyses of political data culminate in analyses of loadings on the reference axes which have been rotated orthogonally to produce a solution that emphasizes interrelationships among variable clusters. (See Rummel, 1970, for an excellent work on factor analysis and its applications to political research.) But the unrotated factor solution, called principal components or principal axes analysis, serves our purpose better, for it extracts the maximum amount of variance that the intercorrelated indicators have in common. The proportion of variance "explained" by the first unrotated factor can be interpreted directly as shared variance; and the loadings of the variable on the factor can be read directly as linear correlations of the variables with that factor. The principal components solutions for a series of factor analyses done with all six, then five, then three institutional indicators are given in the three right-hand columns of Table 2.

The first solution shows that the indicators are generally intercorrelated in the expected directions, with the underlying factor explaining 45% of the variance among them. (Again, the fact that five of the signs for the factor loadings are negative and only that for Leadership Competition is positive is only an artifact of our scoring system.) However, Name Changes correlates only -.22 with the factor, meaning that it shares the least amount of its variance with the other measures. Upon examining the low mean (1.1) and relatively large standard deviation (2.9) for this variable, we realize that it is a highly skewed distribution with some deviant parties that could profoundly affect the calculation of its correlations with the other variables.[4] We might--and later we will--plot the joint distributions of each variable in turn with the others to learn in detail the patterns of relationships. The examination of scatter diagrams often discloses scaling errors in scoring or even suggests improvements in scoring the variables to conform to the linear model. But for this presentation, we will not probe the relationships to that depth nor will we challenge the assumption of linearity in an effort to save the indicator in the measurement of institutionalization. Instead, we will drop it on the grounds that it does not correlate highly enough with the other indicators across systems and thus cannot be conceptually equivalent to them.

The second solution in Table 2 is for a reduced correlation matrix of five indicators--with Name Changes dropped from the analysis. Note that the proportion of explained variance has risen to 54%. The minimum correlation of an indicator with the refined factor is now at the .51 level for Organizational Discontinuity, which has itself dropped from .54 for the first solution--reflecting the fact that it was more highly correlated with Name

Changes than were the other variables. By dropping Organizational Discontinuity, the proportion of explained variance can be increased to 63%, but this increase of 9 percentage points comes at the cost of reducing the scale from five items to four. Because reliability of a measuring instrument is a function of the number of items as well as the magnitude of their intercorrelations, one cannot rely solely on the proportion of variance explained to determine the optimum scale from the standpoint of test reliability. According to an approximation of the Spearman-Brown formula for determining the effect of test length on reliability, the five item scale is slightly more reliable, with a coefficient of reliability of .80 compared to .78 for the other.[5] But classical reliability estimates take no account of conceptual equivalence, and before accepting the five-item scale on conventional grounds, we should pursue the study of the intercorrelations, as Przeworski and Teune suggest, <u>within</u> systems as well as across them.

Although Przeworski and Teune mainly discuss systems in terms of nations, their rationale for comparative inquiry extends also to sets of nations grouped in culture areas. They argue that "social phenomena are not only diverse but always occur in mutually interdependent and interacting structures, possessing a spatiotemperal location" and that "specific obversations must be interpreted within the context of specific systems" (pp. 12-13). Comparative studies of political institutions are often criticized because they do not consider culture-area (systemic) interactions that confound analysis within a given context. The comparative study of political parties is especially vulnerable to this line of criticism. It is therefore important to consider the possible effects of culture-areas on the interrelationships among our indicators.

The choice of particular culture-area groupings for this analysis was constrained somewhat by the present availability of data for only 90 parties in 33 countries. They readily support division into three cultural-geographical areas: Europe (East and West) and the Anglo-American countries; Africa south of the Sahara; and the remaining countries in North Africa, the Middle East, Asia, and Latin America.[6] The first grouping represents nation-states that have emerged from European cultural and political experiences; the second consists entirely of former colonies that obtained independence during our time period; and the last represents a mixture of old and new nations standing at various stages between the European and African groups. These divisions, the nations that they encompass, and the numbers of parties for each nation in our study are given in Table 3.

TABLE 3: Parties and Nations by Three Culture-Area Divisions

European and Anglo-American Countries	N. Africa, Middle East, Asia, and Latin America	Africa South of the Sahara
1 Albania	4 Burma	1 Cent. Af. Rep.
3 Australia	2 Cambodia	2 Chad
4 Denmark	4 Cuba	2 Congo (Brazz)
5 France	2 El Salvador	4 Ghana
5 Germany, East	4 Indonesia	1 Guinea
3 Germany, West	1 Korea, North	2 Kenya
4 Iceland	4 Lebanon	3 Sudan
3 Ireland	3 Nicaragua	6 Togo
2 New Zealand	1 Tunisia	3 Uganda
1 Portugal	2 Turkey	1 Upper Volta
2 United Kingdom	3 Venezuela	25 parties, 10 countries
2 United States	30 parties, 11 countries	
35 parties, 12 countries		

What seems to be in order here are a series of separate factor analyses for the parties within each culture region, but technical problems begin to complicate the picture. While progress has been made in the comparison of factor structures (see Rummel, 1970, pp. 173-174) and several techniques are available, all of them necessarily depend initially on stable factor structures. Based on a total of 90 parties, the correlations underlying the overall factor analysis can be regarded as fairly stable--hence the factor solution can be considered stable. But when the sample is divided into three culture groupings with a maximum of 35 parties per group, problems of deviant cases and sampling error present themselves to a degree that puts factor analysis into serious question as an acceptable technique for comparing intercorrelation patterns for parties within systems. Consider the disparate sets of loadings in Table 4 for the principal components analyses of all five indicators done separately for the parties within each cultural grouping.

TABLE 4: *Principal Components Analyses for Five Institutionalization Indicators Done Within Three Cultural Area Groupings*

Name of Indicator	European & Anglo-Amer. N=35	N. Africa, Asia, etc. N=30	Africa S. of Sahara N=25
Year of Origin	-.54	-.50	-.91
Organizational Discontinuity	-.73	-.53	.76
Leadership Competition	.10	.14	-.23
Legislative Instability	-.82	-.81	-.78
Electoral Instability	-.88	-.97	.17
Explained variance:	46%	43%	42%

As might be expected, the introduction of the cultural area groupings operates in effect as a "control variable" to reduce the variation among the indicators within each grouping and thus results in appreciably less explained variance within systems than the 54% obtained for the set of five indicators across all systems. A greater problem of interpretation lies instead with the patterns of the factor loadings compared with those in Table 2. Both the European and N. African (etc.) groups show markedly lower loadings for Leadership Competition and Year of Origin, while Organizational Discontinuity has picked up considerably for only the European grouping. An entirely different pattern emerges for Africa south of the Sahara, which has the smallest number of cases, and both the values and the signs have shifted almost arbitrarily. The changed factor structure seems to be due not only to the smaller sample sizes but also to the reduction of variance in the indicators produced by the within system division itself. Correlations between indicators are thus attenuated and overpowered by the relationships among indicators that have retained more variance. Because within system groupings in the comparative study of political institutions are likely to result in limited subsample sizes and also in reduced variance and attentuated correlations, factor analysis of intercorrelation matrices seems to be wanting as a general technique for studying indicator interrelationships within systems.

An Alternative Technique: Z Score Matrix Analysis

It was the attempt to deal with another complication of factor analysis that led to an alternative analytical technique for determining interrelationships among indicators without using correlation coefficients. The earlier problem arose from the need to assign scale scores to parties on variables like institutionalization. The principal components solution only reports the correlation of the indicators with the underlying factor, disclosing that they tapped a common property without telling "how much" of that property any party had. It is true that the computation of "factor scores" can assign such a value to each case in accordance with its value on each variable multiplied by the loading of that variable on the factor concerned. However, this procedure is obstructed (but not hopelessly) by the requirement of no missing data--a requirement that we could not meet. Moreover, factor scores are weighted by factor loadings and influenced by the standard deviations of the indicators, confusing sight comparisons between the component and composite scores for individual parties.

In order to obtain composite party scores on sets of indicators for a given concept, I opted for using factor analysis only to identify which indicators were intercorrelated across systems and then crested the parties' scores completely outside of the factor analytic model. All original scores for the indicators selected through the factor analysis were transformed into standard scores--commonly but somewhat inaccurately called "z-scores"--according to the familiar formula:

$$\text{z-score} = \frac{\text{Observation for Case i - Mean of Distribution}}{\text{Standard Deviation of the Distribution}}$$

This formula produces a linear transformation of the values for all the indicators into a comparable or "standard" scoring system with a mean of 0 and a standard deviation (and variance) of 1. A party's z-score on any indicator is thus an expression of its position with respect to the mean of the original distribution in relationship to the position of all parties. The sign of the z-score--positive or negative--states whether it lies respectively above or below the mean, and the magnitude of the z-score tells relatively how far it is from the mean in standard deviation units.[7] The z-scores applicable to a given party were then summed across the conceptual indicators and then divided by the number of indicators for which data was available.[8] The resulting <u>mean z-scores</u> constituted the measures for each party on each concept.

When these mean z-scores were printed out in matrix form along with their component z-scores, it was seen that properties of the mean z-scores and the matrix could be exploited to assess the patterns of interrelations among the indicators and to approximate the principal components computation for percentage of explained variance for the indicators across the entire sample. An intuitive understanding of these properties can be gained by considering Table 5, in which Matrix A represents a matrix of perfectly correlated variables transformed into z-score form and Matrix B that of an infinite number of completely uncorrelated variables also in z-score form.

Reference Table 5, p. 8

When variables are perfectly intercorrelated, the z-scores for all the cases are identical across each variable--regardless of the means and standard deviations of the original distributions. From the standpoint of measurement theory, any variable beyond the first is redundant, for no new information is added. Therefore, the mean of the z-scores for any case is exactly equal to that case's score on any other variable, and the variance of the individual indicators around the mean is obviously 0. Moreover, the column of mean z-scores will have a mean of 0 and a variance of 1--as does its component indicators. In effect, given the instance of perfect intercorrelations among the indicators, the original variance among the cases is perfectly preserved when averaging their z-scores.

When variables are completely uncorrelated, which is the situation represented in matrix B in Table 5, the mean z-scores will all tend towards 0 and the variances calculated across indicators will ~~also~~ all tend toward 1, ~~both equalling 0 in the limiting case of an infinite number of indicators.~~ Both the variance of the mean z-scores and the variance of the variances will ~~also~~ tend toward 0. Illustrations of these tendencies are given

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TABLE 5 : Hypothetical Z Score Matrices for a Set of n Perfectly Correlated Variables and an Infinite Number of Uncorrelated Variables

	Matrix A: Perfectly Correlated Variables							Matrix B: Uncorrelated Variables						
Case	Var_1	Var_2	Var_3	. . .	Var_n	Mean	Variance	Var_1	Var_2	Var_3	. . .	Var_∞	Mean	Variance
$Case_1$	-.75	-.75	-.75	. . .	-.75	-.75	0	-.72	-.055	.98	. . .	-1.21	0	1
$Case_2$	-.47	-.47	-.47	. . .	-.47	-.47	0	1.00	1.13	-1.29	. . .	-1.46	0	1
$Case_3$	.81	.81	.81	. . .	.81	.81	0	1.72	1.83	1.41	. . .	.99	0	1
.	.	.	.	. . .	.	.	.	.	.	.	. . .	.	.	.
.	.	.	.	. . .	.	.	.	.	.	.	. . .	.	.	.
.	.	.	.	. . .	.	.	.	.	.	.	. . .	.	.	.
$Case_k$	1.09	1.09	1.09	. . .	1.09	1.09	0	.44	-.40	2.13		-1.07	0	1
Means	0	0	0	. . .	0	0	0	0	0	0	. . .	0	0	1
Variance	1	1	1	. . .	1	1	0	1	1	1	. . .	1	0	0

in Table 6, which reports the summation of z-scores for 90 cases of random data generated for each of 40 variables with different distributional properties.

TABLE 6: Statistical Analysis of Random Data in Z-Score Form

Number and Characteristics of the Random Variables for 90 Cases[a]	Mean of Means	Variance of Means	Mean of Variance	Variance of Variance
10 variables: all means = 100, but the standard deviations ranged from 90-99	.00	.10	.90	.16
20 variables: the means ranged from 20-39, but all standard deviations = 10	.00	.06	.94	.08
20 variables: first set of 10 variables plus 10 with mean = 100 and s.d. 200-209	.00	.05	.95	.06
40 variables: both 20 variables sets above were combined	.00	.02	.98	.03

[a]These data were generated at the University of Essex using the program VARGEN, which permits specifying means and standard deviations for the random variables.

It can be seen from Table 6 that the hypothetical properties of a matrix composed of an infinite number of random variables are closely approximated by a set of 40 random variables and are reasonably approximated by smaller sets, of even as few as ten variables. The mean of the means appears to converge to its expected value of 0 most readily, while the variance of the variance demures the most. Note the interesting inverse relationship between the variance of the means and the mean of the variance, which together always sum to unity. This represents the total variation in the observations and can be thought of as being partitioned into systematic covariation--represented by the variance of the means--and random or uncorrelated error variation--represented by the mean of the variance.

It is proposed that these properties can be used generally in comparative research (and possibly in other fields) to determine interrelationships among indicators when the number of cases is small and when special attention is to be given to the composition of scores for particular cases. The four summary statistics from the z-score matrix also provide some analytical leverage not readily forthcoming from factor analysis of correlation matrices. These statistics can be interpreted according to their potential uses in assessing conceptual equivalence and are given more descriptive labels for their new uses as follows:[9]

Mean of the mean z-scores: This will be referred to as the concept score when calculated for any set of mean z-scores. Depending on the impact of missing data, it will always tend to have a value of 0 when calculated for the entire set of cases for which the z-scores were created. For subsets of cases, the concept scores can vary greatly, demonstrating both positive and negative values. When calculated for parties within systems, variations in concept scores will indicate the presence of systemic factors affecting the incidence of the phenomenon within the system, but not necessarily the lack of conceptual equivalence.

Variance of the mean z-scores: This will be called the coefficient of concept variation when calculated for any set of mean z-scores. It is a measure of the overall interrelationships among the indicators, reflecting the amount of variation among the indicators that is systematically retained in the creation of the composite measure. Depending on the impact of missing data, it appears to be linearly related to the proportion of variance explained by the first unrotated factor. Low values for the coefficient of concept variation--across or within systems--warn that the concept is unlikely to prove to be highly related to other variables in theoretical statements that apply respectively across or within systems.[10] Low coefficients of concept variation, however, do not necessarily mean lack of conceptual equivalence.

Mean of the Variance: This will be known as the coefficient of indicator covariation when calculated for any set of mean z-scores. For the entire set of cases, it will be inversely proportional to the coefficient of concept variation--depending on the impact of missing data. But it may vary separately when calculated for subsets of cases. It is a measure of the *lack* of interrelationships among the indicators and *is* a guide to lack of conceptual equivalence.

Variance of the Variance: This will be known as the coefficient of case variation when calculated for any set of mean z-scores. While the coefficient of indicator covariation expresses the mean variance of z-scores calculated across indicators, the coefficient of case variation reflects instances of deviation from the general pattern of indicator covariation. It will flag the existence of cases which show relatively poor or good relationships across the indicators. The deviant cases may be accountable in eqivalence terms, but they are also apt to point out gross measurement error in scoring mistakes.

Z Analysis of Institutionalization Indicators: Across and Within Systems

The four summary statistics of Z analysis were calculated separately for the z-score matrices of both sets of five and four indicators of institutionalization that were suggested by the principal components analysis. In addition, four random variables--with means and standard deviations resembling the means and standard deviations of the set of four indicators--were generated and transformed into z-scores for comparison. The Appendix reproduces the z-score matrix for the set of five indicators and the means and variances for both the four and five item scales. Table 7 reports the summary statistics for both the real and random data.

TABLE 7: Z Analysis Results for Random and Real Data

Matrices in the Z Analysis:	Concept Score	Coefficient of Concept Variation	Coefficient of Indicator Covariation	Coefficient of Case Variation
Random Data: Fake World, N=90	.00	.24	.77	.35
Fake Europe, N=35	.02	.31	.81	.45
Fake N. Africa, etc. N-30	-.06	.20	.72	.31
Fake Africa N=25	.03	.21	.74	.29
Five Item Scale: N=90	-.02	.51	.49	.14
European, etc., N=35	.61	.23	.43	.13
N. Africa, etc., N=30	-.30	.27	.51	.11
Africa S. of Sahara, N=25	-.56	.25	.56	.18
Four Item Scale: N=90	-.03	.61	.38	.10
European, etc., N=35	.68	.27	.39	.13
N. Africa, etc., N=30	-.30	.28	.39	.08
Africa S. of Sahara N=25	-.69	.27	.35	.09

The results of the Z analysis are very illuminating. Consider first the statistics for the "worldwide" random data constructed with means and standard deviations approximately equal to the means and standard deviations of the real data for the four indicators. The statistics parallel those reported in Table 6 for larger numbers of random variables. Even with only four variables, the concept score (mean of the means) equals 0. The coefficient of concept variation (variance of the means) shows some systematic variation purely by chance, which is mirrored in the coefficient of indicator covariation (mean of the variances). But for rounding errors, both would again sum to 1. And the coefficient of case variation is double what it was before, showing that chance factors have combined across only four variables to give some cases much different variances. These findings with random data should serve as good benchmarks from which to evaluate the results obtained with real data.

Again taking the worldwide results first, we find that the coefficients of concept variation approximates in value the proportions of variance explained by the principal components solutions for the five and four item scales, which were .54 and .63 respectively.[11] The concept scores do tend toward 0, but they are slightly off because of the effect of missing data. The coefficients of case variation show more pronounced scoring discrepancies for the five item scale than the four item scale. Otherwise, we are not advanced much beyond the factor analysis in deciding between the scales for the measurement of institutionalization.

The breakdown into cultural areas helps us considerably, for we can now detect differences in interindicator relationships within systems that argue against the use of the five item scale--notwithstanding the fact that classical measurement criteria would rate the longer scale as slightly more reliable. Note that although the coefficient of variation for the five item scale hovers at or around .25 for each culture grouping, the coefficient of indicator covariation rises from .43 to .56 as one moves from the European parties to the African parties. Clearly, the relationships among the indicators do not hold as well for the African and other parties as they do for the European parties. The relatively high coefficient of case variation for the African parties suggests that the breakdown in interrelationships is not general across all the parties but is confined to some deviant cases. An examination of the z-score matrix in the Appendix will show that the main lack of indicator covariation lies with a set of parties that are low in all the indicators of institutionalization except Organizational Discontinuity, reflecting the absence of splits and mergers for these parties.

We already knew that Organizational Discontinuity did not fit equally with the other indicators <u>across</u> the systems, and now we know that a major source of the inconsistency lies with six of the African parties which have an indicator covariation equal to or greater than 1 on the five item scale. Three of these parties (the Ghanian United Party, the Togolese UDPT, and the Ugandan Kabaka Yekka Party) have high negative scores on all the other applicable institutionalization indicators but scores of +1.13 on Organizational Discontinuity, meaning that they did not suffer <u>any</u> splits or mergers during our time period. Because the Organizational Discontinuity indicator is not comparably interrelated with the other indicators--especially within the African area--it is not comparably "substitutable" as an institutionalization indicator. Because it is not equally substitutable as an institutionalization indicator--according to the Przeworski and Teune criterion of equivalence--it cannot be conceptually equivalent to the other three.

When we shift our attention from the patterns of interrelationships among the indicators to the patterns to the concept scores and coefficients of concept variation within each of the cultural areas, we find that Z analysis facilitates the second step in the Przeworski and Teune strategy for investigating conceptual equivalence: conducting "univariate comparisons" of means and variances within systems. According to this test, cultural "interferences" are <u>not</u> expected if the means and variances for a measure are equal (or approximately so) when calculated separately for the data within systems. The Z analysis shows that there most certainly is systemic interference reflected in our measurement of institutionalization. While the coefficients of concept variation within each grouping are approximately equal, the concept scores themselves are distinctly different.

Refining our institutionalization measure by dropping Organizational Discontinuity only served to increase the differences among the concept scores. With a score of .68, the European and Anglo-American parties now stand highest on the scale and the African parties with a score of -.69 stand the lowest. But should this finding in itself be regarded as a demonstration of the cross-cultural inapplicability of the institutionalization measure? Would we want a measure that did not score the European parties high on this concept in comparison with parties in the developing areas?

Univariate comparisons of means and variances must be made with caution in judging conceptual equivalence. In many ways, comparable variances--which means comparable coefficients of variation in Z analysis--are more important than comparable means. If one argues that systemic factors will depress (or inflate) the occurrence of a phenomenon, then he should expect to obtain differences across systems in the magnitude of the pehnomenon--especially under "perfect" measurement. But if one also argues that--despite systemic factors--the phenomenon will still vary within systems, then adequate within systems variance is a proper requirement of adequate measurement. The "comparable means and variances" test, while a good detector of systemic effects on the concept, is not a good criterion for judging conceptual equivalence unless the means vary when they should not or the variance within one or more of the systems is not as great as expected.

To summarize the Z analysis results, we have learned much about our institutionalization indicators from the standpoint of conceptual equivalence. Z analysis revealed that the four item scale not only yielded more explained variation that the five item one but that the patterns of indicator interrelationships in the refined scale were more consistent within culture areas. We also know that while culture area factors account for much of the considerable variation in concept scores, parties vary about equally in institutionalization within each area. Finally, to the extent that there are "deviant" parties that do not display the same patterns among the indicators within culture areas, this obstinacy--as measured by the coefficient of case variation--is more pronounced among the Western parties than the non-Western ones.

Classical statistical tests are not of much help in determining the significance of these results, but a useful comparison may be made by reference to the Z analysis of four items of random data, given in Table 7. The coefficient of concept variation for the real data is .61 compared to .24 for the random data. If the number of indicators--not the number of cases--were greater, the coefficient for random data would be lower, making statistical significance easier to demonstrate for larger scales than smaller ones, In conventional significance testing, larger numbers of cases provide for easy demonstration of non-chance differences. The numbers of cases does affect Z analysis calculations somewhat, however. The fake cultural groupings of the 90 cases of random data do not produce concept scores exactly equal to 0, and all of the coefficients show some fluctuation around their values for 90 cases. The consistency of the real data results and their distinct differences in value from the random results suggest that the indicators are interrelated across and within systems closely enough to move on to the final step in assessing conceptual equivalence: comparing the relationships of institutionalization to other variables both across and within systems.

Conclusion

Z score matrix analysis proved extremely useful as a data reduction technique for investigating simultaneously both the within system interrelationships among selected conceptual indicators and the within system patterns of means and variances for the measured concept. It seems most suitable for use subsequent to a principal components analysis of all the proposed indicators across systems. Thus, factor analysis would be used to identify the indicators which would then be scrutinized under Z analysis for within system irregularities. This double-barrel approach to assessing conceptual equivalence should determine whether similarity in the structure of indicators exists cross-culturally.

But the final and by all means the most crucial test of conceptual equivalence is whether or not the within system relationships involving the measured variable exist in theoretically interpretable ways. We are moving toward this stage in the ICPP Project, but first we must be satisfied with the cross-cultural structure of indicators for the ten other major concepts in our conceptual framework. Hopefully, Z analysis will prove as useful on the long path ahead, but the technique is new and not thoroughly tested. Comments on it will be most welcome at the APSA Workshop session where this paper will be discussed.

on the ICL 1900. James Alt was kind enough to prepare my data for SALY and to introduce me to her personally. Lynn and Michael Doscher then helped smooth out our relationship the many times SALY rejected my advances.

4 Ideally, measures of skewness and kurtosis should also be reported to reveal more about the nature of these distributions, but these were not readily availabe from SALY.

5 The measurement literature is evasive in providing exact formulae for calculating reliabilities in the present situation, when the original data has been transformed into z-scores and the "test" score is in mean z-scores. A suitable Kuder-Richardson formula probably exists, but Spearman-Brown reliabilities were instead estimated from the average item intercorrelations using formulae 17.15 and 17.16 in Guilford (1956, p. 454).

6 Alternative cultural-geographic groupings can be and will be examined, but this one seemed most suitable given the available data. Still other bases for grouping nations into cultural clusters are suggested by alternative conceptions of systemic factors. A more extensive test of conceptual equivalence according to nations grouped into three levels of industrialization can be found in Janda (1971b). Yet another examination of conceptual equivalence based on nations grouped by typology of party systems await the collection of data on more units of analysis.

7 For those unfamiliar with z-scores, a specific example might help to explain the transformation. The year of origin for the British Labour Party is recorded as 1900 in our project. The mean of the set of data for year of origin is 1936.1 and the standard deviation is 26.6. Applying the z-score formula, we get 1900 minus 1936.1 divided by 26.6, yielding a z-score of -1.36. Conversely, the Korean Workers Party, which was

NOTES

[1]This paper was prepared while I was on leave from Northwestern University for 1970-71 as a Visiting Fellow of the Foreign Policy Research Institute in Philadelphia. I am grateful to Dr. William Kintner, Director of FPRI, for supporting me while I devoted full time to my parties research from September to February in Philadelphia and from March to June at the University of Essex in England. I am also indebted to Professor Henry Teune, Acting Chairman of the Department of Political Science at the University of Pennsylvania, and Professor Anthony King, Chairman of the Department of Government at the University of Essex, for welcoming me into their departments as a visitor on leave and allowing me to make extensive use of their computing time and facilities. Jean Blondel, through his many kindnesses, helped to make my stay at Essex particularly enjoyable, and Mary Welfling, who administered my research project at Northwestern so capably in my absence, improved my peace of mind the entire year by insulating me from crises at home.

[2]The International Comparative Political Parties Project was established in 1967 with support from the National Science Foundation, Grants GS-1418 and GS-2533. The ICPP Project uses a variety of information retrieval techniques to extract data about political parties from the available literature. Discussions of the project's methodology are contained in Janda (1968 and 1969). Its substantive objectives are presented in Janda (1970a).

[3]All the statistical analyses reported herein were performed at the University of Essex Computing Centre using the flexible SALY system for social science data analysis on the ICL 1900. James Alt was kind enough to prepare my data for SALY and to introduce me to her personally. Lynn and Michael Doscher then helped smooth out our relationship the many times SALY rejected my advances.

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founded about 1945, receives a z-score +.33. Unlike their original values, which provide no information about their positions in the distribution of party ages, the parties' z-scores tell that the British Labour Party stands 1.36 standard deviations older than the mean party age and the Korean Workers Party .33 of a standard deviation younger. The z-score transformation is completely linear with respect to the original values, and it merely rescales the data in a different scoring system. In this sense, it is much like transforming Fahrenheit degrees into Centigrade.

[8]A program to calculate z-scores on the ICL 1900 was kindly written especially for my use in the SALY system by Lynn Doscher. An earlier program to compute z-scores on the CDC 6400 was written by Aileen Lum Takahaski, who tailored it to the ICPP Project's specifications.

[9]In formulating these labels for the summary statistics from Z analysis, I have been careful to avoid using the terms "variance," and "covariance," which have specific usage within statistics. I want to avoid the possible confusion between the variations being studied in Z analysis and the more conventional and general procedures for the analysis of variance and covariance, although there may well be formal relationships between them. I would welcome learning of a rigorous investigation into these relationships and also into that between the coefficient of variation from Z analysis and the proportion of explained variance from the principal component factor analysis.

[10]Ordinarily, the presence of random measurement error inflates the amount of variance shown by the variable over its "true" amount. But in the Z analysis model, the presence of random error serves to decrease the concept variation. I do not know the various implications of this, and I would again welcome help in understanding its consequences. One standard consequence of random measurement error would seem to still hold: that its impact would depend on the absolute variation in the concept. Given a certain amount of measurement error, the less the variation in the concept the greater the proportion of measurement error. Thus when "control" variables like culture-area are introduced and operate to reduce the amount of concept variation, measurement error will by itself act to attentuate the within system correlations involving the concept. Thus vastly different coefficients of concept variation within systems should signal corresponding differences in the explanatory potential of the concept within the system. Shifting one's attention to comparing the forms of relationships through regression analysis rather than comparing the strength of relationships through correlational analysis will skirt some of these difficulties (see Blalock, 1970).

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MATRIX OF Z-SCORES AND SUMMARY STATISTICS CALCULATED FOR EUROPEAN AND ANGLO-AMERICAN PARTIES ONLY

Year of Origin	Organizational Discontinuity	Leadership Competition	Legislative Instability	Electoral Instability	All Five Items: Mean z-score	All Five Items: Variance	Only 1, 3, 4, 5: Mean z-score	Only 1, 3, 4, 5: Variance	Names of the Parties
3.86	0.84	1.69	0.88	0.77	1.61	1.38	1.80	1.54	U.S. Democratic
3.03	1.13	1.69	0.82	0.75	1.48	0.71	1.57	0.84	U.S. Republican
1.29	1.13	0.91	0.93	0.80	1.01	0.03	0.98	0.03	British Labour
3.75	1.13	1.30	0.93	0.77	1.58	1.21	1.69	1.45	British Conservative
1.67	-0.61	1.69	0.84	0.75	0.87	0.70	1.24	0.20	Australian Labour
-0.37	1.13	-1.02	0.88	0.72	0.27	0.68	0.05	0.62	Australian Liberal
0.76	1.13	0.72	0.93	0.68	0.84	0.03	0.77	0.01	Australian Country
-0.03	1.13	0.72	0.92	0.70	0.69	0.15	0.58	0.13	New Zealand National
0.69	0.99	0.14	0.88	0.77	0.69	0.09	0.62	0.08	New Zealand Labour
0.31	1.13	0.72	0.92	0.77	0.77	0.07	0.68	0.05	Irish Fianna Fail
0.42	1.13	1.30	0.84	0.63	0.86	0.10	0.80	0.11	Irish Fine Gael
0.84	0.41	0.72	0.73	0.65	0.67	0.02	0.73	0.00	Irish Labour
-0.37	-0.61	1.69	0.75	0.65	0.42	0.69	0.68	0.53	French MRP
1.25	-0.90	1.69	0.51	0.34	0.58	0.79	0.95	0.30	French Radical Socialist
1.10	-0.18	0.33	0.55	0.72	0.51	0.18	0.63	0.08	French Socialist
-0.49	-0.90	1.10	-0.16	-0.14	-0.12	0.45	0.08	0.37	French Gaullists (RPF/UNR)
0.53	-0.47	-0.25	-0.03	0.58	0.07	0.18	0.21	0.13	French Communist
-0.41	0.55	-1.02	0.79	0.75	0.13	0.52	0.03	0.60	W. German CDU
2.46	-0.61	1.69	0.93	0.68	1.03	1.06	1.44	0.49	W. German SPD
-0.52	-0.18	1.69	0.69	0.46	0.63	0.58	0.58	0.62	W. German FDP
0.16		-1.02	1.03	0.56	0.18	0.58	0.18	0.58	Portugese National Union
2.12	1.13	1.69	0.99	0.82	1.35	0.23	1.40	0.28	Danish Social Democratic
2.43	0.55	0.33	0.92	0.70	0.98	0.56	1.09	0.64	Danish Venstre
0.72	1.13	1.69	0.92	0.80	1.01	0.08	0.98	0.09	Danish Conservative
1.10	1.13	0.72	0.82	0.63	0.88	0.04	0.82	0.03	Danish Radical Venstre
0.19	0.55	0.72	0.95	0.77	0.64	0.07	0.66	0.08	Icelandic Independence
0.69	0.41	-0.64	0.92	0.46	0.37	0.28	0.36	0.35	Icelandic Progressive
0.16	0.41	-0.64	0.84	0.63	0.28	0.26	0.25	0.32	Icelandic People's Union
0.69	0.26	1.30	0.86	0.65	0.75	0.11	0.87	0.07	Icelandic Social Democrat
-0.26	-0.61	-1.02	1.03	0.87	0.00	0.66	0.15	0.71	Albanian Labor
-0.41	-1.48	0.91	1.03		0.01	1.06	0.51	0.43	E. German Socialist Unity
-0.41	-0.18	0.52	0.77		0.18	0.23	0.29	0.26	E. German CDU
-0.52	0.41	-1.02	0.73		-0.10	0.49	-0.27	0.54	E. German National Democratic
-0.41	-0.03	1.10	0.77		0.36	0.37	0.49	0.42	E. German Liberal Democratic
-0.52	0.55	-1.02	0.73		-0.07	0.54	-0.27	0.54	E. German Democratic Peasants
				Concept Scores:	.61		.68		
				Coefficients of Concept Variation :	.23		.27		
				Coefficients of Indicator Covariation :		.43		.39	
				Coefficients of Case Variation :		.13		.13	

MATRIX OF Z-SCORES AND SUMMARY STATISTICS CALCULATED FOR N. AFRICAN, ASIAN, MIDDLE EASTERN, & LATIN AMERICAN

Year of Origin	Organizational Discontinuity	Leadership Competition	Legislative Instability	Electoral Instability	All Five Items: Mean z-score	All Five Items: Variance	Only 1, 3, 4, 5: Mean z-score	Only 1, 3, 4, 5: Variance	Names of the Parties
-0.41	-0.18	-1.02	0.31	0.48	-0.16	0.29	-0.16	0.36	Venezuelan URD
-0.65	1.13	-0.64	0.34	0.72	0.22	0.46	-0.00	0.31	Venezuelan COPEI
-0.26	-0.18	0.91	-1.56	-0.33	-0.28	0.62	-0.31	0.77	Venezuelan AD
0.01	-1.63	1.10	-1.38		-0.47	1.22	-0.09	1.03	Cuban PRC (Autentico)
1.10	-1.63	-0.06	-1.38		-0.49	1.20	-0.11	1.03	Cuban Liberal
0.30	-1.63	-0.06	-1.38		-0.64	0.79	-0.31	0.62	Cuban Democratic
0.35	-0.18	-0.06			0.04	0.05	0.15	0.04	Cuban Popular Socialist
-0.36	-1.63	0.72	1.03	0.27	-0.04	0.92	0.36	0.36	Salvadorean PRUD
-0.37	1.13	-1.02	1.03	-1.22	-0.09	0.99	-0.40	0.77	Salvadorean PAR
-0.07	-0.03	-1.02	1.03	0.65	0.11	0.49	0.15	0.61	Nicaraguan PLN
-0.86	1.13	-1.22	-1.01	-1.53	-0.70	0.89	-1.15	0.06	Nicaraguan Conservative
-0.41	-0.18	0.91	-0.67	-1.53	-0.38	0.62	-0.43	0.77	Nicaraguan PCT
-0.37	-1.63	-0.83	-0.51	-0.74	-0.82	0.19	-0.61	0.03	Burmese AFPFL
-0.90	-1.63	-1.02	-1.38	-2.25	-1.44	0.23	-1.39	0.28	Burmese Stable AFPFL
-0.90	-1.63	-1.02	-1.38	-2.25	-1.44	0.23	-1.39	0.28	Burmese Clean AFPFL
-0.60	-1.63	-1.02	-0.58	-1.77	-1.12	0.25	-0.99	0.23	Burmese BWPP
-0.79	-0.12	-1.02	-0.67	-0.33	-0.54	0.16	-0.70	0.06	Cambodian Sangkum
-0.45	-1.63	-1.22	-2.12	-1.77	-1.44	0.33	-1.39	0.40	Cambodian Democratic
-0.41	-0.90	1.10	0.75		0.14	0.67	0.48	0.42	Indonesian National
-0.68	1.13	0.72	-0.30		0.22	0.54	-0.09	0.35	Indonesian Moslem Scholars
-0.41	0.70	0.52	0.42		0.31	0.18	0.13	0.17	Indonesian Communist
-0.41	0.26	-0.44	0.18		-0.10	0.11	-0.23	0.08	Indonesian Musjumi
-0.41	-0.18	-0.64	-0.01		-0.31	0.06	-0.35	0.07	N. Korean Workers
0.01	0.41	-1.02	1.03	0.84	0.25	0.53	0.21	0.66	Tunisian Neo-Destour
-0.56	0.55	-1.02	0.82		-0.05	0.58	-0.25	0.62	Lebanese Progressive Socialist
0.01	1.13	-1.02			0.04	0.78	-0.31	0.26	Lebanese Constitutionalist
-0.07	1.13	-1.02	0.25		0.07	0.59	-0.28	0.29	Lebanese Kata'eb
0.01	0.55	-0.64	0.69		0.15	0.27	0.02	0.29	Lebanese National Bloc
0.42	-0.18	-0.64	0.08	0.65	0.07	0.20	0.13	0.24	Turkish Republican People's
-0.45	-1.63	0.52	0.82	0.70	-0.01	0.86	0.40	0.25	Turkish Democratic

	All Five Items: Mean z-score	All Five Items: Variance	Only 1, 3, 4, 5: Mean z-score	Only 1, 3, 4, 5: Variance
Concept Scores:	-.30		-.30	
Coefficients of Concept Variation :	.27		.28	
Coefficients of Indicator Covariation :		.51		.39
Coefficients of Case Variation :		.11		.08

MATRIX OF Z-SCORES AND SUMMARY STATISTICS CALCULATED FOR AFRICAN PARTIES SOUTH OF THE SAHARA

Year of Origin	Organizational Discontinuity	Leadership Competition	Legislative Instability	Electoral Instability	All Five Items: Mean z-score	All Five Items: Variance	Only 1, 3, 4, 5: Mean z-score	Only 1, 3, 4, 5: Variance	Names of the Parties
-0.33	-0.18	-1.02	-0.49		-0.51	0.10	-0.62	0.09	Sudanese National Unionist
-0.41	1.13	-1.02	-0.45		-0.19	0.64	-0.63	0.08	Sudanese Umma
-0.71	1.13	0.91	-0.45		0.22	0.66	-0.08	0.51	Sudanese Southern Liberal
-0.56	-0.61	-1.02	0.66	0.29	-0.25	0.39	-0.16	0.44	Ghanaian Convention Peoples
-0.86	1.13		-1.19		-0.31	1.06	-1.03	0.03	Ghanaian United
-0.75	-1.63		-2.12	-2.25	-1.69	0.35	-1.71	0.66	Ghanian NLM
-0.75	-1.63		-1.38	-0.71	-1.12	0.16	-0.95	0.09	Ghanian Northern Peoples
-0.49	-0.03	0.72	-1.01	-0.09	-0.18	0.32	-0.22	0.40	Guinean Democratic
-0.52	-0.90	0.52	-0.71		-0.40	0.30	-0.24	0.30	Voltaic Democratic Union
-0.45	-0.03	-1.02	-0.55	-0.88	-0.59	0.12	-0.72	0.06	Togolese CUT
-0.94	0.41	0.52			-0.00	0.44	-0.21	0.54	Togolese JUVENTO
-0.94	1.13	-1.02	-2.12		-0.74	1.38	-1.36	0.29	Togolese UDPT
-0.75		-1.22		-2.97	-1.65	0.91	-1.65	0.91	Togolese MPT
-0.45	-1.63	-1.02	-0.69	-0.79	-0.92	0.16	-0.74	0.04	Togolese PTP
-0.64	-1.63	-1.22	-0.45	-0.81	-0.95	0.18	-0.78	0.08	Togolese UCPN
-0.60	-0.03	0.52	0.38	0.24	0.10	0.16	0.14	0.19	C.A.R. MESAN
-0.45	-0.61	0.52	-0.30	-0.09	-0.19	0.16	-0.08	0.14	Chadian Progressive
-0.41	-1.63	-1.22	-0.82	-1.53	-1.12	0.21	-0.99	0.18	Chadian Social Action
-0.83	-0.03	-1.02	-1.01	-1.53	-0.88	0.24	-1.10	0.07	Congolese (Brazz) UDDIA
-0.45	-1.63	-1.02	-0.27	0.58	-0.56	0.55	-0.29	0.33	Congolese (Brazz) MSA
-0.98	-0.03	0.52	-1.93	0.58	-0.37	0.93	-0.45	1.12	Kenyan KANU
-0.98	1.13	-1.02	-1.93	0.29	-0.50	1.17	-0.91	0.63	Kenyan KADU
-0.98	1.13	-1.02	-1.75	0.32	-0.46	1.08	-0.86	0.55	Ugandan Peoples Congress
-0.83	1.13	0.91	-1.38	0.58	0.08	1.00	-0.18	0.91	Ugandan Democratic
-1.02	1.13	-1.02	-2.30	-1.53	-0.95	1.30	-1.47	0.28	Ugandan Kabaka Yekka
Concept Scores:					-.56		-.69		
Coefficients of Concept Variation:					.25		.27		
Coefficients of Indicator Covariation:						.56		.35	
Coefficients of Case Variation:						.18		.09	