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BASIC CONTENT ANALYSIS
SECOND EDITION

ROBERT PHILIP WEBER
Harvard University
words with more than one meaning, and hence may produce erroneous conclusions.

- **Word sense**— Other computer programs are able to code the different senses of words with multiple meanings and to code phrases that constitute a semantic unit, such as idioms (e.g., *taken for granted*) or proper nouns (e.g., *the Empire State Building*). These issues are discussed in detail later.

- **Sentence**— An entire sentence is often the recording unit when the investigator is interested in words or phrases that occur closely together. For example, coders may be instructed to count sentences in which either positive, negative, or affectively neutral references are made to the Soviet Union. A sentence with the phrase *evil empire* would be counted as **NEGATIVE EVALUATION**, whereas *Talks with the Soviet Union continue* would be coded **NEUTRAL EVALUATION**, and *The President supports recent efforts to extend economic and political rights in the Soviet Union* would be coded **POSITIVE EVALUATION**.

- **Theme**— Holsti (1963: 136, emphasis in the original) defines a theme as a unit of text "having no more than one each of the following elements: (1) the perceiver, (2) the perceived or agent of action, (3) the action, (4) the target of the action." For example, the sentence *The President / hates / Communists* would be divided as shown. Numeric or other codes often are inserted in the text to represent subject / verb / object. This form of coding preserves important information and provides a means of distinguishing between the sentence above and the assertion that *Communists hate the President*.

Sometimes long, complex sentences must be broken down into shorter thematic units or segments. Here, parts of speech shared between themes must be repeated. Also, ambiguous phrases and pronouns must be identified manually. These steps are taken before coding for the content. Holsti (1963: 136-137) gives the following example of editing more complex sentences before coding for themes and content:

*The sentence, "The American imperialists have perverted the peace and are preparing to attack the Socialist Camp," must be edited to read: The American imperialists have perverted the peace + (the Americans) are preparing to attack the Socialist Camp."

This form of coding is labor-intensive, but leads to much more detailed and sophisticated comparisons. See Holsti (1963, 1966, 1969) for further details.

- **Paragraph**— When computer assistance is not feasible and when resources for human coding are limited, investigators sometimes code entire paragraphs to reduce the effort required. Evidence discussed later in this chapter shows that it is more difficult to achieve high reliability when coding large units, such as paragraphs, than when coding smaller units, such as words.

- **Whole text**— Unless the entire text is short—like newspaper headlines, editorials, or stories—it is difficult to achieve high reliability when coding complete texts.

2. **Define the categories.** In creating category definitions, investigators must make two basic decisions. (Other related issues are taken up later.) The first is whether the categories are to be mutually exclusive. Most statistical procedures require variables that are not confounded. If a recording unit can be classified simultaneously in two or more categories and if both categories (variables) are included in the same statistical analysis, then it is possible that, because the basic statistical assumptions of the analysis are violated, the results are dubious. This is likely to be the case when using common multivariate procedures such as factor analysis, analysis of variance, and multiple regression.

The second choice concerns how narrow or broad the categories are to be. Some categories are limited because of language. For example, a category indicating self-references defined as first person singular pronouns will have only a few words or entries. A category defined as concern with **ECONOMIC** matters may have many entries. For some purposes, however, it may make sense to use much more narrow or specific categories, such as **INFLATION, TAXES, BUDGET, TRADE, AGRICULTURE,** and so on.

3. **Test coding on sample of text.** The best test of the clarity of category definitions is to code a small sample of the text. Testing not only reveals ambiguities in the rules, but also often leads to insights suggesting revisions of the classification scheme.

4. **Assess accuracy or reliability.** Accuracy in this sense means the text is coded correctly by the computer, not in the sense of the type of reliability that was discussed earlier. If human coders are used, the reliability of the coding process should be estimated before resolving disputes among the coders.

5. **Revise the coding rules.** If the reliability is low, or if errors in computer procedures are discovered, the coding rules must be revised or the software corrected.
TABLE 2.1
Selected Lasswell Value Dictionary Categories

<table>
<thead>
<tr>
<th>Tag</th>
<th>Full Name and Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENLSCOP</td>
<td>ENLIGHTENMENT-SCOPE-INDICATOR: Words indicating concern with wisdom, knowledge, etc. as a fundamental goal rather than as a means to other ends.</td>
</tr>
<tr>
<td>ENLTOT</td>
<td>ENLIGHTENMENT-TOTAL: Indicates concern with knowledge, insight and information concerning cultural and personal relations. Includes all entries denoting and describing academic matters and the processes that generate and communicate information, thought, and understanding.</td>
</tr>
<tr>
<td>NTYPESCOP</td>
<td>N-TYPE WORDS: Relatively high frequency words that often lack semantic meaning, e.g., a, the, to, forms of the verb to be.</td>
</tr>
<tr>
<td>SCOPIND</td>
<td>SCOPE-INDICATOR: Indicates concern with ultimate ends rather than with means.</td>
</tr>
<tr>
<td>SELVES</td>
<td>SELVES: First person plural pronouns.</td>
</tr>
<tr>
<td>SKLTOT</td>
<td>SKILL-TOTAL: Skill is defined as proficiency in any practice whatever, whether in arts or crafts, trade or profession. Indicates a concern with the mastery of the physical environment and the skills and tools used to that purpose.</td>
</tr>
<tr>
<td>SURE</td>
<td>SURE: Sentiment category containing words that indicate certainty, sureness, and firmness.</td>
</tr>
<tr>
<td>TIMESP</td>
<td>TIME-SPACE: General time and space category. Contains directions, e.g., up, down, etc., and time indicators, e.g., hour, early, late.</td>
</tr>
<tr>
<td>UNDEF</td>
<td>UNDEFINED: Includes words with value implications that vary from context to context, and which, notwithstanding disambiguation routes, cannot be assessed reliably by present procedures.</td>
</tr>
<tr>
<td>UNDEFT</td>
<td>UNDEFINABLE: Includes entries which have no value implications or which have value meaning which cannot be defined in terms of the present category scheme.</td>
</tr>
<tr>
<td>WLTOTH</td>
<td>WEALTH-OTHER: Entries denoting the wealth process not classified as participant of transaction are classified here.</td>
</tr>
<tr>
<td>WLTPT</td>
<td>WEALTH-PARTICIPANT: Contains the generic names of the trades and professions in the wealth process. Also includes social roles related to wealth processes, e.g., banker.</td>
</tr>
<tr>
<td>WLTTOT</td>
<td>WEALTH-TOTAL: Wealth is defined as income or services of goods and persons accruing to the person in any way whatsoever. All references to production resources and the accumulation or exchange of goods and services have been included in this category.</td>
</tr>
<tr>
<td>WLTXACT</td>
<td>WEALTH-transaction: Contains references to the creation or exchange of wealth, mainly verbs.</td>
</tr>
<tr>
<td>XACT</td>
<td>TRANSACTION: Residual category indicating value transactions not classified elsewhere because it could not be determined reliably whether the transaction resulted in a gain or loss or what was the object of the transaction.</td>
</tr>
</tbody>
</table>

TABLE 2.2
Selected Harvard IV Dictionary Categories

<table>
<thead>
<tr>
<th>Tag</th>
<th>Full Name and Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFFIL</td>
<td>AFFILIATION: All words with the connotation of affiliation or supportiveness.</td>
</tr>
<tr>
<td>BEGIN</td>
<td>BEGIN: Words indicating beginning.</td>
</tr>
<tr>
<td>CAUSAL</td>
<td>CAUSAL: Words denoting presumption that occurrence of one phenomenon necessarily is preceded, accompanied, or followed by the occurrence of another.</td>
</tr>
<tr>
<td>COLL</td>
<td>COLLECTIVITY: All-collectivities excluding animal collectivities (ANIMAL).</td>
</tr>
<tr>
<td>COMFORM</td>
<td>COMMUNICATION FORM: All processes and forms of communication, excluding finite, concrete, visible, and tangible objects for communication, e.g., book, but does include words such as essay, fare, and chapter, where the emphasis is more on the communication transaction than on the object itself.</td>
</tr>
<tr>
<td>COMN</td>
<td>COMMUNICATION: All forms and processes of communication.</td>
</tr>
<tr>
<td>DOCTR</td>
<td>DOCTRINE: Organized systems of belief or knowledge. Includes all formal bodies of knowledge (astronomy, agriculture), belief systems (Christianity, stoicism), the arts.</td>
</tr>
<tr>
<td>ECON*</td>
<td>ECONOMIC: All words which relate to economic, commercial, and industrial matters. Includes all economic roles, collectivities, acts, abstract ideas, and symbols. Also includes references to technical industrial processes and to economic commodities such as coal and aluminum.</td>
</tr>
<tr>
<td>EXCH</td>
<td>EXCHANGE: Words indicating economic processes and transactions such as buying and selling.</td>
</tr>
<tr>
<td>GOAL</td>
<td>GOAL: Names of end-states toward which striving, muscular or mental, is directed.</td>
</tr>
<tr>
<td>IMPERS</td>
<td>IMPERSONAL: All impersonal nouns.</td>
</tr>
<tr>
<td>INCR</td>
<td>INCREASE: Words indicating increase.</td>
</tr>
<tr>
<td>INTREL</td>
<td>INTERRELATE: Interpersonal action words involving changing relationships between people, things, or ideas. Abstract nouns derived from these verbs are to be found generally in VIRTUE or VICE.</td>
</tr>
<tr>
<td>OUR</td>
<td>OUR: All pronouns which are inclusive self-references.</td>
</tr>
<tr>
<td>OVRST</td>
<td>OVERSEIZE: Words providing emphasis in the following areas: speed, frequency, inevitability, causality, inclusiveness of persons, objects, or places, quantity in numerical and quasi-numerical terms, accuracy and validity, importance, intensity, likelihood, certainty, and extremity.</td>
</tr>
<tr>
<td>POLIT</td>
<td>POLITICAL: All words with a clearly political character. Includes political roles, collectivities, acts, ideas, ideologies, and symbols.</td>
</tr>
<tr>
<td>POWER</td>
<td>POWER: All words with the connotation of power, control, or authority.</td>
</tr>
</tbody>
</table>
system (Kelly and Stone, 1975; Zuell et al., 1989). These computer programs and their associated dictionaries—the Harvard IV and the LVD—incorporate rules that distinguish among the various senses of homographs according to the context of usage. Technically known as disambiguation rules, these procedures lead to an important increase in the precision of text classification. In this context, higher precision refers to higher accuracy resulting from more or finer distinctions.18

Another problem in text analysis arises from phrases or idioms that constitute a single unit of meaning. Some of these are proper noun phrases—for example, Sage Publications, United Nations, or United States of America. Others are idioms or phrases such as bleeding-heart liberals, point of no return, or a turn for the worst. Whereas the earliest forms of the General Inquirer included the capability to handle idioms, the latest version uses the same flexible features for handling homographs to handle idioms. Thus the investigator can choose from among the individual word, word sense (of homographs), or phrase as the appropriate semantic unit.19

Although some computer systems handle the ambiguity of homographs, there exist other unresolved difficulties with this type of text classification. Because this software operates on only one sentence at a time, it cannot determine the referents of pronouns and ambiguous phrases (such as we or dual problems in the last sentence of the first example at the beginning of this chapter). Two resolutions of this problem have been commonly employed. The first is to ignore it, with the consequence that some category counts are slight underestimations. The second strategy is to edit the text so that the referent is placed immediately after the pronoun or phrases. This method is labor-intensive, but leads to more accurate counts.20

Here is an excerpt from the 1886 address of the British monarch before Parliament (similar to our State of the Union address) discussing Home Rule for Ireland with the referent of it identified by the investigator (adapted from Namenwirth and Weber, 1987: 108):

I have seen with deep sorrow the renewal, since I last addressed you, of the attempt to excite the people of Ireland to hostility against the legislative union between that country and Great Britain. I am resolutely opposed to any disturbance of the fundamental law, and in resisting it [any disturbance of the fundamental law] I am convinced that I shall be heartily supported by my Parliament and my people.
This formulation points at two complications. First, having one attribute logically does not exclude the possession of another. Second, not all entries need have the same attribute to the same extent; the qualities by which words are classified may be continuous rather than dichotomous, thus leading to variation in intensity.\(^{23}\) Double or multiple classification of entries resolves the first problem, but creates others.

Different strategies have been followed to resolve these issues. For example, the design of the Lasswell dictionary assumes that the gain in semantic precision does not outweigh the loss of logical distinctiveness and exclusiveness (Namenwirth and Weber, 1987; Zuell et al., 1989). Logical exclusiveness is a precarious precondition of all classification for subsequent statistical analysis. Therefore, in the Lasswell dictionary, if an entry can be classified under more than one category it is classified in the category that seems most appropriate—most of the time—for most texts. As for intensity, although it is true that not all entries will reflect the category to the same extent, Namenwirth and Weber (1987) chose a dichotomous rather than a weighted classification scheme because no reliable method for assigning weights or intensity scores could be perfected.

The category scheme of the current Harvard dictionaries was constructed using a very different strategy (Dunphy et al., 1989). They have a set of first-order categories to which entries can be assigned on a hierarchical basis if warranted. These first-order categories represent the basic analytic categories. Figure 2.1 illustrates the hierarchical nature of the Harvard IV-4 first-order categories that deal with psychological states. Two categories, NEED and PERCEIVE, have no subcategories, but FEEL, THINK, and EVALUATE do.

The Harvard dictionary contains another set of categories, called second-order categories that are independent of the first, and provide alternative modes of classification. For example, there is a set of second-order categories derived from the Osgood semantic differential discussed earlier. How, then, are words classified using this architecture? The word abstract is classified in both THINK and its subcategory KNOW. Absence is categorized in the same two categories with the addition of WEAK, one of the Osgood categories. Acceptable is classified in the first-order THINK and EVALUATE, the EVALUATE subcategory VIRTUE, and the Osgood POSITIVE category.

Although this type of scheme provides a multitude of possibilities for the investigator, great care must be taken if multivariate statistical
inferred categories have failed to recognize that this multitude of categories requires a theory of categories. Such a theory would explain the range of possible categories and the empirically observed variation in category schemes (Namenwirth and Weber, 1987). Without such a theory, research using inferred categories is unlikely to lead to the cumulation of comparable results.

Alternate Classification Schemes and Substantive Results

The choice of classification schemes is in part predicated on theoretical considerations. For example, if one wishes to study exclusively a particular construct, such as McClelland's Need Achievement (Nach), then one might construct a dictionary that scores only that variable (e.g., Stone et al., 1966: 191ff). General dictionaries follow a different strategy based on many commonsense categories of meaning. These categories are chosen to reflect the wide range of human experience and understanding encoded in language.

Having decided to use the strategy of general dictionaries, the choice of one rather than another content classification scheme has little or no effect on the substantive results. That is, if the same text is classified using different general dictionaries (and analogous measurement models; see Namenwirth and Weber, 1987: chapter 8), then one will arrive at the same substantive conclusions.

Empirical evidence supports this point (Namenwirth and Bibbee, 1975: 61). In their analysis of newspaper editorials, Namenwirth and Bibbee classified the text using two different dictionaries and then factor analyzed the two sets of scores separately. Comparing the results across dictionaries, they found that the factors had similar interpretations. Furthermore, irrespective of which dictionary was used, Namenwirth and Bibbee arrived at similar substantive conclusions.

This evidence is suggestive rather than conclusive. Consequently, future research should investigate the relationship between the dictionary used to classify text and the substantive conclusions. Texts can be classified with more than one dictionary and the results compared. If the results only partially replicate across dictionaries, additional research should determine the circumstances under which the results are similar and variant. Also, if the substantive conclusions do not depend on the particular category scheme, researchers reluctant to use one or another existing dictionary that does not operationalize their particular conceptual scheme might now be persuaded to do so. In addition, those who might create dictionaries in languages other than English might be persuaded to use existing category schemes to maintain cross-language comparability of results.

Units of Aggregation Problems

After assigning the words in the text to various categories, the investigator usually counts the words in each category in each document. In turn, these summary measures represent the intensity of concern with each category in a given document. The choice of document as the logical aggregate unit of analysis, however, is only one of several possibilities. There is some evidence (Grey, Kaplan, and Lasswell, 1965; Saris-Gallhofer et al., 1978) indicating that the reliability of content categories varies by the level of aggregation: In a comparison of hand- and computer-coded content analysis of the same texts, sentences and documents had the highest reliabilities, whereas the reliability for paragraphs was slightly lower. In addition, the reliability at all levels of aggregation was substantially less than the reliabilities for specific words or phrases.

Using people to code New York Times editorials that appeared during the Second World War, Grey et al. (1965) found that the substantive conclusions were affected by the type of recording unit. They coded a sample of editorials using four different units of text:

- symbols, which correspond to words or short phrases
- paragraphs
- units of three sentences
- whole editorials

They also coded each unit of text as being favorable, neutral, or unfavorable toward the symbol. Controlling for the total number of each type, they found that longer coding units (paragraphs, entire editorials) produced a greater proportion of units scored favorable or unfavorable and fewer units scored neutral than did the shorter units.

These findings question long-standing practices regarding aggregation of words into larger units in both hand-coded and computer-aided content analysis. Future research should investigate the relationships
Salton (1989) discusses text processing from a computer-science perspective focusing on information retrieval. There is a huge and still-growing literature on natural language processing and computational linguistics. Allen (1987) provides an excellent introduction to modern methods for computer processing of language. Winograd and Flores (1986) provide an important philosophical and social critique of such endeavors.

4. ISSUES IN CONTENT ANALYSIS

Content analysis procedures create quantitative indicators that assess the degree of attention or concern devoted to cultural units such as themes, categories, or issues. The investigator then interprets and explains the results using relevant theories. This chapter considers four key aspects of the content analysis process:

- **measurement**—the assignment of numbers that stand for some aspect of the text
- **indication**—the inference by the investigator of some unmeasured quality or characteristic of the text from those numbers
- **representation**—techniques for describing syntactic, semantic, or pragmatic aspects of texts
- **interpretation**—the translation of the meaning in text into some other abstract analytical or theoretical language

For each of these processes, difficulties exist that may detract from the reliability of the procedures or from the validity of substantive conclusions based on them. This chapter discusses some of these problems in order to help researchers make more informed choices about their procedures, to help in understanding the limitations of currently available content analysis procedures, and to suggest new lines of research that may (at least in part) resolve these problems.

**Measurement**

In content analysis, measurement consists of counting the occurrences of meaning units such as specific words, phrases, content categories, and themes. Regardless of whether the text is coded by humans or by computers, two standard measurement practices are using the percentage (or proportion) transformation to control for document length and counting each occurrence of a word or other meaning unit equally. Each of these practices leads to serious difficulties that require attention.

**The Percentage Transformation.** This section addresses four specific problems that arise from using the percentage transformation to control for document length. First, the percentage or proportion has limited range and is asymptotic; consequently, the resulting measurement is not linear (for example, an increase from 5% to 10% is not the same as an increase from 60% to 65%).

Second, statisticians have shown that the mean and variance of percentages are not independent. Therefore, when used as the dependent variable in analysis of variance designs, proportions are subjected to an arcsin square root transformation, a procedure recommended by statisticians to make the mean and variance independent (see, e.g., Freeman and Tukey, 1950; Schuessler, 1971: 411-416). Additional research is required to determine if percentages based on textual data-with or without transformation—create problems in statistical estimation and inference when used with multivariate procedures other than ANOVA, such as factor analysis or the LISREL approach to structural equation models.

Third, different measurement strategies may imply different theoretical assumptions. For example, the percentage distribution may be inconsistent with the hypothesis that concern with secular rather than sacred themes increases linearly over time. Extended far enough into the future, such a trend must eventually exceed 100%. Investigators therefore should consider whether their measurement procedures unwittingly conflict with their epistemological and methodological assumptions and substantive theories.

Fourth, many of the statistical procedures used by content analysts make distributional assumptions that probably are violated by the percentage distribution. For example, content analysis data are unlikely to be either univariate or multivariate normal.

Rather than using percentages or proportions, some colleagues (in personal communications) have suggested instead modeling frequency counts generated by content analysis as a Poisson process and then using statistical estimation procedures based on this distribution. Most content-analytic studies thus far have relied on the robustness of factor analysis, curve-fitting, ANOVA, and other statistical procedures com-
numbers that represent some manifest aspect of the text. For example, as shown in the previous chapter, factor analysis often is used to infer themes in text. More subtle examples are presented shortly. Some critics believe that indication is problematic because they question the reliability and validity of all inferences concerning latent characteristics of text, or of such inferences in the absence of accompanying detailed syntactic and semantic information.

This section addresses two important aspects of indication. The first concerns the rationale for analyzing latent characteristics of the text at all. The second concerns latent characteristics of texts that may not be discernible through detailed semantic analysis without quantification.

In social science research we often use statistical procedures (such as factor analysis, structural equation models, and simple correlations) that suggest or assume the existence of unmeasured or latent variables. As most often applied in content analysis, the unit of analysis in these statistical procedures is the entire document. Therefore, latent variables indicate features of each entire text (or other coding or analytic unit, such as paragraphs, chapters, or document sections). These latent-variable models raise interesting problems and possibilities not often met in social research (Mohler, personal communication). In latent-indicator models of mental ideas such as attitudes, for example, the investigator can never observe directly mental states that validate the interpretation of the results (and given the problematic relationships between attitudes and behavior, it is not possible to infer the former from the latter, either). A different situation, however, exists in content analysis. Here the investigator can examine the relationship between latent variables and the original text being analyzed.

If one has observables such as text, why bother with quantification and latent-indicator models at all? There are several reasons. First, counting generates results that allow for more precise comparisons among texts. Second, we want to know how much more (or less) attention is devoted to some issues than to others. Third, quantitative analytical procedures often reveal similarities and differences among texts that would be difficult, if not impossible, to detect otherwise.

Investigators often find that covariation among observed variables suggests substantively interesting features of texts that otherwise would not be apparent. The fact that latent variables so inferred actually are derived from observable texts makes them no less useful. Rather, examining the observable text is an important opportunity to improve the interpretation and validation of the substantive findings.

As noted in the introductory chapter, the coding and quantitative techniques discussed in this volume often are criticized because they do not make much use of the syntactical and semantic information in each sentence. Nevertheless, these quantitative methods often permit inferences that probably could not be made by other means.

For example, several studies (Namenwirth and Weber, 1987: chapter 9) have found similar positive correlations between four pairs of categories: (1) IF and SURE (or UNDERSTATE and OVERSTATE), (2) POSITIVE AFFECT and NEGATIVE AFFECT, (3) POWER CONFLICT and POWER COOPERATION, and (4) POWER AUTHORITATIVE and POWER AUTHORITATIVE PARTICIPANTS. What do these correlations tell us?

- If a document uses many UNDERSTATE words, such as ambiguous, apparent, and little, it is also likely to use many OVERSTATE words, such as absolute, natural, and necessary. But this finding leaves open whether these classes of words do or do not occur in the same sentence or paragraph context. Furthermore, Namenwirth and Weber (1987: chapter 9) interpret this correlational finding itself as indicating that those documents high in OVERSTATE and UNDERSTATE words discuss matters very defensively compared with those documents with few words in these categories. But this is not to say that such documents explicitly state that they are defensive about whatever they discuss. In fact, they rarely do.

- Similarly, the positive correlation between POSITIVE AFFECT (attachment, beneficial, and inspire) and NEGATIVE AFFECT (adverse, neglect, and obnoxious) first suggests that documents are most often either affect-laden or affect-neutral, and, second, indirectly tells whether and to what extent particular documents are of one kind or another. Documents rarely will state this fact outright. Instead, these correlations suggest something about the mood, tone, or style of documents.

- Third, several studies have found a positive correlation between POWER CONFLICT (agitate, encroachments, and rebellion) and POWER COOPERATION (solidarity, supporter, and unanimous). Thus documents with a high frequency of one will displace a high frequency of the other.

- We also find that POWER COOPERATION and POWER CONFLICT are usually correlated negatively with another pair of categories, namely, POWER AUTHORITATIVE (administer, reign, statute) and POWER AUTHORITATIVE PARTICIPANT (administrator, regiment, tribunal). The latter positively correlated cluster indicates a concern with consensual power that is a facility of the entire society (Lehman, 1977; Namenwirth and Weber, 1987: 149). These findings show that documents are preoccupied with either consensual or conflictual power concerns, but not both at the same time. More
will thereby see that they can recommend themselves to me by no other methods, than what the law prescribes, which shall always be the only rules of my government.

Now compare the preceding with excerpt with the following one given in 1757:

I have had such ample experience of the loyalty and good affections of my faithful subjects towards me, my family, and government, in all circumstances, that I am confident they are not to be shaken. But I cannot avoid taking notice of that spirit of disorder, which has shown itself amongst the common people, in some parts of the Kingdom. Let me recommend it to you, to do your part in discouraging and suppressing such abuses and for maintaining the law, and lawful authority. If anything shall be found wanting, to explain or enforce what may have been misunderstood or misrepresented, I am persuaded it will not escape your attention. Nothing can be so conducive to the defense of all that is dear to us, as well as for reducing our enemies to reason, as union and harmony amongst ourselves.

Many readers will agree that these excerpts address the same underlying issue or theme, but might disagree over what to name it. Let us briefly postpone naming the common theme until after we consider interpretation itself.

The process of interpretation constitutes translation from one language to another (Namenwirth and Weber, 1987). Each language consists of a set of rules that define what constitutes a valid sentence in the language. Using these rules, speakers of the language can generate a virtually infinite number of sentences. Considering a text in one language, translation consists in large part of mapping the syntactic and semantic structures that comprise the text in the first language into structures that are valid for the second and that convey the meaning of the first.

As is well-known, translation can be a difficult process (Steiner, 1975). A procedure, however, for checking the validity of a translation exists—namely, back-translation. Here the text in the target language is translated back into the original and then compared with the original. When the back-translation and the original text are the same, then the first translation is valid. Note that this kind of translation is bidirectional or reversible: Once investigators have translated the text into the second language they usually can reconstruct the original text. Note also that there may be only one or very few translations that are valid. Not all translations, however, are reversible.

The primary concern here is with irreversible or unidirectional transformations that map the content of texts into more abstract, usually theoretical structures. For content analysis, this specialized language is usually the social science theory (or theories) used by the investigator to interpret the text and explain the substantive results. Here the mapping is from the many words of the text into fewer and more abstract categories and into relations suggested by the theory.

Note that in the excerpts above, the words—let alone the syntax—used to convey the basic themes are hardly identical. For example, the first excerpt begins by discussing differences among subjects of the King, whereas the second excerpt begins by discussing the loyalty and good affections of the subjects. Some differences reflect differing historical circumstances. Coming two years after the Glorious Revolution of 1688, the first excerpt discusses an Act of Indemnity and Act of Grace. Given during the Seven Years' War, the second excerpt ends with a reference to foreign enemies and internal cohesion.

These differences aside, sociologists and political scientists usually would choose one of two principal theoretical and conceptual frameworks for labeling the common underlying issue. Marxists and other conflict theorists might say that these excerpts deal with conflict between the common people on the one side and the aristocracy, commercial interests, and the incipient capitalist classes on the other. Weber (Namenwirth and Weber, 1987: chapter 4) chose to interpret the common underlying issue as reflecting what Bales and Parsons refer to as integrative concerns, whose principle focus is the coordination of the various subgroups in society (or other social system).

As this example illustrates, there is no one-to-one mapping between text and theory. Also, the translation from text to theory is not reversible. One could generate virtually an infinite number of excerpts whose interpretation is as an instance of integrative themes in the Bales/Parsons sense. Thus the strategy of back-translation is not available to us as a means of validating the mapping from text to theory.

Given that differing, perhaps antithetical theoretical frameworks can be used to interpret these texts, what should we conclude? First, a variety of interpretations usually will be available and the investigator must choose. It is inappropriate to pursue a fruitless quest in search of the "true" or the "valid" interpretation. As Slater (1966) points out, it is not the validity of an interpretation per se that is at issue, but rather
A version for MS-DOS personal computers is now available in microcomputer workstations, minicomputers, and mainframes. When you have a FORTRAN compiler that supports the IBM 370 microcode, you can use the ZUMA software on your computer. The General Inquirer system is proprietary and is distributed for a nominal charge by the Computation Department of the University of Oregon. The ZUMA version of the General Inquirer program is also available.

Computer Software and Text Data Archives

APPENDIX

Evidence

BERVICK (1963), WEXLER (1976), WEPNER et al. (1976), and WEREBAK (1979) have demonstrated that reading proficiency is related to higher and lower levels of language and text. The literature has shown that some of the literature on reading and language development is consistent with the principles of the General Inquirer. The General Inquirer is written in the English language and is available for IBM MS-DOS, PC, and compatibles. It requires at least 512K, a hard disk, and DOS 3.0.

The system is not particularly user-friendly. The full documentation for the system is not particularly user-friendly. The system is not particularly user-friendly. The full documentation for the system is not particularly user-friendly. The system is not particularly user-friendly. The full documentation for the system is not particularly user-friendly. The system is not particularly user-friendly.

Suggestions for Further Reading

In the following text, the General Inquirer is written in the PL/I language and is available for IBM MS-DOS, PC, and compatibles. It requires at least 512K, a hard disk, and DOS 3.0.

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Concluding Remarks

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