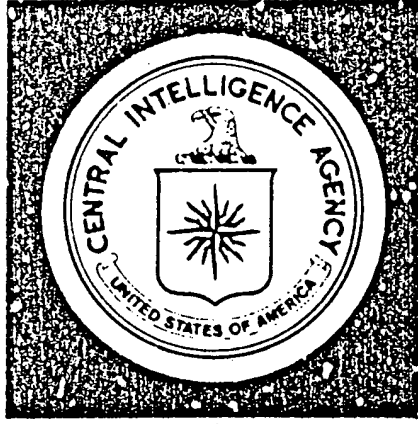22524

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QUANTITATIVE CONTENT ANALYSIS:

A METHODOLOGICAL HANDBOOK WITH EXAMPLES

FROM RESEARCH ON THE SOVIET UNION

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PREFACE

Social scientists have developed a variety of systematic methods, many of them quantitative, which are now used broadly in academic research but have yet to find a place in political research conducted by the intelligence community. This is due in part to the differences in problem and purpose between policy-oriented and theory-oriented research, in part to a time lag in adapting and applying unfamiliar procedures. This study of quantitative content analysis is part of an ongoing program in the Office of Regional and Political Analysis to examine and test the applicability of such methods to intelligence research.

A previous study, "Measuring Support for Brezhnev: An Empirical Test of Some Kremlinological Assumptions," -PR 76 10054, August 1976, illustrated the application of quantitative content analysis to political intelligence research. The present study deals with the methodology *per se*. Sections I and II describe what quantitative content analysis is and discuss its limitations and potential uses. They are broadly applicable regardless of one's country focus. Sections III and IV discuss some special circumstances of dealing with Soviet source materials and suggest specific applications to research on the Soviet Union. Although written in a specifically Soviet context, much of the content of these sections is broadly applicable to other geographical areas. A lengthy Appendix describes a variety of specific approaches to content analysis and will be of particular interest to analysts considering actual research applications of the technique. Technical terminology characteristic of quantitative methodology has been carefully avoided.

The author will be pleased to provide, upon request, methodological assistance to anyone in the intelligence community interested in using quantitative content analysis as a research tool.

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EXECUTIVE SUMMARY

Content analysis refers to any procedure for making inferences by systematically identifying, categorizing, and recording specified characteristics of written or spoken communications. Although quantification is not an essential element, most content analyses do in fact involve numerical measures of communications content. This report focuses specifically on these quantitative approaches.

The nature of the evidence obtained by quantitative content analysis is perhaps best understood by comparing it with the evidence obtained by other quantitative research techniques such as opinion polls, questionnaires, and certain psychological tests. The content analyst, in effect, formulates a "questionnaire." He then examines speeches, journal articles, official documents, etc., and checks the appropriate box on the questionnaire each time he finds an "answer."

Content analysis encompasses a family of related techniques adaptable to a wide variety of specialized purposes. The communications characteristics of interest to the researcher might be specific themes indicative of beliefs, attitudes, perceptions, or goals; groups of words or symbols (perhaps indicative of psychological traits); the co-occurrence of two or more words (indicative of patterns of association); or even the types of logic employed. And once the specified characteristic has been identified, the analyst may note its presence, count its frequency, measure its intensity, or, in the case of newspaper articles, assign an attention score based on amount of space, size of headline, and/or page position. The search for these textual characteristics may be undertaken either manually or by computer. The Appendix describes these different approaches to content analysis and cites examples from the study of Soviet, and to a lesser extent Chinese, speeches and journals.

Content analysis is a specialized technique applicable only to particular sorts of problems. It is essentially descriptive and helps to explain the intent of the communicator only insofar as accurate description is a *sine qua non* of accurate explanation. Like opinion polling and other measurement techniques, it is useful primarily for

making precise comparisons between individuals or groups, or between time periods. A principal limitation is the tedious and generally time-consuming nature of the work required to code and tabulate all elements of a text which fall into the specified categories of interest. This effort must be justified by significant benefits beyond those achievable by conventional analysis.

Quantitative content analysis seems especially appropriate for Communist area studies, because of the inaccessibility of Communist elites to more conventional forms of research, and because the priority accorded to Soviet and Chinese studies may justify the additional investment of time and effort. But there are problems of accessibility to political elites in all countries, and content analysis can be used to clarify analysts' judgments about leaders or groups from other geographical areas as well.

Why Choose This Method?

One impetus to engage in systematic content analysis is the need to adduce more persuasive evidence in support of analytical conclusions that are unexpected or controversial. In conventional analysis, conclusions about trends in content over time or differences in content between individuals or groups are normally supported by selecting and citing representative passages of the text. But the evidence on many points is inconsistent and contradictory, and it is often possible to cite other passages which seem to support an opposite conclusion. Quantitative content analysis is more systematic than conventional analysis, and it is potentially more objective and persuasive, in that it categorizes and tabulates *all* appearances in the text of the characteristics deemed relevant to the issue at hand.

A second reason for engaging in the more time-consuming procedures of quantitative content analysis may be the benefits of quantification *per se*. Counting of frequency or measurement of intensity transforms qualitative information into quantitative data. Quantification is normally unnecessary, but there are occasions when the increased precision is clearly beneficial. Quantification is essential if one wishes to take advantage of statistical procedures for relating a quantified variable to other numerical data, e.g., analyze the relationship between age (political generation) and a quantitative measurement of the political attitudes of Soviet elites.

Content analysis is similar to opinion polling in that it can be used to aggregate themes expressed by individuals to arrive at a quantitative description of the beliefs, attitudes, perceptions, values, or goals of a

group. Summing individual statements to infer group characteristics is by its very nature a matter of counting the frequency of expressions, for the group is defined as the sum of its individual members. Thus quantitative content analysis is well suited to measuring differences in issue orientation between groups (distinguished by age, occupation, nationality, etc.) or to measuring change in the same group from one time period to another. This aggregating or synopsizing of themes has many potential applications. Several of these, as well as other applications of quantitative content analysis, are summarized below and then discussed in greater detail in Section IV.

Elite Analysis: One may measure the extent to which diverse elite groups, such as the Soviet party *apparatchiki,* the economic managers, and the military agree or disagree on a variety of issues. Quantification of these attitudinal data then permits correlation of attitudinal information with the more readily available data on age, education, social and ethnic origin, and career background. For example, one can test hypotheses concerning the relationship between political attitudes and age. How significant are the differences between political generations in the USSR, and what are the long-range implications of these differences?

Perception Analysis: In analyzing Soviet perceptions, quantitative content analysis facilitates going beyond such generalizations as "the Soviets believe that...." When all relevant statements are systematically recorded in the appropriate categories, it is easier to cope with diversity and even inconsistency of views. The quantitative results may be broken down in various ways to differentiate which individuals or groups perceive what, when, with what frequency, and how consistently.

Political Indicators: We have economic indicators to measure the state of the Soviet economy, but no comparable political indicators to measure the state of the political system. Development of such indicators to measure evolutionary change presents major conceptual and methodological challenges, but content analysis does offer promise in this field. Lodge's (1969)* work was an initial attempt in this direction. He used content analysis in an effort to chart gradual changes in the Soviet system on a scale ranging from total party domination to political pluralism.

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* This study follows the current social science procedure of including abbreviated source citations in the text. Full citations are found in a list of references at the end of the study.

Psychological Assessment: A rather different usage of content analysis is for indirect psychological assessment of political leaders. Since language is a product of unconscious as well as conscious processes, there are a number of theories and content analytic procedures for relating patterns of word usage to psychological attributes. These are described primarily in the Appendix. Psycholinguistic analysis of political leaders' public statements is a new and relatively undeveloped field. The most relevant techniques require further validation, but the existing state of the art is sufficient for experimental application.

Kremlinology: Kremlinological analysis of the "esoteric communications" characteristic of public political discussion in the Soviet Union may be classified as a form of content analysis whenever the rules of evidence and inference are made explicit. The feasibility of quantitative approaches to Kremlinological analysis was illustrated by the recent CIA study on measuring support for Brezhnev [   ]

In sum, content analysis is an effective research tool which has a limited but nonetheless useful range of application to intelligence research.

THE DISCUSSION

I. WHAT IS CONTENT ANALYSIS?

Content analysis, in one sense of the term, is fundamental to most foreign policy research, as most such studies draw inferences from an analysis of the content of leaders' statements or articles in authoritative newspapers and specialized journals. The term has come to be used, however, and is used in this report, with a specialized meaning. It refers to a method of "making inferences by objectively and systematically identifying specified characteristics of messages" (Holsti, 1969, p. 14). Although academic definitions of content analysis have varied over the years, "we can call a study a content analysis if the procedures used for processing the text are well enough defined so that a second person going through the same text would sort the same passages into the same interpretive boxes" (Pool, 1970, p. x).

Content analysis is a systematic technique for noting what words and themes are used in selected speeches and documents. It makes explicit what is often left implicit in conventional modes of analysis of the same materials. It specifies what communications have been examined and precisely what characteristics of the text are considered to be indicative of what. It then notes the presence or absence, or measures the frequency and/or the intensity of these characteristics in order to make inferences about the originator of the communication or his audience. The results are usually presented in quantitative or at least graphic form to permit precise comparison of two or more measures of the same characteristic at different times or places. Quantification is not an essential element of content analysis, but most content analyses do generate numerical data and this study is concerned exclusively with that form of analysis.

Content analysis is a research tool: like any other tool, it can be used either well or badly, depending upon the imagination and skill of the craftsman.

Quantitative content analysis is normally used to make comparisons. What is compared is, of course, determined by the purposes of the individual researcher. He can measure *change* by comparing the value of the same variable, e.g., expressed attitude toward detente or toward production of consumer goods, for the same individual (or group or country) at different points in time. Or he can measure *differences* by comparing the value of the same variable for two or more individuals (or groups or countries) at the same point in time. One might wish to compare individuals (Brezhnev vs. Suslov), nationalities (Great Russians vs. Ukrainians), elite groups (party *apparatchiki* vs. technical intelligentsia), age groups (older vs. younger generations), or countries (USSR vs. Eastern Europe or the US). Or the researcher may wish to examine the *relationship* between two different variables, e.g., how do attitudes toward detente correlate with attitudes concerning the ways of achieving economic growth or with opinions about the role of the party in maintaining social discipline?

> "... If the subjects of our inquiries are so broad-minded as to speak of different roads to socialism, we should surely outdo them by insisting on different roads to sound scholarship." (Gati, 1975, p. 9)

The procedure employed in content analysis may be clarified by discussion of the following key concepts.

Source Sample: If the quantity of relevant source material is too great to be processed in its entirety, as is commonly the case, systematic sampling procedures are employed in much the same way that an opinion poll is directed to a small sample judged to be representative of the total population. Lodge (1969), for example, sampled the content of 10 Soviet journals from 1952 to 1965 in order to identify, compare, and

measure changes over time in the views of five Soviet elite groups. He picked a sample of equal size (600 paragraphs) for each of the five elites for each of eight sampled years. (600 paragraphs x 5 elites x 8 years gives a data base consisting of 24,000 paragraphs) These paragraphs were taken from the lead articles in issues of the relevant journals, and the issues from which they were drawn were spaced out to provide equal coverage of the months and days of the week during the sampled year.

Indicators: The intelligence analyst is familiar with the concept of early warning indicators. Observable actions are analyzed as indirect indicators of something which cannot be observed directly—the intention to initiate hostilities. Similarly, many political variables of research interest cannot be observed directly, so the content analyst devises indicators to observe and measure them indirectly. Jervis (1966, p. 208) refers to this as a process of translation. The quantitative researcher must "translate ... the concepts used in traditional scholarship into terms susceptible of mathematical treatment." Thus indicators may be used by the analyst as surrogates for variables not otherwise accessible to systematic observation, with the obvious qualification that they may not be a valid measure of the full complexity of the phenomenon under investigation.

Indicators may be very simple. For example, a C.A.C.I., Inc. (1975) study of Soviet perceptions distinguished policies motivated by national interest from policies motivated by ideological interest by noting whether references were predominantly to Soviet (or American) goals and policies or to communist (or capitalist) goals and policies. Other indicators may be quite complex and entail much theoretical justification. Blackwell (1974), for example, was interested in determining which of two models of political change best describes the Soviet system—the "oligarchic petrification" model or the "institutional pluralism" model. He identified a number of indicators which he then measured in statements of obkom first secretaries.

Categories: Categories consist of one or more words, phrases, themes, or relationships that represent variables being studied by the analyst. They specify and describe those concepts, or indicators of concepts, that are considered analytically relevant. In order to analyze Soviet perceptions of US disarmament goals

and motivations, for example, the previously mentioned C.A.C.I., Inc. study identified six possible disarmament goals, e.g., general and complete disarmament, SALT, halt of nuclear testing, etc. These goals were then broken down according to whether four possible motivations do or do not apply for each goal. The possible motivations were achieve or maintain unilateral military advantage, reduce military budget or free resources for peaceful uses, promote peace and security, or strengthen detente or peaceful coexistence. Each of these possible categories was represented in a 48 (6 x 4 x 2) cell matrix, and Soviet statements about US disarmament policy were then "coded" on this matrix.*

Categories may be derived inductively from examination of the data, i.e., the data are, to the extent possible, permitted to "speak for themselves" concerning how they are best categorized. Such a procedure permits the analyst to exercise maximum care that the categories reflect the actual nature and meaning of the communication being analyzed, but it limits the researcher's control over definition of the research problem. Alternatively, categories may be derived deductively from hypotheses of particular interest to the researcher, in which case the data are sorted into pre-conceived categories as necessary to test those hypotheses. This seemingly ensures that results are relevant to the problem as defined by the analyst, but it risks imposing on the data Western concepts which may not be wholly applicable when dealing, for example, with Soviet documents. Some combination of these two approaches is usually preferable. Devising analytically significant categories is the most crucial aspect of content analysis. It is the ability to identify and define such categories that determines whether content analysis can or cannot make a meaningful contribution to research on any given question.

Coding: Coding is the process of recording those aspects of text which fall into the specified categories. The coder follows detailed instructions which define the boundaries of each analytical category. Ideally, these instructions and the categories are sufficiently clear that any two coders applying the same instructions to the same communication will arrive at identical results, although this ideal is seldom achieved in practice. The degree of correspondence between two coders is known as the measure of intercoder agreement.

* Examples of such matrices are shown on pages 14-16.

Manifest vs. Latent Content: An analyst may work with either the manifest or the latent content of a communication. Latent content refers to underlying content which normally escapes awareness and con-scious control by the originator. It is conveyed unintentionally through patterns of word usage. The analyst interested in latent content doesn't work with *what* is said, but with *how* it is said. From this he draws inferences about psychological attributes or underlying values unrelated to the manifest content. Manifest content, on the other hand, refers to the originator's intended meaning. Manifest content is not necessarily obvious; much may have to be inferred to establish the "real" meaning, either because the communicator concealed his private beliefs or because he expressed them in a manner evident only to those who comprehend the nuances of the political context in which a statement was made. The above-mentioned categories for coding disarmament goals and motivations are designed to deal with manifest content.

Inferences: Coding and then tabulating specified textual characteristics are undertaken only to provide evidence in support of inferences. There are, therefore, two steps in any content analysis. The first is the straightforward description of content, the often mechanical process of tabulating items which fall into specified categories. The second and final step is drawing inferences from this data. While the processes of description and inference are conceptually separate, they are often inextricably interwoven at the initial stage of formulating the research design, for the data base, categories, indicators, and coding procedures are all planned for the purpose of drawing useful and valid inferences.

An Example: The recent OPR study, "Measuring Support for Brezhnev: An Empirical Test of Some Kremlinological Assumptions" [   ] illus-trates these concepts. A sample of relevant speeches was selected. This sample consisted of 16 Soviet regional leaders, with three speeches for each leader. The indicators of support for Brezhnev were nine different characteristics of the leaders' references to Brezhnev in these speeches, e.g., total frequency of references to Brezhnev, amount of personal praise of the Soviet leader, reference to him by first name and patronymic, etc. Categories embracing these indica-tors were defined as clearly as possible. The speeches were then coded by having a research assistant place

each reference to Brezhnev into the appropriate category or categories. The frequency (or, in the case of personal praise, the intensity) of references in each category was measured, and inferences concerning a leader's relative support for Brezhnev were drawn by comparing these measures for the 16 leaders. The purpose of this study was to test the validity of these indicators which are, or might be, used by analysts of Soviet leaders' speeches. Inferences concerning the validity of the indicators were drawn by statistical correlation of these scores on the indicators with a ranking of these same 16 leaders, according to the strength of their support for Brezhnev, prepared by a panel of three CIA Soviet analysts.

II. WHY QUANTIFY CONTENT?

Quantitative content analysis is a specialized technique applicable to particular sorts of problems, not an all-purpose methodology. It seems self-evident, for example, that inferences from quantitative mea-surements of frequency or intensity are simply not applicable to the great majority of questions faced by the intelligence analyst. This form of content analysis is more applicable to the needs of the social scientist who seeks to document regular patterns of events and behavior, than to the needs of the intelligence analyst whose daily concern is (or appears to be) with the unique event. The intelligence analyst generally draws inferences by analyzing the logic of a single situation. He may, for example, properly recognize a single journal article dissenting from established policy as the tip of an iceberg of behind-the-scenes agitation for change, and the identification of this article as having unusual significance is not based on any quantitative measurement. It seems useful to note this and other fundamental limitations of quantitative content anal-ysis before considering what motivations might impel one to conduct such an analysis despite these limitations.

Systematic content analysis is a method for describ-ing the content of a large body of text in more precise terms than is possible by conventional reading and notetaking. It is only descriptive; it does not help to illuminate the context of the communication or to explain the intent except insofar as accurate descrip-tion of a phenomenon is obviously the first step toward accurate explanation. As previously noted, the description of communications characteristics in nu-merical terms is useful primarily for making precise comparisons. It is much less likely to be useful in

examining an evolving situation to determine how people and events converge at a given time and place to produce some unique outcome.

Another limitation is that the systematic coding of documents is often tedious and time-consuming work. In other words, the mechanics of quantitative content analysis can be both boring and costly, and this has discouraged its use. When reviewing a large body of data to make comparative judgments, CIA Soviet analysts sometimes find it necessary to engage in *ad hoc* tabulation of frequency or intensity to check the validity of their own subjective impressions about the data, but they stop the systematic tabulation as soon as the impressions are confirmed, and they normally omit reference to these procedures in the final report.

Clearly, time-consuming coding should be avoided to the extent possible. In one of the basic works on content analysis, Berelson (1952, p. 132) notes that

> "content analysis should be done not as precisely as possible but rather as imprecisely as possible—that is, as roughly as the circumstances of the study will allow (in order to minimize costs relative to returns). This implies that under normal conditions careful counting should not be done unless it is quite necessary."

The burden of coding can be reduced by assigning the task to a research assistant or an outside contractor, but the relationship of costs to benefits is still an important element in evaluating whether to employ quantitative content analysis in any given study. One cannot generalize about costs, as the time required for coding depends upon the nature of the coding scheme as well as the volume of the data. In the recent study of indicators of support for Brezhnev [   ] the nature of the coding scheme was so simple that it was unnecessary to actually read all the speeches. A research assistant screened the speeches line by line looking only for words which signified a reference to Brezhnev or to the Central Committee and made a marginal note each time these words appeared. The author then read only the paragraphs signalled by the research assistant and tabulated the various types of references to Brezhnev. This went very rapidly once the procedures were developed and learned. It is far more common, however, for coding to be a slow process requiring careful reading and weighing of judgmental decisions. Coding of themes,

in particular, goes much slower than coding of individual words.

A further limitation of content analysis is the apparent difficulty in applying it well. Many of the content analyses reviewed for this report contain significant methodological weaknesses, and the overall quality of these studies is unimpressive. Several of the problems are discussed at other points in this report: implicit assumptions that public statements measure private attitudes, and cross-national comparisons that are invalidated by non-comparability of categories. Other weaknesses are found in the selection of samples, conceptualization of variables, and the definition of categories and indicators. The intelligence analyst who believes content analysis may offer answers to his research problem and who lacks training in quantitative methodology would be well advised to seek methodological assistance, especially to weigh the various options at the inception of his project.*

What can be said about the benefits of quantitative content analysis and the circumstances under which its costs in research time might be necessary and justified? The remainder of this section is devoted to that question.

Evidence to Support Controversial Conclusions

The impetus to engage in the more time-consuming quantitative procedures may originate with recognition that the normal procedure of supporting conclusions with selected quotations from a large body of text is for some purposes too subjective; when conclusions are controversial or run counter to conventional wisdom, a concerted effort to develop more objective evidence may be justified.

Selected quotations cited in support of perceived trends or attitudes are less persuasive, as evidence, than a systematic classification and tabulation of all relevant references. Selected quotations serve well to illustrate a point, but they are not necessarily accepted as conclusive evidence in support of that point. The skeptic may cite other passages which seem to indicate an opposite trend or emphasis, and, indeed, the evidence on many issues tends to be contradictory. The content analyst approaches this problem by

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*Holsti (1969) and Carney (1972) are the principal textbooks explaining how to conduct content analysis.

fitting all relevant expressions into some explicitly defined classificatory scheme. This provides a more complete and systematic description of what has been said, which in turn offers a sounder basis for interpreting the *meaning* of the data.

The previously described study of indicators of support for Brezhnev supplies a simple illustration. Prior to conducting that study a panel of Soviet analysts was asked to comment on the potential indicators. The panelists judged that two of the forms of reference to Brezhnev—use of first name and patronymic, and use of last name without the Comrade title—were probably determined by personal factors largely unrelated to the speaker's political support for Brezhnev. The empirical evidence from the study, based on coding all such references to Brezhnev and comparing this data with the panelists' own intuitive ranking of the leaders according to the strength of their support for Brezhnev, showed that these two forms of reference were actually the best indicators of the Soviet party officials' support for Brezhnev. It seems unlikely that the panelists could have been persuaded to accept this counterintuitive conclusion by another analyst's report based on more impressionistic review of the speeches with conclusions supported by several relevant examples. The explicit description of the procedures used in generating the data for this content analysis study, and the fact that all references to Brezhnev were tabulated and that this data was then correlated with other measures of support for Brezhnev, were probably essential to make a persuasive case in support of a conclusion which ran contrary to intuitive expectations.

Summarizing and Aggregating Data

Summarizing or aggregating specified elements in a body of data always involves implicit quantification. The analyst studies the data and draws conclusions expressed in terms such as more or less, increasing or decreasing. There are times when the volume of material being analyzed is so great, and/or the distinctions being made so complex or so fine, that some systematic procedure must be employed to alleviate the load on the analyst's discriminatory capabilities. It is under such circumstances that more explicit quantitative procedures may be required.

A requirement for increased precision may also prompt an analyst to turn to quantitative methods. Measurements of frequency or intensity are ways of

transforming qualitative data into quantitative data, so that concepts such as greater or lesser, increasing or decreasing, possibly or probably can be expressed with some degree of numerical precision. Quantification is not an end in itself, but it can be useful under certain circumstances. In tracing a trend over time, for example, conventional analysis may be able to determine whether the observed variable is increasing or decreasing, but it seldom has the precision to measure the rate of increase or decrease, or whether that rate is accelerating or decelerating. Content analysis may provide this additional intelligence, for it offers a measurement tool that is sensitive to small changes.

But caution is always indicated when drawing inferences from quantitative data. It is pertinent, for example, to consider the fundamental question of what inferences may be drawn legitimately from measures of frequency. Frequency is, in most cases, a valid measure of preoccupation with a topic. Is it also a valid measure of importance, or concern, or intensity of feeling? Is the frequency with which Brezhnev refers to a problem or a policy position a valid measure of how important he regards that problem or policy, or how strongly he feels about it? Content analysts often do make this type of inference.

Sometimes information is so well understood that it need not be mentioned. The atomic bomb is barely mentioned in Japanese cabinet debates leading to surrender in World War II, but infrequency of mention in this instance can scarcely be equated with lack of importance. Frequency is a valid measure of importance under many circumstances, however. It

> "Neither those who conduct these studies nor those who read them should be seduced by the existence of numbers, mathematical manipulations, and tests of statistical significance into believing that the results are automatically 'harder' and more significant than those produced by less quantitative methods. Often the apparent precision gained by quantification is more than balanced by the losses incurred in the operations which are needed to transform the data into a form which can be treated mathematically."(Jervis 1966, p. 205).

has been noted, for example, that statements about group beliefs and attitudes entail implicit statements about the frequency with which these beliefs and attitudes are held by individual members of that group Thus inferences from frequency are particularly appropriate and likely to be valid when aggregating individual expressions to form judgments about attributes of groups. Even in such cases, however, the validity of inference from frequency is not self-evident. In every instance the researcher must judge the validity of the inference, based upon his knowledge of the context and any other information which might explain frequency of observed characteristics as being due to something other than their importance. There can be no question of substituting counting for judgment; counting is only an aid to judgment, and in every case the researcher must evaluate what the numbers mean.

Statistical Analysis

Quantification may be required in order to make possible a wide variety of formal statistical procedures for calculating probabilities or the significance of a given pattern of results, and for measuring correlation between variables or the degree of influence of one variable as compared with others. This would be highly relevant, for example, in determining the impact of generational differences within the Soviet leadership. Age is already a quantitative variable, so if attitudes of a sample of leaders were quantified through content analysis it would be possible to use statistical procedures to analyze the relationship between age and attitudes and to project changes in dominant elite attitudes over time.

III. SOVIET SOURCE MATERIALS

In one sense, all available written and spoken communications represent potential source materials for content analysis. The quantity of such material is potentially unlimited, for written and oral communication is a pervasive aspect of all political activity. In practice, however, the selection of appropriate and useful source material for content analysis is constrained by the nature of the Soviet political system, the requirements of the methodology, and the purposes for which the methodology is best used.

Soviet Communications

It has been suggested that the nature of political communication in the Soviet Union precludes produc-

tive content analysis. Three points are subsumed under this argument: first, that censorship enforces a dull uniformity, so that public statements are not a fruitful area to search for differing opinions; second, that when political debate is conducted through indirect attack, obscure historical allusions, and by the omission of any reference at all, reality is too complex to be pigeonholed in the necessarily simplified categories of the content analyst; and third, that Soviet media content and official statements cannot be taken at face value in any event, so inferences drawn from content analysis are inevitably of questionable validity.

That Soviet media differ greatly from Western media is beyond dispute, but it does not follow that effective content analysis is precluded. On the contrary, there are marked advantages to working with Soviet as compared with Western media. The Soviet press is linked directly to policy-makers; its content reflects the views of policy-makers, whereas Western media normally reflect the opinion of those nongovernmental elites who seek to influence the policy process. And discussion of political topics in the Soviet Union is so highly structured that consistent patterns of relatively small differences are likely to be more significant in Soviet communications than patterns of considerably larger differences in Western communications. Because the changes or differences one is seeking in the pattern of Soviet communications may be so subtle or small, a systematic method of observation, such as content analysis, becomes all the more necessary to identify them successfully.

There are three forms of political debate in the Soviet Union. First, some policy questions are officially sanctioned for more or less open discussion, especially in the specialized journals. Problems of economic priorities and how best to manage the economy frequently fall into this category, and some aspects of defense policy have, occasionally, been the subject of public contention. A second form of debate is carried out through discussion of how policies are implemented. Even when a policy is decreed as accepted by unanimous consent, so that direct challenge to the policy is not permissible, *implementation* of that policy is fair game for discussion. Most political commentary in the Soviet Union is aimed at mobilizing support for, improving efficiency in carrying out, or criticizing shortcomings in the implementation of approved policies. Discussion takes place

within a context of ostensibly full support for established policy, but divergent emphases re implementation in fact express divergent policy orientations. A third form in which dissenting views are expressed is the "esoteric communication" studied by Kremlinologists—the new twist in a traditional ideological formulation, omission of reference to a leader, etc. Content analysis is a potentially fruitful tool for examining all three forms of political debate.

The extent to which one can take at face value what a Soviet (or any other) official says or writes is, of course, another question. But the problem of the content analyst is little different from that of the conventional analyst. For better or worse, both are obliged to depend upon published sources, and both must take great care to justify inferences drawn from such material.

Specific Sources

A cardinal rule of content analysis which is not easy to observe in practice is that like must be compared with like. Statements by individuals may be compared reliably only if the situational stimuli which prompted those statements are roughly comparable with respect to such variables as time and audience.* One can control the influence of many contextual variables in either of two ways: first, compare only speeches given in an identical context, such as speeches given to a CPSU Party Congress; or second, use a representative sample with enough speeches for each individual that differences due to different contexts cancel each other out.

There are several events in the political life of the Soviet Union which regularly prompt many leaders to make public statements at approximately the same time under more or less identical circumstances. These include the central and regional Party Congresses, Central Committee Plenums, elections to the Supreme

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* This problem of comparability is one element that distinguishes content analysis from survey research. The similarity between content analysis categories and questions on an opinion poll has already been noted. The difference is that answers to a questionnaire are always comparable, as they are responses to structured stimuli administered under controlled and uniform circumstances. The stimuli which prompt communications coded by the content analyst are neither controlled nor uniform, and they are not necessarily comparable. Comparability must be achieved by careful attention to research design, especially selection of the data base and formulation of categories. See Mitchell (1967) for further discussion of this point.

Soviet, the anniversary of the October Revolution, and Red Army Day. Comparability, and hence validity of conclusion, is best served if the statements selected to represent the views of individuals or groups of individuals to be compared with each other are drawn, to the maximum extent possible, from statements made in response to such comparable stimuli.

The content of journals is another common source of text for content analysis. When a journal is formally affiliated with a recognized group, it may be regarded as the vehicle for expression of the views of that group. Thus *Pravda* officially expresses the views of the Party, while *Izvestia* reflects governmental policy. The analyst may wish to generalize from views expressed in a journal to views of the parent group. But analyzing specialized journals on the assumption that they represent the views of specialized sub-elites poses certain methodological problems. Lodge (1969) analyzed specialist journals as indicators of the attitudes of five elite groups, e.g., *Voprosy ekonomiki* and *Ekonomicheskaya gazeta* to represent the economic elite, but this has been criticized (Horelick, Johnson and Steinbruner, 1973, p. 63) on grounds that whether or not specialist journals are indeed representative of identifiable "groups" is properly a research issue rather than an appropriate assumption for a study of interest groups. As noted by Welsh (1973, p. 26), the problem concerns the proper conceptualization of an elite. Is an elite best defined in terms of its performance of specified functions or its affiliation with an institution? For the military elite, the functional and institutional definitions encompass the same body of individuals. But what is an economic elite? Lodge conceptualized it functionally, then measured it via the output of two institutions (journals) which do not necessarily represent the broad spectrum of those who perform economic functions.

It is preferable under some circumstances to define groups in terms of identified individuals who play key functional roles, rather than in terms of a specialized journal. A sample of statements by these individuals would serve to measure intra-group cohesion as well as differences with other groups.

IV. APPLICATION TO RESEARCH ON THE USSR

Taking into account the particular costs and benefits of quantitative content analysis, plus the type

of data known to be available, it is possible to identify several general subject areas or types of studies for which such analysis seems to offer the greatest potential for making a valuable contribution. These are described below. It is certainly not intended to limit potential applications to these fields, but only to suggest that these are areas in which useful applications might be found.

Perception Analysis

The Vietnam experience made American policy-makers more sensitive to the importance of perceptions in decision-making. People—and states—act on the basis of what they believe to be true, quite independent of what may appear to others to be the objective facts of a situation. To understand and predict the actions of a foreign leader (or state), one must know how that leader defines the situation in which he finds himself. One must understand that leader's perceptions of the international system, and of the position of his own state and its potential adversaries in that system. Penetrating the minds of foreign leaders is as difficult as it is important. In the absence of interviews, questionnaires and opinion polls, which are out of the question in the Soviet Union, content analysis has been suggested as a means for measuring perceptions.

A particular advantage of quantitative content analysis in perception analysis is that it facilitates going beyond such generalizations as "the Soviets believe that . . . ." There is, of course, no such thing as a "Soviet" perception. Aggregation at the national level is often desirable, but it does obscure the fact that different Soviet leaders perceive different things at different times, and that there is even ambivalence and inconsistency in the perceptions of any single leader. Content analysis provides procedures for aggregating data in a way which retains this diversity, so that one may analyze who perceives what, when, with what frequency and how consistently.

Of course, neither the content analyst nor the analyst using conventional techniques is dealing with actual perceptions. He is dealing with public statements and media content which may reflect either true perceptions and beliefs or what the speaker or writer wants the target audience to believe. Content analysis is only a descriptive technique. It does not explain *why* something has been said or written,

although the more precise description of *what* has been said is hopefully useful to the analyst who must explain the full meaning and significance of the data.

Quantitative content analysis of perceptions must proceed as a two-stage process. The first stage is limited to describing perceptions as expressed in written or spoken communications. The second stage draws inferences concerning to what degree, in what respect, and under what circumstances the communications content reflects actual perceptions rather than communications strategies. These inferences are qualitative judgments made by the area specialist. In other words, quantitative content analysis provides the raw material for subsequent qualitative evaluation of perceptions. Such qualitative judgment is required for each individual conclusion drawn from the quantitative data.*

If this limitation is observed, quantitative content analysis can, for example, help to define how the Soviet Union perceives and evaluates the US both as an adversary in political competition and as a partner in arms control negotiations and economic relations, and it can help to measure changes in these perceptions over time.

Elite Analysis

Interest in political elites has been stimulated by recognition that national decision-making is often the product of bargaining and compromise among diverse interest groups and bureaucratic organizations with competing and contradictory goals, rather than the result of a rational process by a single decision-maker. In order to understand the dynamics of decision-making, one must know the strengths and the positions of the elite groups which influence the decision-making process. Content analysis is more precise than traditional analysis as a method to aggregate data pertaining to beliefs and attitudes of

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* It is insufficient to start with a general caveat re possible validity problems in drawing inferences about attitudes and perceptions from public statements, and then to proceed with analysis as though, once given, the warning could be ignored. Both Singer (1964) and C.A.C.I. (1975) fall prey to this temptation. The descriptive aspect of their studies is not at issue here; but the implication that the coded statements represent generally valid expressions of true attitudes and perceptions is questionable. The C.A.C.I. study, for example, claims in its title to be a study of perceptions, but it is in fact simply a description of public statements. Neither author deals explicitly with the second stage of analysis referred to above.

elite groups, so that one may measure the extent to which different groups agree or disagree on a variety of issues.

Quantification of attitudinal data also makes it possible to correlate attitudinal data with the more readily obtainable data on age, education, social and ethnic origin, and career background. One can test many hypotheses regarding the relationship between political attitudes and age. How significant are the differences between political generations in the USSR? On what points are the differences greatest? Are these differences increasing? Do younger leaders rank their political values differently than their elders, and if so what are the long-range political implications of this fact?

Key topics on which age, career or nationality groups might be expected to hold somewhat differing attitudes include detente, budgetary priorities, means for improving productivity and efficiency of the economy, policy toward intellectual and national dissent, and the role of the party. Explanation or prediction of Soviet decision-making in these fields requires knowledge of the diverse policy inputs by such interest groups as the central party organizations, regional party *apparatchiki*, economic managers, the scientific establishment, and the military, and knowledge of trends of attitude change within these groups would be very useful for long-range forecasting.[*]

The problems inherent in drawing inferences from media content are less serious for elite analysis than for perception analysis. Since interest focuses on identifying differences between elites, it is for some purposes, and to some degree, sufficient to demonstrate that different elites have different communications strategies; it may not be necessary to show that media content reflects "true" attitudes.

Political Indicators

There is a highly developed set of economic indicators to measure the state of the Soviet economy, but no comparable set of indicators to measure the state of the Soviet political system.[**] Yet monitoring

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[*] A Soviet elite analysis project is currently underway in CIA. It will eventually include content analysis to measure elite attitudes and then correlation of attitudinal data with background and career variables. Welsh (1969 and 1973) has also recommended use of content analysis for the study of Communist political elites.

[**] The concept of political indicators as described here is borrowed from the recent literature on social indicators. The seminal work in the developing field of indicators to measure the state of a society is Bauer (1966).

fundamental political trends is as important as monitoring economic trends. Analysis of fundamental change in the Soviet political system presents major conceptual and methodological challenges. It is necessary to determine which aspects of the political system are to be recognized as indicators of the fundamental state of the system and then to devise methods to measure change in these indicators.

Content analysis is a promising method for measuring political indicators. Some measure of the extent to which identifiable interest groups articulate distinctive policy positions would surely be an appropriate part of any program for measurement of political indicators. Other indicators might deal with the impact of ideology, attitudes toward dissent, attention paid to consumer interests, or the amount of expressed or perceived hostility vis-a-vis the foreign environment. There is no dearth of candidates for the role of key indicators of the state of the political system, but discussion of specific indicators and how they might be measured is beyond the scope of this study. It suffices here to point out the need for such indicators and to observe that content analysis is a workable tool for measuring some of them.

The strength of conventional analysis is recognition of anomalies in the flow of official statements and publications, anomalies that indicate new policy formulations or small but significant differences in the way the same policy is formulated by different leaders. The strength of content analysis is in measuring changes in the background against which daily events are observed. It can measure slow change over time in factors which are sometimes regarded as constants rather than variables in the Soviet system. When change is very gradual and the volume of relevant, primary source material so enormous, trends may easily be overlooked or misinterpreted. Gradual evolution in the political system is best identified and measured by applying explicit criteria to a systematically selected sample of the data.

Analysis of "Esoteric Communications"

The Soviet system places a premium on public unanimity, but this is at best a surface harmony. The ways in which divergent opinions are expressed are radically different than in the West, but they *are* expressed.

"Since partisan statements on contentious subjects cannot be made explicitly, they take the form of esoteric communications—texts whose deepest meanings can be grasped by only a part of their audience" (Bush, 1958, p. 89).

Kremlinologists utilize a variety of techniques to analyze esoteric communications and, when the data and rules for making inferences from the data are specified, these techniques fall within the general definition of systematic content analysis. In most cases, however, these techniques are not quantitative and, therefore, not within the purview of this study.

Quantitative approaches to Kremlinology are quite possible, however, as demonstrated by the recent OPR study ⊏   ⊐ on measuring support for Brezhnev. When analyzing verbal formulations which tend to be used repeatedly, such as references to Brezhnev or to key policies, one can quantify by tabulating the frequency and form of these references in a number of speeches or articles. These data may then be used as a benchmark for comparing leaders with each other or for monitoring changes in attitudes over time. Another approach to Kremlinological analysis, involving coding of what is *not* said, is discussed in the Appendix.

Psychological Assessment

Content analysis offers promise as a tool for indirect psychological assessment of political leaders, for the latent content of messages provides clues to underlying psychological characteristics of the originators of the messages. The apparent fact that psychological characteristics influence patterns of language usage is the foundation of the study of psycholinguistics. The spinoff to political psychology has been limited, as political communications obviously contain less latent content than the many less structured forms of communication of interest to the psychologist or psychoanalyst. But available research indicates that political communications do contain latent content of analytical interest. The best source of such latent content would be interviews or debates in which the leader is speaking extemporaneously, but major speeches presumed to be substantially written or heavily edited by the leader himself are also usable with some techniques.

As reviewed in the Appendix under the rubric Analysis of Word Usage, currently available techniques for exploiting latent content in political speeches or writings include methods for measuring the following characteristics: need for power, need for achievement, need for affiliation, dogmatism, cognitive complexity, belief in ability to influence one's own destiny, nationalism, use of ideological stereotypes, amount of stress being felt by a leader, and the comparative ranking of various values. A variety of hypotheses have been advanced linking these characteristics to predispositions toward various types of foreign policy behavior. But the field of indirect psychological assessment of political leaders is not well developed, and the empirical study of linkages between psychological characteristics and foreign policy behavior has just begun. Additional research is required to advance the state of the art and to validate the techniques and propositions already developed.[*]

The existing state of the art of indirect assessment is adequate for experimental application and merits further testing in a project to measure relevant psychological characteristics of Soviet leaders and rank them on these psychological dimensions. Analyzing leaders' speeches to the CPSU Party Congress or their Supreme Soviet election speeches would satisfy the requirement that communications being compared be taken from the same situational context. Analysis of the latent content in these speeches would tap dimensions of available data not presently reached by conventional analysis.

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[*] Winter and Stewart (1976) provide an extensive discussion, from an academic point of view, of content analysis as a technique for psychological assessment of political leaders.

APPENDIX

APPROACHES TO QUANTITATIVE CONTENT ANALYSIS

Like most tools, content analysis comes in various types and sizes. This Appendix is based on a review of the academic literature to identify various content analytic techniques and how they have been applied to research on the USSR, and to a lesser extent China. It conveys an impression of the variety of research problems that can be addressed through quantitative content analysis and describes some of the indicators developed for indirect measurement of variables which do not lend themselves to direct observation. An overall objective is to stimulate thinking by intelligence analysts concerning ways in which such techniques might contribute to their research needs. Analysts considering employing quantitative content analysis will find this a useful guide to the various paths open to them.

There are several ways in which approaches to quantitative content analysis might be classified for discussion and illustration. One basis for classification is the unit of analysis.* The key items the researcher looks for might be individual words or symbols, themes, the length and position of newspaper articles, or other characteristics such as types of logic or patterns of co-occurrence of two or more words or themes. A second basis for classification is the kind of measurement that is made; one may note an item's presence or absence, count its frequency, measure its intensity, or score the amount of attention devoted to it.

Figure 1 combines these two classification schemes in matrix form. The table shows which units of analysis and methods of measurement are judged

* In the literature on content analysis this is also called the counting, coding or recording unit.

most applicable to intelligence research and are given most attention here. Types of content analysis marked ++ are considered most relevant and are therefore discussed in some detail. Those marked + are mentioned briefly so the reader will be aware of the existence of such techniques, while types marked 0 are not mentioned at all, because these combinations are either not feasible or only marginally applicable.

Logic would seem to dictate organizing this section either according to units of analysis or kinds of measurement. In practice, however, brevity is best served by a mixture of the two. The first approach discussed here is a kind of measurement—coding presence or absence of a theme or group of words of analytical interest. Discussion then shifts to the four units of analysis and the various quantitative measures most appropriate to each. Regardless of the unit of analysis or kind of measurement, coding may be handled manually or by computer, and computerized analysis is the sixth and final approach to content analysis discussed below.

Presence or Absence

Inferences may be drawn from the single appearance or nonappearance of some characteristic as well as from its frequency. This is, in effect, a simple form of quantitative analysis in which the numbers used are limited to 0 and 1. George (1959) coined the term nonfrequency analysis for this variant of the genre.

If one wished to apply content analysis to study agreement or disagreement between Soviet leaders on the policy of detente, one approach might be to review all discussion of detente in a sample of speeches and to list and categorize all arguments

APPROACHES TO CONTENT ANALYSIS	Kind of Measurement			
	Presence or Absence	Frequency	Intensity	Attention
Unit of Analysis — Theme	++	++	+	0
Word/Symbol	+	++	+	0
Article	0	0	0	++
Other	0	++	0	0

++ Discussed   + Mentioned   0 Not Mentioned

Figure 1

which reflect the perceived consequences of detente for the Soviet Union. Given the structured nature of political discourse in the USSR, there is a limited number of such arguments and they tend to repeat many of the same formulations. Soviet statements reflecting the perceived consequences of detente can probably be encompassed within about nine or 10 categories, e.g., reduce risk of nuclear war, speed economic growth by acquiring Western technology, improve conditions for struggle of revolutionary forces abroad, etc. Concern about adverse consequences might be reflected by reference to the need for strengthened internal political controls, rejecting ideological coexistence, etc.

A sample of speeches representing the views of selected leaders at a given point in time could then be analyzed to determine the presence or absence of each argument. One purpose of a comprehensive set of categories including all possible arguments is to permit identification of what a leader chooses *not* to say in his speech, as this may be more revealing than what he does say. Although certain kinds of statements about detente are virtually mandatory, one might expect different patterns in what different leaders emphasize or ignore.

The results of such analysis may be presented in graphic form, using a matrix with all possible arguments along the horizontal axis and names of, say, Politburo members on the vertical axis. Differences between Politburo members would be apparent at a glance.

It is only a short step to move from coding presence or absence to other forms of measurement. For example, one might devise a simple high-medium-low scale to take into account not just the presence or absence of an argument, but also the amount of emphasis given to it. Or one might analyze a number of speeches by each leader and aggregate the results to arrive at a frequency score based on the number of speeches in which a specified point appears.

Analysis of Themes

A theme is "an assertion about a subject-matter" (Berelson, 1952, p. 138). Thematic analysis may be used to describe the appearance or nonappearance, the frequency, and/or the intensity of expressed beliefs, attitudes, perceptions, motivations, values or goals of either individuals or groups. It is especially useful for processing large bodies of data in order to describe in quantitative terms the orientation of elite

groups or nations as a whole. This is because the procedure of aggregating themes expressed by individuals to arrive at group views is by its very nature a matter of counting frequencies.

The focus on themes is more akin to traditional research than are the other forms of quantitative content analysis, so the area specialist may feel more at home in this medium. On the other hand, coding is more difficult, as a theme is less susceptible to unambiguous definition and rapid identification than are categories composed of individual words and phrases.

In setting up the categories for a thematic analysis, the researcher, in effect, composes a questionnaire. He then analyzes a communication to seek answers to the questions he has posed, so that the originator of the communication becomes an unwitting respondent to the questionnaire. Various techniques may be identified according to the type of question being asked. These are designated here as single dimensional question, multidimensional question, scaling question and open-ended question.

Single Dimensional Question: A single multiple-choice question is posed. For example: How can Soviet agricultural production be increased? The researcher identifies possible answers to the question and places these into categories that are mutually exclusive and which exhaust or virtually exhaust all possible answers to the question. Soviet speeches and/or writings are analyzed to determine which answers they give to the question. Two or more individuals or groups are compared on the basis of the frequency or intensity of their answers to the question during a given time period, or answers for the same individual or group are compared for different time periods.

Singer (1964), for example, compared Soviet and American foreign policy attitudes. One of the many questions he asked was: What is the nature of the present international struggle? He set up the following three categories to encompass possible answers to this question: between two belief systems, between two social systems, or between two centers of power. Soviet elite attitudes on this and other questions were compared with American elite attitudes during the same time period, using a data base drawn from a sample of articles in Soviet and American journals. The frequency of responses falling into each category

was tabulated. Since different quantities of source material were examined for each country, the frequency counts were rendered comparable by expressing the frequency for each category as a percentage of the total answers to that question for that country. Schematically, this takes the following form:[*]

1. What is the nature of the present International struggle?

	Soviet	American
a. Between two belief systems	10%	50%
b. Between two social systems	55%	19%
c. Between two centers of power	35%	31%

Figure 2

Multidimensional Question: A question is multidimensional when it includes subordinate questions to discriminate between more than one aspect of a theme. This technique was used by C.A.C.I., Inc. (1975) to analyze Soviet perceptions and goals. C.A.C.I. developed 41 matrices, each of which covers some specific political, economic or military topic and focuses on Soviet self-perception (goals), Soviet perception of the US, or Soviet perception of how the US perceives the USSR. Three of the C.A.C.I. matrices are reproduced as Figures 3 thru 5 illustrate the technique and the variety of categor may be selected.

The reader should refer at this point to Figure 3, which shows a two-dimensional matrix for the analysis of Soviet military goals and force structure requirements. In effect, two questions are being asked simultaneously, hence the multidimensional coding. What are Soviet military goals? And what are the means envisaged for achieving each goal? Answers to the former question are coded into the goal categories listed along the vertical axis of the matrix, while answers to the latter question are coded into the means categories listed along the horizontal axis.

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[*] This is a simplified version of the scheme actually employed by Singer. A very similar procedure was used by Angell (1964) to compare Soviet and American social values.

Soviet Goals (Military)
Force Structure Requirements

It is a Soviet goal to attain/maintain the following capabilities by the means indicated:	Means (Service)*						Means (Type Warfare)*					
							Nuclear Warfare					
	Army	Navy	Air Force	PVO	SRF	Any combinations of the above	Strategic	Tactical	General (undifferentiated)	Conventional Warfare	General Military (undifferentiated)	
	01	02	03	04	05	06	07	08	09	10	11	
a) the capability to defend against or deter an attack against the USSR, East European Communist countries and Cuba												01
b) the capability to defeat or deter US Imperialist aggression and support of counter-revolution in the Third World												02
c) the capability for the military defeat of China												03
d) the capability for the military defeat of NATO												04
e) the capability to support Soviet foreign policy (specifically stated as such)												05
f) military capabilities for other reasons (to include inferred support of Soviet foreign policy) or for unspecified reasons												06

*With respect to the United States, capitalist, or potential aggressors in general. Either or both type means will be coded as appropriate.

Figure 3

Other Soviet Perceptions (Military)
Relative Military Capabilities

Areas			a) In the areas specified, Soviet (Socialist bloc) capabilities relative to US (capitalist) capabilities are:			b) In the areas specified, US (capitalist) capabilities relative to Soviet (Socialist bloc) capabilities are:		
It is a Soviet perception that:			Increasing	Stable	Decreasing	Increasing	Stable	Decreasing
			01	02	03	04	05	06
Areas (Service)	Army	01						
	Navy	02						
	Air Force	03						
	PVO	04						
	SRF	05						
	Any combination of the above	06						
Areas (Functional)	Nuclear Warfare — Strategic	07						
	Nuclear Warfare — Tactical	08						
	Nuclear Warfare — General (undifferentiated)	09						
	Conventional Warfare	10						
	General Military (undifferentiated)	11						
	Civil Defense	12						
	Military Applications of Science & Technology	13						

Figure 4

Soviet Perceptions of U.S. Goals (Military)
Disarmament Goals and Motivations

It is a Soviet perception that it is a US goal to:	Motivations				Applicability of Goals:	
	Achieve/maintain unilateral military advantage	Reduce military budget/free resources for peaceful use	Promote peace and security	Strengthen detente/peaceful coexistence		
	01	02	03	04		
a) achieve general disarmament (includes complete disarmament and references to "disarmament" alone)					01	Yes
					02	No
b) achieve force reduction (MBFR)					03	Yes
					04	No
c) achieve arms control (SALT, ABM); halt arms race					05	Yes
					06	No
d) halt nuclear testing					07	Yes
					08	No
e) ban or control stockpiling and use of chemical-biological weapons					09	Yes
					10	No
f) prevent nuclear proliferation/establish nuclear free zone					11	Yes
					12	No

Figure 5

If sufficient data is available for a finer breakdown, any number of additional questions or dimensions may be added, although it becomes somewhat complicated to picture these graphically on a single matrix.* In the C.A.C.I. study, the Figure 3 matrix was broken down along four supplementary dimensions. Each statement coded into any cell of the matrix, for example each reference to goal d (the capability for military defeat of NATO) being achieved by means 10 (conventional warfare) was also coded for answers to the following four questions: Is the stated goal in using conventional forces vis-a-vis NATO to deter, defend, retaliate, or defeat? Is the goal to achieve superiority or parity? Is the goal to attain a capability or to maintain an already existing capability? Is the goal qualitative or quantitative superiority (or parity)? **

A multidimensional question enables the researcher to deal with relatively fine distinctions on complex problems. Putting results into a computer program together with data on date and source permits cross-tabulation of data to plot trends over time or measure differences between sources on any combination of dimensions. When dealing with large bodies of data, so that one has sufficient frequencies in all relevant cells of the matrix, this is a powerful analytical tool.

Scaling Question: The third schema for thematic analysis involves asking questions about where some characteristic ranks on a continuum running from high to low or from more to less of some quality. Lodge (1969) employed this schema to measure, *inter alia*, the extent to which specialist elites have come to participate in the political process in the Soviet Union, as compared with complete domination of the political process by the party *apparatchiki*. He asked five questions concerning specialist elite-*apparatchiki* relations, such as: Who *is* responsible for policy-making? and, Who *should* be responsible for policy-making? The data base from which answers were obtained consisted of 10 Soviet journals selected as representative of five elite groups. A systematic

sampling technique was used to select from these 10 journals 600 paragraphs per elite for each of eight sampled years between 1952 and 1965. Each paragraph which dealt with the relative responsibility for policy-making of the party apparat and the specialist elites was coded on the five-point scale shown in Figure 6. The following illustrates a passage coded 3, the midpoint on the scale, indicating joint party-specialist participation: —

> "You say 'Comrade Khrushchev said thus and so.' Am I the highest authority in agricultural science? You are President of the Ukraine Republic Academy of Sciences and I am the Secretary of the Party Central Committee. You must help me in these matters, and not I you. I might be wrong, and if I am, you, as an honest scientist, should say: 'Comrade Khrushchev, you do not quite understand the matter.' If you explain things to me correctly, I will thank you for it. Let us say I was wrong. But you will say, 'Comrade Khrushchev said this and I supported him.' What sort of scientist is this comrades? This is toadyism and time-serving." (From Pravda, December 25, 1961, cited by Lodge, p. 14.)

Because this scale is a continuum running from more to less party participation, the coding results can be averaged and presented as a single quantity. This gives the schema shown in Figure 6, in which the numbers represent the average scores for each elite for each year.

Lodge compared the answers to the question who *is* responsible for policy-making with those for who *should* be responsible in order to answer questions such as the following: Are the specialist elites pressuring the party for greater influence in the policy-making arena? Answer: Yes, as reflected by the increasing discrepancy between how much the party elite believes the specialists should participate and what the specialists themselves believe their role should be, as well as an increasing discrepancy between what the specialists believe their role actually is and what they believe it should be. As specialist elite participation increases, does party-elite conflict increase or decrease? Answer: It increases. Scores on all five questions for all elites were combined to show a 24 percent increase in specialist elite participation in the 1959-65 period as compared with the 1952-57

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* Figures 4 and 5 show a third dimension added along the vertical axis on the right side. See Carney (1973) for examples of matrices with four or more dimensions and extensive discussion of the use of matrices in content analysis.

** The data base used in the C.A.C.I. study was selected for its availability rather than its adequacy. The objective of the study was to test and demonstrate a methodology, and it is of interest from this point of view rather than for its substantive conclusions about Soviet goals and perceptions.

Who should be responsible for policy-making?

1.0 Party participation solely.
2.0 Party participation primarily.
3.0 Joint party-specialist participation.
4.0 Specialist participation primarily.
5.0 Specialist participation solely.

	1952	1953	1955	1957	1959	1961	1963	1965	All Years
Party apparat	1.9	1.4	1.5	2.1	2.1	2.2	2.0	2.4	1.9
Economic elite	1.0	1.2	3.0	1.6	2.9	3.4	2.7	3.1	2.2
Legal profession	1.2	1.4	1.9	2.9	2.7	3.2	3.7	3.3	2.5
Military elite	1.3	1.3	1.4	2.8	2.3	2.4	3.2	3.4	2.3
Literary elite	1.4	1.3	2.9	2.7	2.8	3.0	3.1	3.6	2.6
All specialist elites	1.2	1.3	2.3	2.5	2.7	3.0	3.2	3.4	2.4

Figure 6

period, while overall party-elite conflict (i.e., differences between party and specialist elite views on participation) increased threefold during the same period.*

Open Ended Question: This differs from the previously described procedures in that the questions posed by the researcher are open-ended rather than multiple choice. The answers are recorded verbatim, without (at least initially) forcing them into mutually exclusive categories. A set of open-ended questions forms a conceptual framework for systematic collection of all relevant items of information from a given group of documents. The explicit formulation of the set of related questions permits different researchers to apply the same conceptual framework to different bodies of text, with the result that their work will be cumulative and/or comparable. The answers obtained in response to these open-ended questions are then subjected to other forms of analysis, either qualitative or quantitative.

The procedures recently developed by Holsti (1975) to codify the concept of an "operational code"

* Lodge's work is notable for the significance of the questions being investigated and the clarity and completeness with which both results and methodology are reported. Although its methodology is not without significant weaknesses, as pointed out by Welsh (1973) and Horelick, Johnson and Steinbruner (1973) among others, this study is recommended to the reader seeking first-hand acquaintance with an example of content analysis applied to a major question of intelligence interest.

illustrate this technique. The operational code approach to analysis of foreign policy decisionmakers was developed by Leites (1951, 1953) and George (1969) and was first used to study the underlying beliefs and assumptions which influenced the decision-making behavior of Soviet leaders. The concept of an operational code refers to a decision-makers' system of beliefs about the fundamental issues of politics and social life. Analysis of a leaders' code involves asking questions concerning his beliefs about the nature of politics, nature of the contemporary international system, how much control a leader has over historical developments, how one selects goals or objectives, attitudes toward the problem of risk, etc. This approach has been used to analyze over a dozen leaders, but each researcher has conceptualized the questions somewhat differently.

Drawing on the experience of previous operational code studies, Holsti, with assistance from George, has now defined these questions far more explicitly and drafted comprehensive guidelines for coding an operational code. This is a two-step procedure in which the researcher first codes answers to open-ended questions. These answers then form the data base for subsequent single-dimensional or multi-dimensional coding. For example, in the first step the researcher asks, what are the subject's beliefs about the role of a leader in shaping history? The second step then sorts each answer to this question into one of eight possible

categories. In research which is area-oriented rather than theory-oriented, the second step is optional.

Analysis of Word Usage

When words rather than themes are taken as the unit of analysis, the researcher is most commonly interested in studying psychological attributes--of political leaders or their transient attitudes such as hostility or friendship. Discussion here is limited to techniques for measuring relatively stable psychological attributes and personal values.*

Analysis of word usage often, but not always, deals with latent content which escapes the conscious awareness and control of the communicator. Analysis of the choice of words used to express a given thought seeks to identify characteristics of the author which may have little or no direct relationship to the manifest content of the thr ght itself. It is based on the assumption that underlying psychological characteristics and personal values have a significant impact on patterns of language usage. When it deals with this latent content, analysis of word usage is relatively invulnerable to being distorted by deliberate communications strategies, although the results may be strongly influenced by variations in situational context.

M. Hermann (1974, 1975) identified patterns of word usage to serve as indicators of six personal characteristics: need for power, need for affiliation, conceptual complexity, distrust of others, belief in one's ability to control events in which one is involved, and nationalism. These traits were measured for 45 heads of state or prime ministers, including Khrushchev and Kosygin, through content analysis of transcripts of their press conferences. Hermann identified two general personality types among the foreign

leaders, those whose personality traits predisposed them to aggressive responses to their environment, and those whose personality traits predisposed them toward more conciliatory responses. The aggressive leader is more inclined to try to manipulate and control others, more suspicious of others' motives, more inclined to initiate action, less likely to consider a wide range of alternatives, and more concerned with maintaining national identity and sovereignty. Hermann then correlated the measures of personal characteristics with quantitative measures of foreign policy output in order to test the validity of the indicators and of the hypothesis that personal characteristics do have predictable effects on foreign policy behavior.

Need for power refers to an individual's concern for exercising control or influence. Hermann measured it by counting the percentage of verbs which indicate forceful action, giving unsolicited advice, attempting to influence or persuade or impress, etc. Conceptual complexity refers to the degree to which a person observing his environment differentiates between many shades of gray, rather than perceiving his world in black and white terms. It was measured by determining the ratio between low conceptual complexity words (e.g., above all, certainly, definitely) and high conceptual complexity words (e.g., approximately, may, possibly, sometimes). Similar indicators were used to develop measures of the other personal characteristics.

Winter (1976) coded verbal imagery used by all Americans who campaigned in the 1976 presidential primaries. He coded imagery indicative of three fundamental motivations—need for power, need for affiliation, and need for achievement—using as a data base the speeches in which these individuals announced their candidacy. Donley and Winter (1970) had previously coded need for power and need for achievement imagery in the inaugural addresses of American presidents from 1905 to 1969.

The coding procedures are a modification of the procedures for scoring Thematic Apperception Tests. They differ from the procedures used by Hermann to code some of the same traits. While Hermann focused on single words—verbs—in order to permit computer-assisted coding, Winter looked at the imagery in an entire sentence. Examples of sentences coded by Winter are the following: "Government has become more intrusive, more coercive, more meddlesome and

* Measures of a leader's transitory attitudes, such as hostility or friendship toward other countries and frustration or satisfaction with international events, are briefly mentioned later when discussing computerized content analysis. These measures are used in academic research for empirical testing of theories of international behavior, e.g., the Stanford University "1914 Studies." This work has advanced the state of the art of content analysis, but the substantive results are not of interest to intelligence analysts. Techniques for scaling intensity have been widely used in these theoretical studies, but they, too, have found little application in area-oriented research. For description of three scaling techniques, see North et al (1963, Chapters IV, V, and VI). As Pool (1960, p. 484) has observed, there are "differences in problem and purpose between content analysis for intelligence and content analysis as an observational device for social science research."

less effective [power]." "It is not the work of one person. It is the work of all of us working together [affiliation]." Patterns of motive imagery are not related to political philosophy, but they are related to leadership style. Winter's work indicates that, at least in an American context, such analysis can predict how actively and aggressively a leader will govern, to a certain extent how effective he will be, whether he will pick advisors who are like himself or who are technical experts in their fields, and how much he will rely on his advisors. Winter's procedures have not yet been applied to Soviet or other foreign leaders.

In a highly experimental vein, Luck (1974) has identified 15 categories of "imagery"—patterns of use of simile and metaphor—which psychoanalytical theory relates to specified personality types. Examples of aggressive/striking imagery taken from Stalin's writings and cited by Luck include the following:

> "One of our tasks is to *break down* this blank wall. . . ."
>
> "We shall continue to *throw out* such people. . . ."
>
> "Lenin *drove* them with a stick. . . ."
>
> ". . .we. . . have already *severed* whole sections of the British working class from the reactionary leaders."

Luck found that Stalin's imagery was primarily of this type, while Hitler's writings were characterized by imagery relating to food and mouth, such as:

> ". . . the big city which avidly *sucked* men in . . ."
>
> ". . . this wretched *licking* of France's boots . . ."
>
> ". . . arguments which gave me *food* for thought."
>
> ". . . his supporters will *choke down* this oppressive feeling."

Other classes of images of psychoanalytical interest include those relating to birth, sex, seeing, taking in, height, motion, dirt and cleanliness. Luck analyzed the writings of Stalin, Hitler, Mao and Liu Shao-ch'i and found that conclusions from imagery analysis correspond with other psychoanalytic evaluations of these leaders. His ongoing research is directed toward including analyses of Lenin and Trotsky, in order to further confirm that differences in imagery indeed reflect personality variables rather than different cultures; time-series analysis to check changes in an individual's imagery patterns over time and correlate such changes with known biographic or situational factors; and determining the extent to which different subject matters or contexts evoke different kinds of imagery. Luck hopes to validate the technique using well-known historical personages so that it may be applied with some confidence to analysis of new leaders for whom the only available data is their public speeches and writings.

Frank (1973) has employed imagery analysis to measure stress in political speeches. His technique might be used to determine which topics in a lengthy speech induce the greatest stress in the speaker. Imagery analysis in general appears to offer rich potential for further work to develop and validate techniques for the indirect assessment of political leaders.

Triska and Finley (1968) and Cary (1974) both analyzed word usage to measure the influence of ideology, the former to measure the influence of ideological stereotypes in speeches to the XXII CPSU Congress, the latter to measure the ideological content of Soviet school textbooks. Finley prepared a list of words and phrases with high ideological content. Terminology was included or rejected depending upon "whether or not it constituted a shorthand symbol for a concept or relationship or characteristic property clearly derived from Marxist-Leninist theoretical formulation" (p. 118). The number of ideologically loaded words or phrases in a text, divided by the total number of words, results in a fraction which Finley calls the Doctrinal Stereotype Quotient (DSQ) for each text. Politburo members were ranked according to their DSQ, and DSQ was then correlated with other variables. It was found, for example, that older Politburo members exhibited a higher DSQ than younger members, those whose elite status was achieved mainly in party work had a higher DSQ than those who had pursued primarily government careers, and Politburo members directly and extensively involved in foreign affairs showed a higher overall DSQ than those engaged primarily in domestic affairs.

Value analysis is a technique developed by White (1951) and used by Eckhardt and White (1971) to compare the values of Kennedy and Khrushchev. A value, in this context, is defined as "any goal or standard of judgment which in a given culture is ordinarily referred to as if it were self-evidently desirable" (p. 310). Thirty-one self-evident values were identified and defined for ready recognition by

coders. These include freedom, military strength, sovereignty, democracy, morality, truth, friendship, economic welfare, peace, knowledge, security, and culture. For subsequent analysis, these values may be aggregated in various ways, e.g., strength values, moral values, and economic values, or according to whether the values are attributed to one's own country or to others. The number of judgments involving the denunciation of others for not wanting or respecting certain values, divided by the total number of value judgments in a text, provides an indicator of "conflict-mindedness."

Eckhardt and White applied value analysis to compare public speeches by President Kennedy and Premier Khrushchev to test the hypothesis that Soviet perceptions of the US are a mirror-image of American perceptions of the Soviet Union. Such cross-national comparison seems highly questionable, as words like freedom, democracy, and morality have entirely different meanings for Soviets and Americans. But the technique could be used to rank order values expressed by Soviet leaders or elite groups in order to study differences between them or to measure changes over time.*

The above examples in which individual words or phrases form the unit of analysis all involve studying the attributes of individual political leaders. Analysis of word usage is most applicable to the study of individuals, but it need not be limited to the individual level. In his study of participation of Soviet economic, military, legal and literary elites in the political process, Lodge (1969) sought to measure the group consciousness of these elites. He hypothesized that group consciousness is inherently inimical to total party dominance. In order to qualify as a distinct group, he reasoned, an elite must perceive itself as a separate group and be perceived by others in this way. Lodge measured these perceptions by tallying the frequency with which the elites referred to themselves and to each other by means of a representative collective noun. Results showed that expressions of group consciousness, as reflected by use of collective nouns, were virtually nonexistent under Stalin but then increased rapidly in the immediate post-Stalin years. Scores on this measure of "groupism" (*grup-povshchina*) correlated well with Lodge's measurement of political participation by the specialist

* For an application of value analysis to Chinese leaders, using a very different set of values, see Cummins (1973).

elites—both showing a general upward trend punctuated by temporary declines following confrontations between a specialist elite and the party.

The word categories used to analyze latent content seem simplistic to some intelligence analysts. There are so many factors which affect a speaker's usage of the collective noun, it is argued, that this hardly seems a valid measure of group-consciousness. Yet the validity of this indicator is grounded in extensive sociological research. Like any other statistical procedure, content analysis disregards the uniqueness of the individual case in order to focus on the uniformities in the mass of cases. The many factors which influence the usage of a collective noun in any individual case are not relevant for statistical analysis; when studying a large number of cases, these other factors either remain constant or are presumed to vary randomly and hence to cancel each other out. When the same standard of measurement is applied to two sets of otherwise comparable data, e.g., systematically selected samples of articles from the same journal for two different years, it does seem reasonable to attribute significant differences in frequency of certain collective nouns to differences in group-consciousness from one year to the other.

Analysis of Article Length and Placement

The newspaper article (or broadcast item) is the unit of analysis in many studies of mass communications media. Items of information such as column inches, headline size, position on page, and page on which article is located are combined in various ways to arrive at an "attention score." The amount of attention devoted to various topics serves, for example, as a basis for inferences about editorial bias, propaganda goals, social trends, or presumed audience impact. Journalism and sociology students have produced many master's theses and doctoral dissertations of this type, but application to interesting political research on the Soviet Union has been limited.

An attention score can be useful in conjunction with other measures. Pendill (1971) examined the relationship between factional struggles in the Soviet leadership and Soviet policy toward the underdeveloped countries from 1952 to 1956. Fluctuations in Soviet interest in these countries were measured by a monthly count of articles and words devoted to the underdeveloped areas by *Pravda* and *Izvestia*. This

was supplemented by thematic analysis to measure the direction of policy change. The procedure permitted Pendill to establish with considerable precision the dates when policy changes were implemented, which dates were then correlated with qualitative analysis of the factional struggle.[*]

Analysis of the amount and type of attention devoted to various countries and general subject areas has long been a mainstay of propaganda analysis. The Department of Defense runs a major project (PAMIS/FMA)[**] to content analyze Soviet, Chinese, North Vietnamese, and North Korean media. Its purpose is to support contingency planning for psychological warfare operations against these countries, but it also produces a data base of some interest for political analysis. Articles in selected journals are coded according to subject/theme, country dealt with, tone (favorable, critical, neutral), and length. *Pravda* has been coded since 1974 and the Peking *People's Daily* has been coded since 1972, but unfortunately there are gaps when coding was not done regularly. Other journals and radio broadcasts have been coded for specific purposes for shorter periods of time. Computer processing permits retrieval of data on number of items and amount of space by country, subject, tone, time period, source, and audience.

The utility of such a data base to political analysts is heavily dependent upon the length of time covered and the nature of the subject/theme breakdown. Length of time covered is of critical importance because the analyst working with national-level aggregate data is usually interested in trends over time. The PAMIS/ FMA data base is weak from this point of view, but it is strong in subject categories. Current procedures permit coding of about 800 hierarchically structured subjects or themes. An average of 40 to 50 of these subjects or themes is found in each six-page issue of *Pravda*. This goes well beyond the gross categories normally found in measures of media attention.[***]

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[*] A similar combination of attention score with other measures is used by Liao and Whiting (1973) in their study of Chinese actions in two foreign conflict situations.

[**] The acronym stands for PSYOP Automated Management Information System: Foreign Media Analysis, a combined project of the Joint Chiefs of Staff and Department of the Army. Methodology is described by Katz (1975).

[***] A somewhat comparable comprehensive coding of *People's Daily* was undertaken jointly by the Survey Research Center and the Center for Chinese Studies of the University of California, Berkeley. See Wang (1967).

Other Units of Analysis

Although themes, words and newspaper articles are the most common units of analysis, a variety of other analytical strategies is possible. These include coding causal relationships, types of logical relationships, types of reasoning, and patterns of co-occurrence of themes or words.

Axelrod (1976) has described a procedure for coding causal relationships to generate a "cognitive map." A cognitive map has two basic elements. One element consists of all the concepts that a person (or group of persons) uses in discussing a given situation. The second element consists of all the assertions of causal relationships between these concepts. The concepts are represented by points, and the causal relationships by arrows between these points. This pictorial representation of the relationships between concepts is what is called a cognitive map. Policy alternatives, causes and effects, goals and values can all be represented as concepts in the cognitive map. A particular benefit of the graphic technique is that it permits one to see the overall structure of an argument, rather than separate and often unrelated pieces of it. The technique includes a set of rules and procedures for identifying concepts and causal relationships, for aggregating data from two or more documents or persons, and for displaying this information graphically. It also includes mathematical procedures for deriving inferences from the analysis of paths between points on the map. This technique has not yet been applied to Soviet documents.

Types of premises, and types of conclusions drawn from the premises, were analyzed by Triska and Finley (1968) as an alternative measure of the influence of ideological doctrine. Statements in the text to be analyzed were examined

> ". . . for the presence of explicit, related premises and conclusions. Where the text indicated that its author perceived a causal or contingent relationship between two propositions, the pair (premise and conclusion) were extracted. These pairs were then characterized according to the nature of the premise and its interpretation as reflected in the conclusion" (p. 119).

Premises and conclusions were classified in several different ways, including whether the premises were furnished by Marxist-Leninist doctrine or by empirical

observation. If furnished by empirical observation, premises were coded as to whether they were based on generalized perceptions of conditions, occurrences or attitudes, or specific perceptions of same, and according to whether or not conclusions drawn from them were given identifiable doctrinal interpretation. The results were used to test several propositions concerning the role of Marxist-Leninist doctrine in Soviet foreign policy-making.*

Shneidman (1963, 1969) developed an interesting and provocative procedure for logic analysis. It is based on the assumption that "the style of a man's thinking is directly related to other aspects of his personality and that meaningful inferences to personality or psychological traits can be made from an analysis of an individual's thinking patterns" (1963, p. 179). He identified 32 types of idiosyncracies of reasoning such as suppressed premise or conclusion, appeal to force or fear or pity when these concepts are irrelevant to the conclusion, conflicting assertions, logical fallacies, etc. He also identified 65 different "cognitive maneuvers" relating to the flow of argumentation, e.g., switching from descriptive to normative mode, summarizing, digressing, using un-substantiated allegation; enlarging upon preceding statements, deduction from preceding statements, agreeing with the whole but taking issue with a part, etc. These characteristics are then used to deduce an individual's ranking on about 17 different psychological dimensions such as flexible vs. rigid, spontaneous vs. inhibited, open-minded vs. biased, consistent vs. changeable, organized vs. unorganized, purposeful vs. lacking in direction, fact-oriented vs. theory-oriented, etc.

Shneidman has applied the technique to such diverse communications as suicide notes and the Kennedy-Nixon debates of 1960. An unpublished manuscript (Shneidman, 1961) also includes analysis of speeches by Khrushchev. Unfortunately, coding for this particular approach appears to require specialized training and is so difficult as to discourage use of the technique. A further limitation is that Shneidman has not defined explicit rules for correlating the thought patterns with the psychological characteristics.

Contingency analysis, described by Osgood (1959), measures patterns of association of words or themes. A

word or theme is counted in the coding process only if it co-occurs with one or more other words or themes specified by the researcher. Contingency analysis is based on psychological principles of association and shows what is related to what in the mind of the communicator. It is especially relevant to problems of psychology and psychoanalysis but also has political applications. Pool et al (1970) studied changes in political symbols in newspaper editorials in five major countries including the Soviet Union over a 60 year period. He used a form of contingency analysis to trace changes in the meaning of the concept of democracy in different countries in different time periods. This entailed counting the frequency with which the word democracy co-occurred in the same context as symbols signifying one or the other of the three principal conceptual components of democratic ideology—representative government, the common people, or freedom. Wang (1974) used contingency analysis, looking for co-occurrence of themes rather than words, to study the role of the Chinese People's Liberation Army during the Cultural Revolution.

Computerized Analysis

Computerized content analysis is characterized by its coding procedures rather than by the unit of analysis. Computerized processing of text offers many advantages such as: avoidance of the tedious and sometimes error-laden process of manual coding; procedures for coding intensity as well as frequency of words;* the ability to re-analyze the same data as often as desired to examine new hypotheses not envisaged at the start of the project; and capability to perform advanced statistical procedures such as cluster and factor analysis.

Much of the academic work with computerized content analysis of foreign political documents has involved measuring the intensity of attitudes or actions of some actor toward some target, such as a foreign country. Hostility is the attitude most commonly analyzed in this manner. Such measures have been used successfully for empirical testing of theoretical hypotheses, but the only likely application to intelligence requirements would be for measuring changes in the level of expressed hostility between two

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* The coding procedure is explained more fully in Finley's Stanford University doctoral dissertation, *Soviet Foreign Policy Decision-Making*, 1966, than in the Triska and Finley book.

* The Stanford Political Dictionary, used with the General Inquirer set of programs for computerized content analysis, ranks the intensity of approximately 4,000 words on the three dimensions of positive-negative, strong-weak, and active-passive.

countries such as the USSR and China. The present state of the art of computerized coding does not permit the degree of discrimination between themes and issue orientations which is required for intelligence analysis and which is obtainable by manual coding. *

Because the computer identifies words much easier than themes, the techniques for analyzing word usage are far more adaptable to computerized coding than are the various forms of thematic analysis. Some of the measures of psychological attributes, e.g., some of those developed by Hermann (1974, 1975), are clearly codable by computer.

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* But progress is being made in this direction. For an imaginative use of computerized coding in Chinese area studies, see Kringen (1975).

Two serious limitations to computerized content analysis have been the time and effort required to transform political texts into machine-readable form, and to "pre-code" the text so the computer can recognize pronoun referents and syntactical relationships. The former limitation will be partially overcome when the FBIS' computerized information handling system goes into operation and starts producing machine-readable tapes of the FBIS *Daily Reports*. The latter limitation may eventually be overcome by progress in the computer processing of natural language, or by research designs which obviate the need for pre-coding. *

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* Computerized content analysis is a complex field, and this review of the state of the art as it applies to intelligence analysis is necessarily brief and simplified. The most useful reference works on this subject are Stone *et al* (1966) and Stone (1975).

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