Third Edition

Content Analysis

An Introduction to Its Methodology

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Preface to the Third Edition

Content analysis is potentially one of the most important research techniques in the social sciences. The content analyst views data not as physical events but as texts, images, and expressions that are created to be seen, read, interpreted, and acted on for their meanings, and must therefore be analyzed with such uses in mind. Analyzing texts in the contexts of their uses distinguishes content analysis from other methods of inquiry.

Methods in the natural sciences are not concerned with meanings, contents, intentions, and references. Also, natural scientists hardly reflect on the textual sources of their own conceptions of nature, excluding them from their object of study, dismissing them as subjective in contrast to what can be determined through detached observation and objective measurement. Where social researchers adopt natural scientific methods of inquiry, the epistemology that is inscribed in such methods prevents them from addressing what matters most in everyday social life: human communication, how people coordinate their lives, the commitments they make to each other and to the conceptions of society they aspire to, what they know, and why they act. Certainly, content analysis is not the only research method that takes meanings seriously, but it is a method that has the additional qualities of being applicable to large numbers of data and being unobtrusive. It makes sense of what is mediated between people—textual matter, symbols, messages, information, mass-media content, and technology-supported social interactions—without perturbing or affecting those who handle that textual matter.

In the first edition of *Content Analysis*, published in 1980, I suggested that content analysis was at a crossroads. Content analysts at that time had a choice: They could continue their shallow counting game, motivated by a journalistic fascination with numbers and a narrow conception of science in which quantitative measurement provides the only evidence that counts (Lasswell, 1949/1965b), or they could redirect the attention of content analysts to social phenomena that are both generated by and constituted in texts and images and, hence, need to be understood through their written and pictorial constituents. I am pleased to say that the logic and methods that I presented in the first edition of *Content Analysis* have survived

the challenges provided by the radical transformation of the textual fabric of contemporary society, due in no small part to the ongoing information revolution. The increasingly widespread availability of electronic, and hence computer-readable, texts concerning virtually everything that matters to society and its members has moved content analysis, particularly computer-aided text analysis, into the center of how society examines itself.

In the 1980s, content analysis was a research method that had entered the psychological and social sciences but was used mainly by journalists and communication researchers. At that time, the amount of human effort required to collect, transcribe, and code textual data made content analysis a time-consuming and labor-intensive effort. Today, content analysis has become an efficient alternative to public opinion research, a method of tracking markets, political leanings, and emerging ideas; it is used as a way to settle legal disputes and as an approach to the exploration of individual human minds—not to dwell on the many improvements that content analysts have made in traditional content analytic inquiries of the mass media. Despite remarkable progress, content analysts can hardly claim to have met all challenges of this new era. Its potential is far from being exhausted by what can be done today, fueling the work of many developers of new analytic tools.

Although the outline of the second edition of *Content Analysis* (2004) remained essentially unchanged from that of the first, that edition clarified numerous methodological issues and responded to the technique's latest challenges. All chapters were substantially rewritten, addressing developments that had taken place since 1980, especially chapters that provided information on computer-aided text analysis and a practical guide that incorporated my own experiences in teaching and engaging in and consulting on academic and commercial research projects. Also, the earlier discussions of the epistemology, logic, and methods of content analysis were substantially revised. By comparison, this third edition introduces only minor updates, especially in the chapter on computer aids, and adds a glossary of terms.

I thank my students at the University of Pennsylvania's Annenberg School for Communication for their interest and for giving me useful feedback, and my colleagues for presenting me with the challenging methodological problems of their content analyses. I would also like to thank numerous readers of the earlier editions—both students and practicing content analysts—for sharing their comments and criticisms, and Sage Publications for its continuing support of content analysis literature, most recently by publishing *The Content Analysis Reader* (Krippendorff & Bock, 2009), which is meant to complement this edition with exemplary content analyses and accounts of the ways in which researchers have met various conceptual and methodological challenges.

The first edition of *Content Analysis* has been translated into Italian, Japanese, Spanish, and Hungarian, and during the 33 years since the publication of *Content Analysis* the book has reached an enormous audience. It has been widely adopted as a text in social science, humanities, and business curricula. It has served researchers as a guide to the design and execution of large and small content

analyses, and it has provided a standard for justifying as well as critically evaluating content analysis findings. When I travel to national and international conferences, I continue to be amazed and pleased to meet researchers from all over the world who tell me how studying this text has helped them in their current inquiries. In 2004, it received the International Communication Association (ICA) Fellows Book Award for its lasting contribution to communication research. This new edition is written for the same wide audience of practicing researchers, social scientists, and students.

—Klaus Krippendorff

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Introduction

The term *content analysis* is about 60 years old. *Webster's Dictionary of the English Language* included the term in its 1961 edition, defining it as "analysis of the manifest and latent content of a body of communicated material (as a book or film) through classification, tabulation, and evaluation of its key symbols and themes in order to ascertain its meaning and probable effect." The intellectual roots of content analysis, however, can be traced far back in human history, to the beginning of the conscious use of symbols and voice, especially writing. This conscious use, which replaced the magical use of language, has been shaped by the ancient disciplines of philosophy, rhetoric, and cryptography. It has also spawned religious inquisitions and political censorship on the part of ruling establishments. Today, symbolic phenomena are institutionalized in art, literature, education, and the mass media, including the internet. Theoretical and analytical concerns are found in such academic disciplines as anthropology, linguistics, social psychology, sociology of knowledge, and the comparatively younger field of communication studies. Many practical pursuits have grown from these fields: psychotherapy, advertising, politics, the arts, and so on. Virtually all disciplines within the whole spectrum of the humanities and the social sciences, including those that seek to improve the political and social conditions of life, are concerned with the functions and effects of symbols, meanings, and messages. In recent years, the emergence of the information society has moved the minutiae of communication—texts, contexts, images, interfaces, and, above all, information—into the very center of researchers' attempts at self-understanding.

However ancient the roots of analyzing symbolic and textual matter might be, today's content analysis is significantly different, in aim and in method, from that of the past. Contemporary content analysis has three distinguishing characteristics.

First, content analysis is an *empirically grounded method,* exploratory in process, and predictive or inferential in intent. Many of our current concepts relating to language are of Greek origin; for example, the words *sign, significance, symbol,* and *logic* all have Greek roots. However, the ancient Greeks' interest in language was largely prescriptive and classificatory, not empirical. Aristotelian logic set the standards for clear expression, and much of rhetorical theory was directed toward a normative conception of persuasive argumentation. Science that explores rather than declares is a relatively recent accomplishment. Only a century ago, George

Boole and his contemporaries believed that the brain works according to (Boolean) logic and that human conduct is entirely rational. However, computers built on this logic turned out to be rather disappointing thinking machines. Empirical research in psychology is replacing Aristotelian categories in favor of a "psycho-logic." And we no longer measure human communication against the ideal of transmitting information. Instead, we inquire into what happens to the relationships between people who converse with one another.

With new conceptualizations and an empirical orientation, contemporary content analysts join other researchers in seeking valid knowledge or practical support for actions and critique. However, unlike researchers who employ other empirical techniques, content analysts examine data, printed matter, images, or sounds—texts—in order to understand what they mean to people, what they enable or prevent, and what the information conveyed by them does. These are questions for which natural scientists have no answers and for which their methods are generally insensitive.

Second, contemporary content analysis *transcends traditional notions of symbols, contents, and intents.* This may be seen in the evolution of the concept of communication, in how the development of media technologies has shaped our attention to communication, and in the role of culture in assigning significance to what is being analyzed. I would argue that in recent years our awareness of communication has undergone four conceptual revolutions, as described below, and probably is in the midst of a fifth:

- The idea of *messages:* the early awareness not only that verbal discourse is portable when written but also that writing has predictable effects. This awareness emerged in ancient Greece when messengers were used as the carriers of significance, history became documented, laws of the land were laid down in writing, and written instructions built organizational structures, directed events, and influenced (and possibly deceived) their receivers or the public. The concept of a message was a precursor of the rhetorical exploration of language. Tropes, syllogisms, and meanings came to be thought of as inherent qualities of speeches, letters, or documents. But a message is the metaphorical container of all these, a "container of content," a vehicle for shipping meanings from one place to another—for example, when we now leave a message for someone on voice mail or say that a message was meaningful (full of meanings) or meaningless (void of meanings).
- The idea of *channels:* the awareness of the constraints that every medium imposes on human communication. This awareness came with the increased reliance on different media of communication and served to explain their limitations: The alphabet limits what one can say in writing; the telephone confines communication to sound; and a television station can air no more than what is transmittable without interference from other stations, appealing to large audiences, and deemed profitable by its sponsors. The channel metaphor conjures images of canals and pipes with restricted capacities for shipping messages (with their contents) of certain forms and volumes.

- The idea of *communication:* the awareness of the relational space between senders and receivers, of the processes through which interpersonal relations are negotiated, social structures are constituted, and members of large populations come to know about each other. This awareness developed as an offshoot of the growth in mass media. By producing and disseminating identical messages—news and entertainment—to everyone, the mass media promised to be an agent of sharing, of building community relationships, of democratization, ideally, worldwide. Modeling themselves on the idea of mass production, the mass media also made us aware of where this one-way model failed: in interpersonal conversation, point-to-point telephone communication, public debate, and dialogue. In U.S. culture, mass-media technology has become synonymous with progress, and communication is understood as the cure for most social problems—for example, we often blame lack of communication or miscommunication when interpersonal as well as national conflicts arise.
- The idea of *systems:* the awareness of global, dynamic, and technologically supported interdependencies. This idea emerged with the growth of communication networks—telephone nets, wire services, mass-media systems, and most recently the internet—transforming commerce, politics, and interpersonal relationships, creating networks whose properties have so far defied attempts to theorize them adequately. Unlike the one-way mass media, systems are marked by the interactivity and simultaneity of parallel communication on a massive scale and with the potential of nearly universal participation.
- The idea of *computation:* the awareness of the algorithmic nature of certain routine cognitive and social processes and their increasingly sophisticated implementation in powerful computers. The processing of digital communications in place of print, visual media, and observed social practices, along with the ability to reproduce such data in visual and textual forms for reading, rearticulating, and disseminating by and to ideally everyone, is encouraging an entirely new literacy that undercuts traditional organizational structures, including national boundaries. The fluidity and enormous complexity that computation has introduced into almost all spheres of life amplify the possibilities for scientific exploration as well as present unprecedented challenges for collective understanding.

This rather sketchy history of communication suggests that researchers who are concerned with texts can no longer focus only on symbols or representations, nor can they limit themselves to questions about "who says what, through which channels, to whom, and with which effects" (Lasswell, 1960). The popular and simplistic notion of "content" has outlived its explanatory capabilities as well: *content,* the *what* of a communication, an entity that authors think they *enter* into messages and *ship* to remote receivers, who *remove* it for *what it is* and henceforth *share it* among others. This bizarre notion leads to authors as authorities of what they put into messages and to the conception of *content analysts* as experts who provide objective accounts of what messages were *intended to convey* or *actually contain.*

The virtuality of electronic media encourages short-lived access to messages that, without knowledge of their human authors, calls for a new technological basis for trust. It coordinates the lives of many people, overcoming old distinctions among channels of communication, obviating physical distances, and pushing capacities of the human participants to their limits. This erodes the validity of traditional communication theories, all the while enabling computer systems to thrive in this new environment. It is these computer systems that simulate and coordinate parts of the very social processes that researchers wish to understand. This is a radically changing world in which texts play distinctly new roles. Newspaper accounts, public opinion polls, corporate reports, files in government agencies, credit information, bank transactions, and, above all, huge textual data archives—all are now linked into networks that can be analyzed from numerous positions. In effect, the social systems that we conceived of as explaining society are now holographically retreating into our computers. This development calls for a redefinition of content analysis, one that aligns content—the target of the research—with how contemporary society operates and understands itself through its texts.

With the container metaphor rendered useless, perhaps the term *content analysis* no longer fits the realities of contemporary society. For better or for worse, I continue to use the term in this book, but I also plead with readers to oppose unflinchingly the naive and misleading entailments of the pervasive container metaphor.

Third, *contemporary content analysis has been forced to develop a methodology of its own,* one that enables researchers to plan, execute, communicate, reproduce, and critically evaluate their analyses whatever the particular results. Content analysts have had to develop such a methodology for three reasons:

- *Content analysts now face larger contexts.* The shift in interest from small collections of printed messages to systems and then to electronic texts and images circulating in the environment of content analysts is tied less to the nature of textual data than to the increasingly complex worlds that produce and are sustained by these data. This shift calls for theories and conceptions that earlier content analysts did not need. Although content analysts have frequently lamented the lack of general theories that could justify their work, progress in implementing more specific or micro-level theories is encouraging. This is especially true where content analysis has migrated through disciplines that were not previously concerned with textual data, such as the cognitive sciences and artificial intelligence.
- *Greater numbers of researchers need to collaborate in the pursuit of large-scale content analyses.* This observation is a correlate of the growing sample sizes of relevant texts, the analysis of which easily exceeds what individual analysts can handle. It implies that content analysts must work together, in parallel, and as research teams. Teamwork, however, needs to be organized reliably. Both the social problem of coordinating researchers and the methodological problem of assuring replicability tend to be solved through the adoption of a language whose vocabulary enables researchers to clarify the analytical procedures they use, negotiate the individual responsibilities of the participants, assure agreement on the analytical categories, and evaluate the performance of team members.
- *The large volumes of electronically available data call for qualitatively different research techniques,* for computer aids. Such aids convert large bodies of electronic text into representations if not answers to research questions that content analysts need to understand. However, exactly what sophisticated text analysis software does—aside from promising to carry out the more labor-intensive clerical parts of processing textual data—is often difficult to retrace and inaccessible to the average content analyst. These computer aids participate in content analysis much as human analysts do. They become part of its methodology, with transparency being a major issue.

To be clear, *methodology* is not a value in itself. The purpose of methodology is to enable researchers to plan and examine critically the logic, composition, and protocols of research methods; to evaluate the performance of individual techniques; and to estimate the likelihood of particular research designs to contribute to knowledge. Every researcher must become proficient in defining the terms of an analysis and justifying the analytical steps taken to a skeptical friend or questioning colleague. Methodology provides a language for talking about the process of research, not about subject matter. In the history of scientific pursuits, the development of methodology has always been a major accomplishment. For example, for thousands of years humans preserved history by retelling or chanting stories, since the *Iliad* in writing, before the historian Leopold von Ranke, only a century ago, gave the "document" the methodological status it now has in the academic study of history. Similarly, scholars practiced "content analysis" well before Berelson and Lazarsfeld (1948) undertook the first codification of this method. Although many observers have argued that each content analysis is unique, possibly focusing largely on its subject matter, I would argue that all content analyses share a procedural logic and need to be justified through the use of socially acceptable criteria. These commonalities form the substance of this book.

I disagree with the frequent contention that content analysis is "nothing more than what everyone does when reading a newspaper, except on a larger scale." Content analysis may have been that way, in its early, journalistic stage, and its methodology does not rule out such readings, but this narrow definition is no longer sufficient today. As newspaper readers, we are perfectly justified in applying our individual worldviews to texts and enacting our interest in what those texts mean to us; in fact, we cannot do otherwise. But as content analysis researchers, we must do our best to explicate what we are doing and describe how we derive our judgments, so that others—especially our critics—can replicate our results.

This book, then, introduces readers to ways of analyzing meaningful matter, texts, images, and voices—that is, data whose physical manifestations are secondary to what they mean to particular populations of people. The chapters are grouped into three main parts. Part I, "Conceptualizing Content Analysis," begins with a brief chapter on the history of content analysis. In Chapter 2, I develop a definition

of content analysis that distinguishes this technique from other methods of inquiry, and in Chapter 3, I present a discussion of some of the ways in which content analysis has been applied. The chapters in Part II, "Components of Content Analysis," outline the procedures used in content analyses, beginning with their procedural logic and moving naturally from unitizing to sampling, recording/coding, data languages, and analytical constructs. The chapters in Part III, "Analytical Paths and Evaluative Techniques," trace several paths through content analysis protocols. In this part of the book, I discuss analytical constructs that enable researchers to draw inferences from data, the use of computers and computational techniques, and the two principal criteria used in evaluating content analyses: reliability and validity. In the final chapter, I provide a practical guide that summarizes the foregoing discussion from a practitioner's perspective.

Readers who have never done a content analysis may want to begin by reading Chapter 1, on the history of content analysis, and Chapter 3, on the uses of this technique, to get a sense for whether it suits their research interests. If it does, they should familiarize themselves with the conceptual foundations of content analysis by reading Chapter 2. Beginners in content analysis are advised to start with a small pilot project, to get a feel for what is involved in conducting a larger study. Methodology without some practice is empty. The guidelines in Chapter 14, although written as a summary, could also serve as a start. In this chapter, readers will find many helpful references to pertinent chapters in this volume, which may answer emerging questions and place these answers within the context of larger methodological issues. Beginning researchers will soon realize that analyzing text is not a mechanical task, and neither is designing a content analysis. Both undertakings require creativity and competence.

Readers who have had some experience with coding will acquire a larger perspective on what they had been doing. As the table of contents suggests, coding is only a small part of content analysis—despite popular misconceptions. In fact, only Chapter 7 is devoted to issues of coding or recording, something researchers need do only when their data or texts are unwieldy. By coding/recording textual matter, one learns to appreciate both the conceptual problems involved in imposing analytical categories on ordinary readings of text and the ways in which competent researchers have managed to solve such problems. Designing a content analysis is something different, however. I recommend that readers who have had experience with coding expand on that experience by examining the chapters offered here about all the other components of content analysis, adding these to their conceptual frameworks. Such readers might well look into Chapter 11, on computer aids, to gain an alternative perspective on manual unitizing and coding.

Readers who have already undertaken content analyses or similar text-based research will discover in this book alternative paths for such inquiries and a vocabulary that they can use in deliberating about what is involved in analyzing texts—not as observations of naturalistic phenomena but as data whose significance stems from the meanings that others bring to their readings. Those who think they know what content analysis is are advised to start with Chapter 2, on the conceptual foundations of content analysis. This chapter discusses the ways that researchers talk about content and exposes readers to the larger perspective they will need in order

to conceive a content analysis or critically evaluate the content analyses of others. As a condition for publication, scholarly journals increasingly demand some demonstration of why a content analysis should be taken seriously. In the past, content analysts relied heavily on conceptions of content as "contained" in messages, as discussed above, or "inherent" to texts. This settled the thorny issue of multiple text interpretations by fiat and consequently disabled explicitness about the researchers' procedures. Several research traditions—such as interpretive research, discourse analysis, literary scholarship, and rhetoric—tend to be plagued by similar conceptions. Researchers from these traditions would greatly benefit from explicating their approaches, checking their results against the work of others, and evaluating the social consequences of their findings outside their own schools of thought—as I am suggesting.

For experts in content analysis, this book raises several epistemological questions that practitioners rarely ask, transforms them into methodological ones, and provides new solutions to practical problems.

Readers who must make decisions concerning whether or not to trust the findings of content analyses and other text-based research—for instance, judges in courts of law, practitioners in the fields of public relations and advertising, and reviewers of research submitted for funding or publication in scientific journals—will find the vocabulary of this book useful as they need to weigh the quality of findings and make informed recommendations for improvements. Such readers will find the discussions in Chapters 2 (on the conceptual foundations), 12, and 13 (on reliability and validity) especially applicable to the necessary evaluative endeavors.

While this book may serve as a handbook for various practitioners, it grew out of my experiences in teaching courses and seminars in content analysis, and I conceive of it foremost as a textbook for advanced undergraduate and beginning graduate students. Teachers and their students may not want to work through all the chapters in their numerical order; for instance, those intending to use computers will find Chapter 11 more important than Chapter 7, on recording/coding, and may omit Chapter 12, on reliability, which is not a problem for software applications, but ought to consider the easily ignored validity of computer uses, discussed in Chapter 13. Students with specific projects in mind may pass over sections that may not be useful to their projects. However, readers should not rule out chapters as irrelevant before knowing the possibilities they offer.

Finally, for me, the book will have achieved its purpose if it helps to make the newly available wealth of electronic texts accessible to systematic analysis, if it improves the social significance of research in the humanities and the social sciences, and if it furthers the development of methods of inquiry into the realities we construct in processes of human communication.

PART I

Conceptualizing Content Analysis

CHAPTER 1

History

Empirical inquiries into the meanings of communications date back to theological studies in the late 1600s, when the Church found the printing of nonreligious materials to be a threat to its authority. Such inquiries have since mushroomed, moving into numerous areas and becoming the backbone of communication research. This chapter discusses several stages in the history of content analysis: quantitative studies of the press; propaganda analysis during World War II; social scientific uses of the technique in studies of political symbols, historical documents, anthropological data, and psychotherapeutic exchanges; computer text analysis and the new media; and qualitative challenges to content analysis.

1.1 Some Precursors

Content analysis entails a systematic reading of a body of texts, images, and symbolic matter, not necessary from an author's or user's perspective. Although the term *content analysis* did not appear in English until 1941 (Waples & Berelson, 1941, p. 2; cited in Berelson & Lazarsfeld, 1948), the systematic analysis of text can be traced back to inquisitorial pursuits by the Church in the 17th century. Religions have always been captivated by the written word, so it is not surprising that the first known dissertations about newspapers were defended in 1690, 1695, and 1699 by individuals pursuing academic degrees in theology. After the advent of the printing press, the Church became worried about the spread of printed matter of a nonreligious nature, and so it dealt with newspaper content in moralizing terms (Groth, 1948, p. 26). Surprisingly, in spite of the rhetorical tradition of ancient Greece, which was normative and oral in orientation, the 17th century contributed very little to the methodology of content analysis.

Probably the first well-documented quantitative analyses of printed matter occurred in 18th-century Sweden. According to Dovring's (1954–1955; see also

Krippendorff & Bock, 2009, Chapter 1.1) account, these analyses were undertaken as the result of the publication of the *Songs of Zion,* a collection of 90 hymns of unknown authorship. The collection had passed the Royal Swedish censor, but soon after its publication it was blamed for undermining the orthodox clergy of the Swedish state church. When the collection became popular, it was said to be "contagious" and was accused of aiding a dissenting group. Outstanding in this case is the fact that literary scholars of good reputation participated in the controversy, which crystallized around the question of whether the songs harbored dangerous ideas and, if so, how. Scholars on one side made a list of the religious symbols in the songs and became alarmed. Those on the other side, however, found the very same symbols in established songbooks and so discounted the claimed difference. Then some scholars noted that the symbols in the songs occurred in different contexts and had acquired meanings that were different from those taught in the official church. A debate arose about whether the meanings should be interpreted literally or metaphorically. The interpretations came to be compared with the results of a German study of the outlawed Moravian Brethren, a religious sect whose members later emigrated to the United States. This process—of revising a method in response to criticism—continued until it became clear to both sides in the debate how the symbols in the *Songs of Zion* differed from the symbols used in the official songbooks and how this (in the end political) phenomenon could be explained. The controversy generated many ideas that are now part of content analysis and stimulated debates about methodology that continue today.

In 1903, Eugen Löbl published in German an elaborate classification scheme for analyzing the "inner structure of content" according to the social functions that newspapers perform. His book, which became well-known in journalistic circles, contributed to the idea of *Publizistik,* or newspaper science, and foreshadowed functionalism, but it did not stimulate empirical investigations.

At the first meeting of the German Sociological Society in 1910, Max Weber (1911; see also Krippendorff & Bock, 2009, Chapter 1.2) proposed a large-scale content analysis of the press, but for a variety of reasons the research never got off the ground. During the same period, Andrei Markov (1913), who was working on a theory of chains of symbols, published a statistical analysis of a sample of Pushkin's novel in verse, *Eugene Onegin.* These inquiries were discovered only recently or influenced the content analysis literature only indirectly. For example, Weber is celebrated as one of the great sociologists, but his advocacy of the use of content analysis as a method for understanding the mass media is relatively unknown. And Markov's probability theories entered the content analysis literature only through Shannon's mathematical theory of communication (see Shannon & Weaver, 1949), which influenced Osgood's (1959) contingency analysis and cloze procedure.

1.2 Quantitative Newspaper Analysis

The beginning of the 20th century saw a visible increase in the mass production of newsprint. In the United States, the boom in newspapers created mass markets and interest in public opinion. Journalism schools emerged, leading to demands for

ethical standards and for empirical inquiries into the phenomenon of the newspaper. These demands, plus a somewhat simplistic notion of scientific objectivity, were met by what was then called *quantitative newspaper analysis.*

Probably the first quantitative newspaper analysis, published in 1893, asked the rhetorical question, "Do newspapers now give the news?" (Speed, 1893). Its author showed how, between 1881 and 1893, New York newspapers had dropped their coverage of religious, scientific, and literary matters in favor of gossip, sports, and scandals. In a similar but far more simplistic study published in 1910, Mathews attempted to reveal the overwhelming space that one New York daily newspaper devoted to "demoralizing," "unwholesome," and "trivial" matters as opposed to "worthwhile" news items. By simply measuring the column inches that newspapers devoted to particular subject matters, journalists in the early 20th century attempted to reveal "the truth about newspapers" (Street, 1909). Some believed that they had found a way of showing that the profit motive was the cause of "cheap yellow journalism" (Wilcox, 1900); others became convinced that they had established "the influence of newspaper presentations on the growth of crime and other antisocial activity" (Fenton, 1910). At least one concluded that a "quarter century survey of the press content shows demand for facts" (White, 1924).

Quantitative newspaper analysis seemingly provided the needed scientific ground for journalistic arguments. The respect for numbers has a long history, and facts that could be quantified were considered irrefutable. In a footnote, Berelson and Lazarsfeld (1948) quote from a source published more than 200 years ago:

> Perhaps the spirit of the battle over ratification is best reflected in the creed ironically attributed to each of the contending parties by its opponents. The recipe for an Anti-Federalist essay which indicates in a very concise way the class-bias that actuated the opponents of the Constitution, ran in this manner: "wellborn, nine times—Aristocracy, eighteen times—Liberty of the Press, thirteen times repeated—Liberty of Conscience, once—Negro Slavery, once mentioned—Trial by Jury, seven times—Great men, six times repeated—Mr. Wilson, forty times . . .—put them together and dish them up at pleasure. (p. 9; quoted from *New Hampshire Spy,* November 30, 1787)

Quantitative newspaper analysis led to the development of many valuable ideas, however. In 1912, Tenney (see also Krippendorff & Bock, 2009, Chapter 1.4) made a far-reaching proposal for a large-scale and continuous survey of press content to establish a system of bookkeeping of the "social weather" "comparable in accuracy to the statistics of the U.S. Weather Bureau" (p. 896). He demonstrated what he had in mind with an analysis of a few New York newspapers for different ethnic groups, but his proposal exceeded the scope of what was then feasible. Quantitative newspaper analysis culminated in sociologist Malcolm M. Willey's 1926 book *The Country Newspaper.* In this model study, Willey traced the emergence of Connecticut country weeklies, examining circulation figures, changes in subject matter, and the social role these papers acquired in competition with large city dailies.

When other mass media became prominent, researchers extended the approach first used in newspaper analysis—measuring volumes of coverage in various subject matter categories—initially to radio (Albig, 1938) and later to movies and television.

Content analysis in subject matter categories continues today and is applied to a wide variety of printed matter, such as textbooks, comic strips, speeches, and print advertising.

Early Content Analysis 1.3

The second phase in the intellectual growth of content analysis, which took place in the 1930s and 1940s, involved at least four factors:

- During the period following the 1929 economic crisis, numerous social and political problems emerged in the United States. Many Americans believed that the mass media were at least partially to blame for such problems as yellow journalism, rising crime rates, and the breakdown of cultural values.
- New and increasingly powerful electronic media of communication, first radio and later television, challenged the cultural hegemony of the newspapers. Researchers could not continue to treat these new media as extensions of newspapers, because they differed from the print media in important ways. For example, users of radio and television did not have to be able to read.
- Major political challenges to democracy were linked to the new mass media. For example, the rise of fascism was seen as nourished by the as-yet little-known properties of radio.
- Perhaps most important, this period saw the emergence of the behavioral and social sciences as well as increasing public acceptance of the theoretical propositions and empirical methods of inquiry associated with them.

In the 1930s, sociologists started to make extensive use of survey research and polling. The experience they gained in analyzing public opinion gave rise to the first serious consideration of methodological problems of content analysis, published by Woodward in a 1934 article titled "Quantitative Newspaper Analysis as a Technique of Opinion Research." From writings about public opinion, interest in social stereotypes (Lippmann, 1922) entered the analysis of communications in various forms. Questions of representations were raised, with researchers examining topics such as how Negroes were presented in the Philadelphia press (Simpson, 1934); how U.S. textbooks described wars in which the United States had taken part, compared with textbooks published in countries that were former U.S. enemies (Walworth, 1938); and how nationalism was expressed in children's books published in the United States, Great Britain, and other European countries (Martin, 1936).

One of the most important concepts that emerged in psychology during this time was the concept of "attitude." It added evaluative dimensions to content analysis, such as "pro-con" or "favorable-unfavorable," that had escaped the rough subject matter categories of quantitative newspaper analysis. Attitude measures redefined journalistic standards of fairness and balance and opened the door to the systematic assessment of bias. Among the explicit standards developed, Janis and Fadner's (1943/1965) "coefficient of imbalance" deserves mention. Psychological experiments in rumor transmission led Allport and Faden to study newspaper content from an

entirely new perspective. In their 1940 article "The Psychology of Newspapers: Five Tentative Laws," they attempted to account for the changes that information undergoes as it travels through an institution and finally appears on the printed page.

The interest in political symbols added another feature to the analysis of public messages. McDiarmid (1937), for example, examined 30 U.S. presidential inaugural addresses for symbols of national identity, of historical significance, of government, and of fact and expectations. Most important, Lasswell (1938), viewing public communications within his psychoanalytical theory of politics, classified symbols into such categories as "self" and "others" and forms of "indulgence" and "deprivation." His symbol analysis led to his "World Attention Survey," in which he compared trends in the frequencies with which prestige newspapers in several countries used national symbols (Lasswell, 1941; see also Krippendorff & Bock, 2009, Chapter 5.3).

Researchers in several disciplines examined the trends in scholarship, as reflected in the topics that representative journals published. Rainoff's (1929) Russian study regarding physics was probably the first of this kind, but the most thorough analyses were conducted in the field of sociology (Becker, 1930, 1932; Shanas, 1945) and later in journalism (Tannenbaum & Greenberg, 1961).

Several factors influenced the transition from quantitative newspaper analysis, which was largely journalism driven, to content analysis:

- Eminent social scientists became involved in these debates and asked new kinds of questions.
- The concepts these social scientists developed were theoretically motivated, operationally defined, and fairly specific, and interest in stereotypes, styles, symbols, values, and propaganda devices began to replace interest in subject matter categories.
- Analysts began to employ new statistical tools borrowed from other disciplines, especially from survey research but also from experimental psychology.
- Content analysis data became part of larger research efforts (e.g., Lazarsfeld, Berelson, & Gaudet, 1948), and so content analysis no longer stood apart from other methods of inquiry.

The first concise presentation of these conceptual and methodological developments under the new umbrella term *content analysis* appeared in a 1948 mimeographed text titled *The Analysis of Communication Content,* authored by Berelson and Lazarsfeld, which was later published as Berelson's *Content Analysis in Communications Research* (1952). This first systematic presentation codified the field for years to come.

1.4 Propaganda Analysis

Berelson described content analysis as the use of mass communications as data for testing scientific hypotheses and for evaluating journalistic practices. Yet the most important and large-scale challenge that content analysis faced came during World War II, when it was employed in efforts to extract information from propaganda. Before the war, researchers analyzed texts in order to identify "propagandists," to point fingers at individuals who were attempting to influence others through devious means. Fears concerning such influence had several origins. Propaganda was used extensively during World War I (Lasswell, 1927), and the years between the two world wars witnessed the effective use of propaganda by antidemocratic demagogues in Europe. In addition, Americans tend to have deep-seated negative attitudes toward religious fanatics, and the lack of knowledge concerning what the extensive use of the new mass media (radio, film, and television) could do to people raised concerns as well. According to the Institute for Propaganda Analysis (1937), propagandists reveal themselves through their use of tricks such as "name-calling," employing "glittering generalities," "plain folks" identifications, "card stacking," "bandwagon" devices, and so on. Such devices could be identified easily in many religious and political speeches, even in academic lectures, and this approach to propaganda analysis led to a kind of witch-hunt for propagandists in the United States. Theories concerning subliminal messages, especially in advertising, raised widespread suspicion as well.

In the 1940s, as U.S. attention became increasingly devoted to the war effort, the identification of propagandists was no longer an issue. Nor were researchers particularly interested in revealing the power of the mass media of communication to mold public opinion; rather, military and political intelligence were needed. In this climate, two centers devoted to propaganda analysis emerged. Harold D. Lasswell and his associates, having written on political symbolism, worked with the Experimental Division for the Study of Wartime Communications at the U.S. Library of Congress, and Hans Speier, who had organized a research project on totalitarian communication at the New School for Social Research in New York, assembled a research team at the Foreign Broadcast Intelligence Service of the U.S. Federal Communications Commission (FCC). The Library of Congress group focused on analyzing newspapers and wire services from abroad and addressed basic issues of sampling, measurement problems, and the reliability and validity of content categories, continuing the tradition of early quantitative analysis of mass communications (Lasswell, Leites, & Associates, 1965).

The FCC group analyzed primarily domestic enemy broadcasts and surrounding conditions to understand and predict events within Nazi Germany and the other Axis countries, and to estimate the effects of Allied military actions on the war mood of enemy populations. The pressures of day-to-day reporting left the analysts little time to formalize their methods, and Berelson (1952) thus had little to say about the accomplishments of the FCC group. After the war, however, Alexander L. George worked through the volumes of reports that resulted from these wartime efforts to describe methods that had evolved in the process and to validate the inferences the researchers had made by comparing them with documentary evidence now available from Nazi archives. These efforts resulted in his book *Propaganda Analysis* (1959a; see also Krippendorff & Bock, 2009, Chapter 1.5), which made major contributions to the conceptualization of the aims and processes of content analysis.

The assumptions that propagandists are rational, in the sense that they follow their own propaganda theories in their choice of communications, and that the meanings of propagandists' communications may differ for different people reoriented the FCC analysts from a concept of "content as shared" (Berelson would later say "manifest") to conditions that could explain the motivations of particular communicators and the interests they might serve. The notion of "preparatory propaganda" became an especially useful key for the analysts in their effort to infer the intents of broadcasts with political content. In order to ensure popular support for planned military actions, the Axis leaders had to inform, emotionally arouse, and otherwise prepare their countrymen and -women to accept those actions; the FCC analysts discovered that they could learn a great deal about the enemy's intended actions by recognizing such preparatory efforts in the domestic press and broadcasts. They were able to predict several major military and political campaigns and to assess Nazi elites' perceptions of their situation, political changes within the Nazi governing group, and shifts in relations among Axis countries. Among the more outstanding predictions that British analysts were able to make was the date of deployment of German V weapons against Great Britain. The analysts monitored the speeches delivered by Nazi propagandist Joseph Goebbels and inferred from the content of those speeches what had interfered with the weapons' production and when. They then used this information to predict the launch date of the weapons, and their prediction was accurate within a few weeks.

Several lessons were learned from these applications of content analysis, including the following:

- Content is not inherent to communications. People typically differ in how they read texts. The intentions of the senders of broadcast messages may have little to do with how audience members hear those messages. Temporal orderings, individuals' needs and expectations, individuals' preferred discourses, and the social situations into which messages enter are all important in explaining what communications come to mean. Interpretations on which all communicators readily agree are rare, and such interpretations are usually relatively insignificant.
- Content analysts must predict or infer phenomena that they cannot observe at the time of their research. The inability to observe phenomena of interest tends to be the primary motivation for using content analysis. Whether the analyzed source has reasons to hide what the analyst desires to know (as in the case of an enemy during wartime or the case of someone needing to impress) or the phenomena of interest are inaccessible in principle (e.g., an individual's attitudes or state of mind, or historical events) or just plain difficult to assess otherwise (such as what certain mass-media audiences could learn from watching TV), the analyst seeks answers to questions that go outside a text. To be sure, the questions that a content analyst seeks to answer are the analyst's questions, and as such they are potentially at odds with whether others could answer them and how. Quantitative newspaper analysts made inferences without acknowledging their own conceptual contributions to what they thought they found but actually inferred. Content is not the whole issue; rather, the issue is what can be legitimately inferred from available texts.
- In order to interpret given texts or make sense of the messages intercepted or gathered, content analysts need elaborate models of the systems in which those communications occur (or occurred). The propaganda analysts working during World War II constructed such models more or less explicitly. Whereas earlier content analysts had viewed mass-produced messages as inherently meaningful and analyzable unit by unit, the propaganda analysts succeeded only when they viewed the messages they analyzed in the context of the lives of the diverse people presumed to use those messages.
- For analysts seeking specific political information, quantitative indicators are extremely insensitive and shallow. Even where large amounts of quantitative data are available, as required for statistical analyses, these tend not to lead to the "most obvious" conclusions that political experts would draw from qualitative interpretations of textual data. Qualitative analyses can be systematic, reliable, and valid as well.

Convinced that content analysis does not need to be inferior to unsystematic explorations of communications, numerous writers in the postwar years, such as Kracauer (1947, 1952–1953) and George (1959a), challenged content analysts' simplistic reliance on counting qualitative data. Smythe (1954) called this reliance on counting an "immaturity of science" in which objectivity is confused with quantification. However, the proponents of the quantitative approach largely ignored the criticism. In his 1949 essay "Why Be Quantitative?" Lasswell (1949/1965b) continued to insist on the quantification of symbols as the sole basis of scientific insights. His approach to propaganda analysis produced several working papers but very few tangible results compared with the work of the FCC group of scholars. Today, quantification continues, although perhaps no longer exclusively.

Content Analysis Generalized 1.5

After World War II, and perhaps as the result of the first integrated picture of content analysis provided by Berelson (1952), the use of content analysis spread to numerous disciplines. This is not to say that content analysis emigrated from mass communication. In fact, the very "massiveness" of available communications continued to attract scholars who looked at the mass media from new perspectives. For example, Lasswell (1941) realized his earlier idea of a "world attention survey" in a large-scale study of political symbols in French, German, British, Russian, and U.S. elite press editorials and key policy speeches. He wanted to test the hypothesis that a "world revolution" had been in steady progress for some time (Lasswell, Lerner, & Pool, 1952). Gerbner and his colleagues pursued Gerbner's (1969) proposal to develop "cultural indicators" by analyzing, for almost two decades, one week of fictional television programming per year, mainly to establish "violence profiles" for different networks, to trace trends, and to see how various groups (such as

women, children, and the aged) were portrayed on U.S. television (see, e.g., Gerbner, Gross, Signorielli, Morgan, & Jackson-Beeck, 1979).

Psychologists began to use content analysis in four primary areas. The first was the inference of motivational, mental, or personality characteristics through the analysis of verbal records. This application started with Allport's (1942) treatise on the use of personal documents, Baldwin's (1942) application of "personal structure analysis" to cognitive structure, and White's (1947) value studies. These studies legitimated the use of written material, personal documents, and individual accounts of observed phenomena as an addition to the then-dominant experimental methods. A second application was the use of verbal data gathered in the form of answers to open-ended interview questions, focus group conversations, and verbal responses to various tests, including the construction of Thematic Apperception Test (TAT) stories. In the context of TAT stories, content analysis acquired the status of a supplementary technique. As such, it allowed researchers to utilize data that they could gather without imposing too much structure on subjects and to validate findings they had obtained through different techniques. Psychological researchers' third application of content analysis concerned processes of communication in which content is an integral part. For example, in his "interaction process analysis" of small group behavior, Bales (1950) used verbal exchanges as data through which to examine group processes. The fourth application took the form of the generalization of measures of meaning over a wide range of situations and cultures (which derived from individualist notions of meaning or content). Osgood (1974a, 1974b) and his students found numerous applications for Osgood, Suci, and Tannenbaum's (1957) semantic differential scales and conducted worldwide comparisons of cultural commonalities and differences.

Anthropologists, who started using content analysis techniques in their studies of myths, folktales, and riddles, have made many contributions to content analysis, including the componential analysis of kinship terminology (Goodenough, 1972). Ethnography emerged in anthropology, and although ethnographers often interact with their informants in ways that content analysts cannot interact with authors or readers, after ethnographers gather their field notes they start to rely heavily on methods that are similar to those that content analysts use.

Historians are naturally inclined to look for systematic ways to analyze historical documents, and they soon embraced content analysis as a suitable technique, especially where data are numerous and statistical accounts seem helpful. Social scientists also recognized the usefulness of educational materials, which had long been the focus of research. Such materials are a rich source of data on processes of reading (Flesch, 1948, 1951) as well as on a society's larger political, attitudinal, and value trends. In addition, literary scholars began to apply the newly available techniques of content analysis to the problem of identifying the authors of unsigned documents.

On one hand, this proliferation of the use of content analysis across disciplines resulted in a loss of focus: Everything seemed to be content analyzable, and every analysis of symbolic phenomena became a content analysis. On the other hand, this trend also broadened the scope of the technique to embrace what may well be the essence of human behavior: talk, conversation, and mediated communication.

In 1955, responding to increasing interest in the subject, the Social Science Research Council's Committee on Linguistics and Psychology sponsored a conference on content analysis. The participants came from such disciplines as psychology, political science, literature, history, anthropology, and linguistics. Their contributions to the conference were published in a volume titled *Trends in Content Analysis,* edited by Ithiel de Sola Pool (1959a). Despite obvious divergence among the contributors in their interests and approaches, Pool (1959a, p. 2) observed, there was considerable and often surprising convergence among them in two areas: They exhibited (a) a shift from analyzing the "content" of communications to drawing inferences about the antecedent conditions of communications and (b) an accompanying shift from measuring volumes of subject matter to counting simple frequencies of symbols, and then to relying on contingencies (co-occurrences).

Computer Text Analysis 1.6

The late 1950s witnessed considerable interest among researchers in mechanical translation, mechanical abstracting, and information retrieval systems. Computer languages suitable for literal data processing emerged, and scholarly journals started to devote attention to computer applications in psychology, the humanities, and the social sciences. The large volumes of written documents to be processed in content analysis and the repetitiveness of the coding involved made the computer a natural but also a difficult ally of the content analyst.

The development of software for literal (as opposed to numerical) data processing stimulated new areas of exploration, such as information retrieval, information systems, computational stylistics (Sedelow & Sedelow, 1966), computational linguistics, word processing technology, and computational content analysis. New software also revolutionized tedious literary work, such as indexing and the creation of concordances. Probably the first computer-aided content analysis was reported by Sebeok and Zeps (1958), who made use of simple information retrieval routines to analyze some 4,000 Cheremis folktales. In a Rand Corporation paper titled *Automatic Content Analysis,* Hays (1960) explored the possibility of designing a computer system for analyzing political documents. Unaware of both these developments, Stone and Bales, who were engaged in a study of themes in face-to-face interacting groups, designed and programmed the initial version of the General Inquirer system. This culminated in a groundbreaking book by Stone, Dunphy, Smith, and Ogilvie (1966) in which they presented an advanced version of this system and demonstrated its application in numerous areas, ranging from political science to advertising and from psychotherapy to literary analysis.

The use of computers in content analysis was also stimulated by developments in other fields. Scholars in psychology became interested in simulating human cognition (Abelson, 1963; Schank & Abelson, 1977). Newell and Simon (1963) developed a computer approach to (human) problem solving. Linguistics researchers developed numerous approaches to syntactic analysis and semantic interpretation of linguistic expressions. Researchers in the field of artificial intelligence focused on designing machines that could understand natural language (with very little success).

In 1967, the Annenberg School of Communications (which later became the Annenberg School for Communication) sponsored a major conference on content analysis. Discussions there focused on many areas—the difficulties of recording nonverbal (visual, vocal, and musical) communications, the need for standardized categories, the problems involved in drawing inferences, the roles of theories and analytical constructs, what developments content analysts could expect in the near future—but the subject of the use of computers in content analysis permeated much of the conference. Stone et al.'s (1966) book on the General Inquirer had just been published, and it had created considerable hope among content analysts. The contributions to the 1967 conference are summarized in a 1969 volume edited by Gerbner, Holsti, Krippendorff, Paisley, and Stone, the publication of which coincided with Holsti's (1969) survey of the field.

In 1974, participants in the Workshop on Content Analysis in the Social Sciences, held in Pisa, Italy, saw the development of suitable algorithms for computer content analysis as the only obstacle to better content analyses (Stone, 1975). Since that time, computational approaches have moved in numerous directions. One has been the development of customizable content analysis packages, of which the General Inquirer was the most important precursor. Attempts to apply the General Inquirer system to German texts revealed that software's English-language biases and led to more general versions of General Inquirers, such as TextPack. The basic ingredient of the General Inquirer and TextPack is a dictionary of relevant words. In the 1980s, Sedelow (1989) proposed the idea of using a thesaurus instead, as a thesaurus might be more accurate than a dictionary in reflecting "society's collective associative memory" (p. 4; see also Sedelow & Sedelow, 1986). In the 1990s, George Miller initiated a major research effort to chart the meanings of words using a computer-traceable network called WordNet (see Miller et al., 1993). In the 1980s, some authors observed that the enthusiasm associated with large systems that had appeared in the 1960s was fading (see Namenwirth & Weber, 1987), but today the development of text analysis software is proliferating, fueled largely by the historically unprecedented volumes of electronic and digital texts available for content analysis. More recently, Diefenbach (2001) reviewed the history of content analysis by focusing on four specific areas: mass communication research, political science, psychology, and literature.

Naturally, many researchers have compared computer-based content analyses with human-based content analyses. For example, Schnurr, Rosenberg, and Ozman (1992, 1993) compared the Thematic Apperception Test (Murray, 1943) with a computer content analysis of open-ended free speech and found the low agreement between the two to be discouraging. Zeldow and McAdams (1993) challenged Schnurr et al.'s conclusion, however. Nacos et al. (1991) compared humans' coding of political news coverage with data from Fan's (1988) computer-coded approach to the same coverage and found satisfactory correlations between the two. Nacos et al. came to the conclusion that content analysts can best use computers in their research by thinking of them as aids, not as replacements for the highly developed human capabilities of reading, transcribing, and translating written matter. As one might expect, today scholars hold many different opinions regarding the future of the use of computer-based content analysis.

Another development that has influenced how content analysts employ computers in their work is the increasingly common use of word processing software, which provides users with such features as spell-checkers, word- or phrase-finding and -replacing operations, and even readability indices. Although not intended for this purpose, ordinary word processing software makes it possible for a researcher to perform basic word counts and KWIC (keyword in context) analyses, albeit laboriously.

Word processing software is inherently interactive; it is driven by the user's reading of the textual material, not fixed. In the absence of computational theories of text interpretation, content analysts have found the symbiosis of the human ability to understand and interpret written documents and the computer's ability to scan large volumes of text systematically and reliably increasingly attractive. In such collaborations, human coders are no longer used as text-level content analysts; rather, they serve as translators of text or sections of text into categories that emerge during reading and then into a data language (that preserves relevant meanings), which enables various computational algorithms (that cannot respond to meanings) to do housekeeping and summarizing chores. This has given rise to a new class of software designed for computer-aided qualitative text analysis, of which NVivo and ATLAS.ti are two examples. Such interactive-hermeneutic text analysis software is becoming increasingly accessible, especially to students.

The most important stimulus in the development of computational content analysis, however, has been the growing availability of text in digital form. It is very costly to enter handwritten documents, such as transcripts of audio recordings of interviews, focus group protocols, minutes of business meetings, and political speeches, into a computer. Scanners have vastly improved in recent years, but they are still too unreliable to be used without additional manual editing. In the 1970s, data consortia emerged through which social scientists could share costly data, but the operations of these consortia were marred by a lack of standards and the usually highly specialized nature of the data. Then, in 1977, DeWeese proposed and took the remarkable step of bypassing the costly transcription process by feeding the typesetting tapes of a Detroit newspaper directly into a computer to conduct an analysis of the paper's content the day after it was published. Since that time, word processing software has come to be an integral part of the internal operations of virtually all social organizations; personnel create texts digitally before they appear on paper, use electronic mail systems, and surf the internet to download materials relevant to their work.

Today, a fantastic amount of raw textual data is being generated daily in digital form, representing almost every topic of interest to social scientists. Electronic full-text databases, to which all major U.S. newspapers, many social science and legal journals, and many corporations contribute all of the materials they publish, are growing exponentially and have become easily available and inexpensive to use online. Add to this the volume of electronic publications, the research potential of the internet, data available from online multiuser discussions (MUDs) and newsgroups, and online survey systems, which may well replace focus groups and interviews in certain empirical domains, and it is clear that the landscape of how society presents itself has been altered drastically. With more and more people interested in

this wealth of digital data, there is a corresponding demand for increasingly powerful search engines, suitable computational tools, text base managing software, encryption systems, devices for monitoring electronic data flows, and translation software, all of which will eventually benefit the development of computer-aided content analysis. The current culture of computation is moving content analysis into a promising future.

1.7 Qualitative Approaches

Perhaps in response to the now dated "quantitative newspaper analysis" of more than a century ago or as a form of compensation for the sometimes shallow results reported by the content analysts of 60 years ago, a variety of research approaches have begun to emerge that call themselves *qualitative.* I question the validity and usefulness of the distinction between quantitative and qualitative content analyses. Ultimately, all reading of texts is qualitative, even when certain characteristics of a text are later converted into numbers. The fact that computers process great volumes of text in a very short time and represent these volumes in ways someone can understand does not remove the qualitative nature of the texts being analyzed and the algorithms used to process them: On the most basic level, computers recognize zeros and ones and change them as instructed, proceeding one step at a time. Nevertheless, proponents of qualitative approaches to content analysis offer alternative protocols for exploring texts systematically.

Discourse analysis is one such approach. Generally, *discourse* is defined as text above the level of sentences. Discourse analysts tend to focus on how particular phenomena are represented. For example, Van Dijk (1991) studied manifestations of racism in the press: how minorities appear, how ethnic conflicts are described, and how stereotypes permeate given accounts, for example, in advertisements during sports events (Wonsek, 1992). Other discourse analysts have examined how television news programs and other TV shows in the United States manifest a particular ideological vision of the U.S. economy (Jensen, 2006), the components of "age markers" in the humorous context of the TV series *The Golden Girls* (Harwood & Giles, 1992), and the portrayal of the peace movement in news editorials during the Gulf War (Hackett & Zhao, 1994).

Researchers who conduct *social constructivist analyses* focus on discourse as well, but less to criticize (mis)representations than to understand how reality comes to be constituted in human interactions and in language, including written text (Gergen, 1985). Such analysts may address how emotions are conceptualized (Averill, 1985) or how facts are constructed (Fleck, 1935/1979; Latour & Woolgar, 1986), or they may explore changing notions of self (Gergen, 1991) or of sexuality (Katz, 1995).

Rhetorical analysis, in contrast, focuses on how messages are delivered, and with what (intended or actual) effects. Researchers who take this approach rely on the identification of structural elements, tropes, styles of argumentation, speech acts, and the like; Kathleen Hall Jamieson's book *Packaging the Presidency* (1984) is an example of such an analysis. Efforts to study negotiations (Harris, 1996), what works and what doesn't, might be described as rhetorical analyses as well.

Ethnographic content analysis, an approach advocated by Altheide (1987), does not avoid quantification but encourages content analysis accounts to emerge from readings of texts. This approach works with categories as well as with narrative descriptions but focuses on situations, settings, styles, images, meanings, and nuances presumed to be recognizable by the human actors/speakers involved.

Conversation analysis is another approach that is considered to be qualitative. The researcher performing such an analysis tends to start with the recording of verbal interactions in natural settings and aims at analyzing the transcripts as records of conversational moves toward a collaborative construction of conversations. This tradition is indebted to the work of Harvey Sacks, who studied numerous interactive phenomena, including the collaboration among communicators in the telling of jokes (Sacks, 1974). Goodwin (1977, 1981) extended conversation analysis by incorporating video data in his groundbreaking study of turn taking.

Qualitative approaches to content analysis have their roots in literary theory, the social sciences (symbolic interactionism, ethnomethodology), and critical scholarship (Marxist approaches, British cultural studies, feminist theory). Sometimes they are given the label *interpretive.* They share the following characteristics:

- They require a close reading of relatively small amounts of textual matter.
- They involve the rearticulation (interpretation) of given texts into new (analytical, deconstructive, emancipatory, or critical) narratives accepted within particular scholarly communities that are sometimes opposed to positivist traditions of inquiry.
- The analysts acknowledge working within hermeneutic circles in which their own socially or culturally conditioned understandings constitutively participate. (For this reason, I refer to these approaches as *interactive-hermeneutic,* a description that speaks to the process of engaging in systematic interpretations of text.)

One could summarize and say that content analysis has evolved into a repertoire of methods of research that promise to yield inferences from all kinds of verbal, pictorial, symbolic, and communication data. Beyond the technique's initially journalistic roots, the past century has witnessed the migration of content analysis into various fields and the clarification of many methodological issues. After a short period of stagnation in the 1970s, content analysis is today growing exponentially, largely due to the widespread use of computers for all kinds of text processing. As of February 2011, an internet search for "*content analysis*" using the Google search engine found 1,650,000 documents. By comparison, "*survey research*" turned up 275,000 hits and "*psychological testing,*" 894,000. Since the first casual mention of "content analysis" in 1941—that is, seventy years ago and with a frequency of one—the public interest in the body of content analysis research has clearly grown to an astonishing extent.

CHAPTER 4

The Logic of Content Analysis Designs

As a technique, content analysis relies on several specialized procedures for handling text. These can be thought of as tools for designing suitable analyses. This chapter outlines the key components of content analysis and distinguishes among several research designs, especially designs used in the preparation of content analyses and in designs for content analyses that collaborate with other research methods to contribute to larger research efforts.

4.1 Content Analysis Designs

The very idea of *research*—a *re*peated *search* within data for generalizations, patterns that appear to permeate the data—presupposes explicitness about methodology. Unless researchers explain clearly what they have done, how can they expect to be able to replicate their analyses or to process more texts than an individual can read? Beyond that, how can they convince others that their research was sound and thus their results should be accepted?

A *datum* is a unit of information that is recorded in a durable medium, distinguishable from and comparable with other data, analyzable through the use of clearly delineated techniques, and relevant to a particular problem. Data are commonly thought of as representing observations or readings, but they are always the products of chosen procedures and are always geared toward particular ends—in content analysis, data result from the procedures the researcher has chosen to answer specific questions concerning phenomena in the context of given texts. Hence data are made, not found, and researchers are obligated to say how they made their data.

The network of steps a researcher takes to conduct a research project is called the *research design,* and what knits the procedural steps into the fabric of a coherent research design is the design's *logic.* Generally, this logic concerns two qualities: the

efficiency of the procedural steps (avoiding structural redundancies while preventing "noise" from entering an analysis) and the evenhandedness of data processing (preventing the favoring of one outcome over another). This logic enables analysts to account to their scientific community for how the research was conducted. For a research design to be replicable, not merely understandable, the researcher's descriptive account of the analysis must be complete enough to serve as a set of *instructions* to coders, fellow researchers, and critics—much as a computer program determines what a machine is to do. Although the thoroughness of a computer program may serve as a scientific ideal, in social research the best one can hope for is an approximation of that ideal. Content analysts in particular must cope with a good deal of implicitness in their instructions. (I will return to this topic in subsequent chapters.)

Traditional guides to research methods tend to insist that all scientific research tests hypotheses concerning whether or not patterns are evident in the data. Content analysis, however, has to address prior questions concerning why available texts came into being, what they mean and to whom, how they mediate between antecedent and consequent conditions, and, ultimately, whether they enable the analysts to select valid answers to questions concerning their contexts. Hence the logic of content analysis designs is justifiable not only according to accepted standards of scientific data processing (efficiency and evenhandedness) but also by reference to the context in relation to which texts must be analyzed.

Figure 2.1 represents an attempt to conceptualize the situation that the content analyst has to observe. It may be seen to contain Figure 4.1, which represents the simplest content analysis design. Here, the analyst relies solely on available texts to answer a research question. Although this figure locates texts and results—inputs and outputs of the analysis—in a chosen context, it suggests nothing about the nature of the context that justifies the analysis (discussed in Chapter 3) or about the network of needed analytical steps, which I address below.

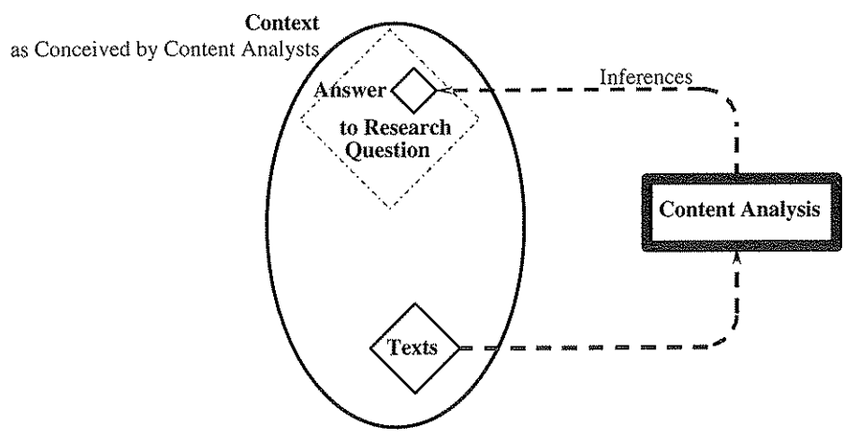

Figure 4.1 Content Analysis: Answering Questions Concerning a Context of Texts

4.1.1 Components

Here we open the "content analysis" box in Figure 4.1 and examine the components the analyst needs to proceed from texts to results. Listing these components is merely a convenient ways to partition, conceptualize, talk about, and evaluate content analysis designs step by step. As accounts of what the components do must also serve as instructions for replicating them elsewhere, each component has a descriptive and an operational state:

- *Unitizing:* relying on definitions of relevant units
- *Sampling:* relying on sampling plans
- *Recording/coding:* relying on coding instructions
- *Reducing* data to manageable representations: relying on established statistical techniques or other methods for summarizing or simplifying data
- Abductively *inferring* contextual phenomena: relying on established analytical constructs or presumed models of the chosen context as warrants
- *Narrating* the answer to the research question: relying on narrative traditions or discursive conventions established within the discipline of the content analyst

Together, the first four components constitute what may be summarily called *data making*—creating computable data from raw or unedited texts. In the natural sciences, these four are embodied in physical measuring instruments. In the social sciences, the use of mechanical devices is less common—often impossible—and data making tends to start with observations. The fifth component, abductively inferring contextual phenomena, is unique to content analysis and goes beyond the representational attributes of data. I describe each of the components in turn below.

Unitizing draws systematic distinctions within a continuum of otherwise undifferentiated text—documents, images, voices, websites, and other observables—that are of interest to an analysis, omitting irrelevant matter but keeping together what cannot be divided without loss of meaning. In Chapter 5, I discuss different kinds of units—sampling units, recording units, context units, units of measurement, units of enumeration—and the different analytical purposes they serve. With these diverse uses, unitizing may occur at various places in a content analysis design. Content analysts must justify their methods of unitizing, and, to do so, they must show that the information they need for their analyses is represented in the collection of units, not in what unitizing omits and not in the relationships between the units, which an analysis discards by treating them independent of each other.

Sampling allows the analyst to economize on research efforts by limiting observations to a manageable subset of units that is statistically or conceptually representative of the set of all possible units, the population or universe of interest. Ideally, an analysis of a whole population and an analysis of a representative sample of that population should come to the same conclusion. This is possible only if the population manifests redundant properties that do not need to be

repeated in the sample drawn for analysis. But samples of text do not relate to the issues that interest content analysts in the same way that samples of individuals relate to populations of individuals of interest in surveys of public opinion, for example. Texts can be read on several levels—at the level of words, sentences, paragraphs, chapters, or whole publications; as literary works or discourses; or as concepts, frames, issues, plots, genres—and may have to be sampled accordingly. Hence creating representative samples for content analyses is far more complex than creating samples for, say, psychological experiments or consumer research, in which the focus tends to be on one level of units, typically individual respondents with certain attributes (I discuss the issues involved in sampling for content analysis in depth in Chapter 6). In qualitative research, samples may not be drawn according to statistical guidelines, but the quotes and examples that qualitative researchers present to their readers have the same function as the use of samples. Quoting typical examples in support of a general point implies the claim that they represent similar cases.

Recording/coding bridges the gap between texts and someone's reading them, between distinct images and what people see in them, or between separate observations and their situational interpretations. One reason for this analytical component is researchers' need to create durable and analyzable records of otherwise transient phenomena, such as spoken words or passing visual events. Once such phenomena are suitably recorded, analysts can compare them across time, apply different methods to them, and replicate the analyses of other researchers. Written text is always already recorded in this sense, and, as such, it is rereadable. It has a material base—much like an audiotape, which can be replayed repeatedly—without being in an analyzable form, however. The second reason for recording/coding is, therefore, content analysts' need to transform unedited texts, original images, and/or unstructured sounds into analyzable representations. The coding of text is mostly accomplished through human intelligence. I discuss the processes involved in recording and coding in Chapter 7, and then, in Chapter 8, I discuss the data languages used to represent the outcomes of these processes. In content analysis, the scientific preference for mechanical measurements over human intelligence is evident in the increasing use of computer-aided text analysis (discussed in Chapter 11); the key hurdle of such text analysis, not surprisingly, is the difficulty of programming computers to respond to the meanings of texts.

Reducing data serves analysts' need for efficient representations, especially of large volumes of data. A type/token statistic (a list of types and the frequencies of tokens associated with each), for example, is a more efficient representation than a tabulation of all occurrences. It merely replaces duplications by a frequency. Because one representation can be created from the other, nothing is lost. However, in many statistical techniques for aggregating units of analysis—correlation coefficients, parameters of distributions, indices, and tested hypotheses— information is lost. In qualitative pursuits, rearticulations and summaries have similar effects: They reduce the diversity of text to what matters.

Abductively *inferring* contextual phenomena from texts moves an analysis outside the data. It bridges the gap between descriptive accounts of texts and what they

mean, refer to, entail, provoke, or cause. It points to unobserved phenomena in the context of interest to an analyst. As I have noted in Chapter 2, abductive inferences—unlike deductive or inductive ones—require warrants, which in turn may be backed by evidence. In content analysis, such warrants are provided by analytical constructs (discussed in Chapter 9) that are backed by everything known about the context. Abductive inferences distinguish content analysis from other, largely inductive modes of inquiry.

Narrating the answers to content analysts' questions amounts to the researchers' making their results comprehensible to others. Sometimes, this means explaining the practical significance of the findings or the contributions they make to the available literature. At other times, it means arguing the appropriateness of the use of content analysis rather than direct observational techniques. It could also entail making recommendations for actions—legal, practical, or for further research. Narrating the results of a content analysis is a process informed by traditions that analysts believe they share with their audiences or the beneficiaries of their research (clients, for example). Naturally, most of these traditions are implicit in how social scientists conduct themselves. Academic journals may publish formal guidelines for researchers to follow in narrating their results and let peer reviewers decide whether a given content analysis is sound, interesting, and worthwhile.

The six components of content analysis do not need to be organized as linearly as suggested by Figure 4.2. A content analysis design may include iterative loops—the repetition of particular processes until a certain quality is achieved. Or components may recur in various guises. For example, unitizing may precede the sampling of whole documents, but it may also be needed to describe the details of their contents. Thus coding instructions may well include unitizing schemes. Moreover, a content analysis could use components that are not specifically highlighted in Figure 4.2. Decisions, to mention just one analytical action, typically direct the

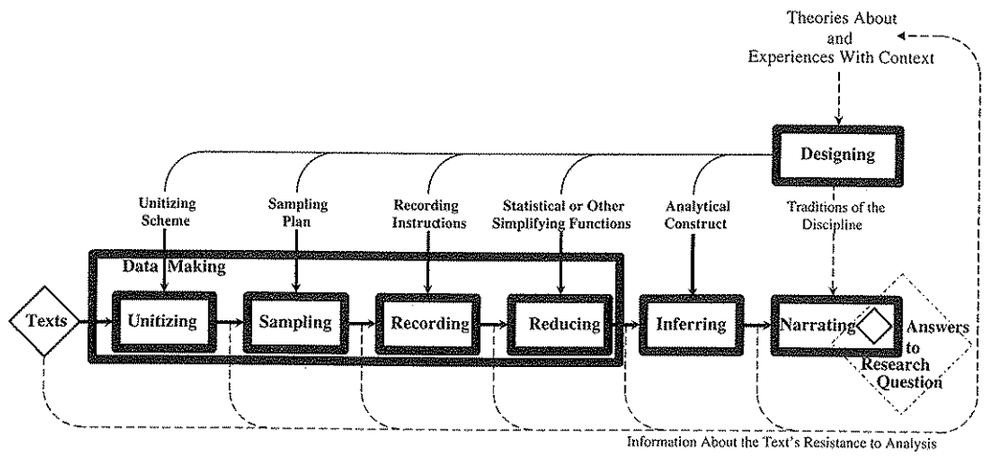

Figure 4.2 Components of Content Analysis

content analysts along an inferential path with many forks and turns toward one or another answer to the research question. Here, decisions are part of the inference component. Finally, it is important to note that there is no single "objective" way of flowcharting research designs.

The analyst's written instructions (represented in boldface type in Figure 4.2), which specify the components in as much detail as feasible, include all the information the analyst can communicate to other analysts so that they can replicate the design or evaluate it critically. The traditions of the analyst's discipline (in medium type in Figure 4.2) are an exception to the demand for explicitness. Most scientific research takes such traditions for granted.

Any set of instructions, it must be noted, imposes a structure on the available texts. Ideally, this structure feels natural, but it may feel inappropriate or forced, if not alien, relative to the analyst's familiarity with the texts' context. Take unitizing, for example. Texts may be cut into any kind of units, from single alphabetical characters to whole publications. Unitizing is arbitrary, but not for a particular content analysis. For example, if an analyst wants to infer public opinion from newspaper accounts, stories may be more natural for an examination of what readers think and talk about than, say, value-laden words that occur in these accounts. The use of inappropriate units leads analysts to experience conceptual trouble. Or an analyst may apply a particular sampling plan and then discover, perhaps too late, not only that the sampled documents are unevenly relevant but also that the sampling plan has excluded the most significant ones. Finally, in reading given texts, an analyst may encounter important concepts for which the coding instructions fail to provide suitable categories; such a discovery would render the recording/coding task arbitrary or uncertain. During the development phase of content analysis design, a sensible analyst "resists the violence" that poor instructions can inflict on the texts and attempts to reformulate instructions as needed so that they are appropriate to the texts at hand. The path that a sensible approach might take is illustrated in Figure 4.2 by the dashed lines, which show another flow of information that is motivated by the analyst's resistance to inappropriate analytical steps. The instructions in good content analysis designs always take such information into account.

A final point regarding Figure 4.2: As noted in Chapter 2, texts are always the observable parts of a chosen context. The context directs the analysis of a text, and the results of the analysis contribute to a (re)conceptualization of the context, redirecting the analysis, and so forth. This reveals the essentially recursive nature of the process of designing content analyses. This recursion contrasts sharply with the application of a content analysis design, which is essentially a one-way transformation of available texts into the answers to the analyst's research questions. We must therefore distinguish between the *development* of a content analysis, during which a design emerges that possesses context-sensitive specificity, and the *execution* of a content analysis, during which the design is relatively fixed and ideally replicable, regardless of what the texts could teach the analyst. Interestingly, the context-sensitive path that the content analyst takes while developing the design is no longer recognizable when the finished design is applied to large volumes of text and/or replicated elsewhere.

4.1.2 Quantitative and Qualitative Content Analysis

In Chapter 2, I noted that quantification is not a defining criterion for content analysis. Text is always qualitative to begin with, categorizing textual units is considered the most elementary form of measurement (Stevens, 1946), and a content analysis may well result in verbal answers to a research question. Using numbers instead of verbal categories or counting instead of listing quotes is merely convenient; it is not a requirement for obtaining valid answers to a research question. In Chapter 1, I suggested that the quantitative/qualitative distinction is a mistaken dichotomy between the two kinds of justifications of content analysis designs: the explicitness and objectivity of scientific data processing on one side and the appropriateness of the procedures used relative to a chosen context on the other. For the analysis of texts, both are indispensable. My view is the subject of a continuing debate. Proponents of quantification, starting with Berelson and Lazarsfeld (1948), but most explicitly Lasswell (1949/1965b), equate quantification with science and dismiss qualitative analyses as mere literature. This view has been rightly criticized for restricting content analysis to numerical counting exercises (George, 1959b) and for uncritically buying into the measurement theories of the natural sciences. Proponents of qualitative approaches, who have come largely from the traditions of political analysis, literary scholarship, ethnography, and cultural studies (Bernard & Ryan, 1998), have been criticized for being unsystematic in their uses of texts and impressionistic in their interpretations. Although qualitative researchers compellingly argue that each body of text is unique, affords multiple interpretations, and needs to be treated accordingly, there is no doubt that the proponents of both approaches sample text, in the sense of selecting what is relevant; unitize text, in the sense of distinguishing words, propositions, or larger narrative units and using quotes or examples; contextualize what they are reading in light of what they know about the circumstances surrounding the texts; and have specific research questions in mind. Thus the components of content analysis in Figure 4.2 are undoubtedly present in qualitative research as well, albeit less explicitly so. I think it is fair to say that:

- Avowedly qualitative scholars tend to find themselves in a hermeneutic circle, using known literature to contextualize their readings of given texts, rearticulating the meanings of those texts in view of the assumed contexts, and allowing research questions and answers to arise together in the course of their involvement with the given texts. The process of recontextualizing, reinterpreting, and redefining the research question continues until some kind of satisfactory interpretation is reached (see Figure 4.3). Scholars in this interpretive research tradition acknowledge the open-ended and always tentative nature of text interpretation. Taking a less extreme position, content analysts are more inclined to limit such hermeneutic explorations to the development phase of research design.
- Qualitative scholars resist being forced into a particular sequence of analytical steps, such as those illustrated in Figure 4.2. Acknowledging the holistic qualities of texts, these scholars feel justified in going back and revising earlier interpretations in light of later readings; they settle for nothing less than interpretations that do justice to a whole body of texts. As such readings cannot easily be standardized, this process severely limits the volume of texts that a single researcher can analyze consistently and by uniform standards. Because this process is difficult to describe and to communicate, qualitative studies tend to be carried out by analysts working alone, and replicability is generally of little concern. By contrast, faced with larger volumes of text and working in research teams, content analysts have to divide a body of texts into convenient units, distribute analytical tasks among team members, and work to ensure the consistent application of analytical procedures and standards. For these reasons, content analysts have to be more explicit about the steps they follow than qualitative scholars need to be.
- Qualitative researchers tend to acknowledge the possibility of multiple interpretations of textual units by considering diverse voices (readers), alternative perspectives (from different ideological positions), oppositional readings (critiques), or varied uses of the texts examined (by different groups). In Figure 2.1 these are referred to as the many worlds of others. This conflicts with the measurement model of the natural sciences—the assignment of unique measures, single values, typically numbers, to distinct objects—but not with content analysts' ability to use more than one context for justifying multiple inferences from texts.
- Qualitative content analysts support their interpretations by weaving quotes from the analyzed texts and literature about the contexts of these texts into their conclusions, by constructing parallelisms, by engaging in triangulations, and by elaborating on any metaphors they can identify. Such research results tend to be compelling for readers who are interested in the contexts of the analyzed texts. Quantitative content analysts, too, argue for the context sensitivity of their designs (or take this as understood), but they compel readers to accept their conclusions by assuring them of the careful application of their design.
- Committed qualitative researchers tend to apply criteria other than reliability and validity to their results. It is not clear, however, whether they take this position because intersubjective verification of their interpretations is extraordinarily difficult to accomplish or whether the criteria they propose are truly incompatible with the making of abductive inferences from texts. Among the many alternative criteria qualitative scholars have advanced are, according to Denzin and Lincoln (2000, p. 13), trustworthiness, credibility, transferability, embodiment, accountability, reflexivity, and emancipatory capabilities.

In other words, qualitative approaches to text interpretation are not incompatible with content analysis. The recursion (hermeneutic circle) shown in Figure 4.2 is visible in Figure 4.3 as well, although the former figure provides more details and is limited to the design phase of a content analysis. Multiple interpretations are not limited to qualitative scholarship either. Content analysts can adopt

multiple contexts and pursue multiple research questions. The researchers' reflexive involvement—systematically ignored in naturalist inquiries, often acknowledged in qualitative scholarship—manifests itself in the awareness that it is content analysts who construct contexts for their analysis, acknowledging the worlds of others, in the pursuit of their own research questions and in the adoption of analytical constructs based on available literature or prior knowledge about the contexts of given texts. Whether a close but uncertain reading of small volumes of text is superior to a systematic content analysis of large bodies of text is undecidable in the abstract.

The reason this volume appears to rely most heavily on examples involving quantitative content analyses is that researchers working within this tradition have tended to encourage greater explicitness and transparency than have qualitative scholars.

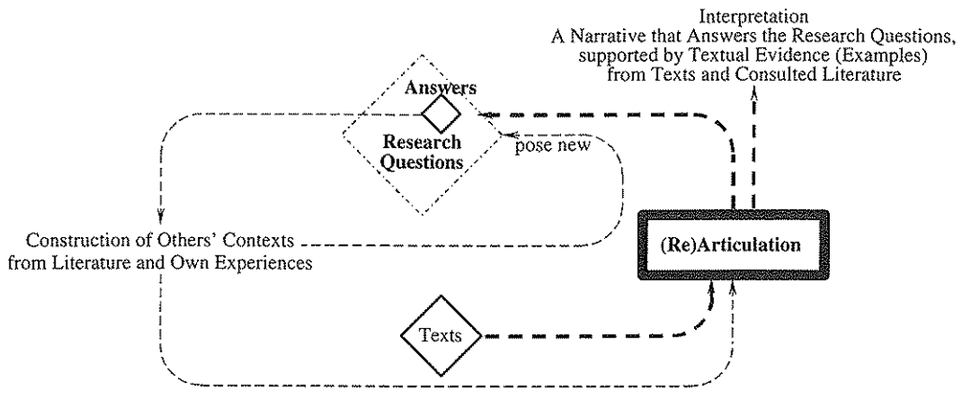

Figure 4.3 Qualitative Content Analysis

4.2 Designs Preparatory to Content Analysis

Making data—describing what was seen, heard, or read—is relatively easy. Content analyses succeed or fail, however, with the validity of the analytical constructs that inform their inferences. Once established, analytical constructs may become applicable to a variety of texts and may be passed on from one analyst to another, much like a computational theory concerning the stable features of a context. Below, I discuss three ways of establishing analytical constructs.

4.2.1 Operationalizing Available Knowledge of the Context

Content analysts, by their very ability to read and have an interest in given texts, acknowledge at least cursory knowledge of their sources: who else writes,

reads, appreciates, or uses the texts; what the texts in question typically mean and to whom; which institutionalized processes are invoked in generating the texts; and what makes the texts hang together. Knowledge of this kind, intuitive as it may seem in the beginning, concerns the stable features surrounding given texts. Figure 4.4 suggests that such knowledge needs to be rearticulated into an inference mechanism. Without clarifying one's conceptions of the context of given texts, the analytic procedure employed may not qualify as a "design." I provide more specific discussions of this process in Chapter 9, but because the three preparatory designs all yield the same result, an analytical construct, I present them here for comparison.

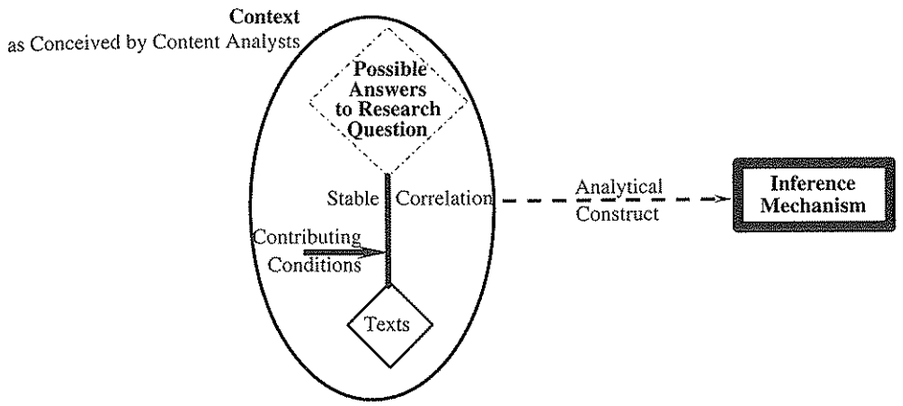

Figure 4.4 Operationalizing Expert Knowledge

Operationalizing available knowledge may be as simple as equating the frequency of co-occurrence of two categories of text with the strength of the association between the two conceptual categories in an author's mind. Other examples include constructing the tagging dictionary for a computer program, which requires extensive knowledge of language use, formulating an algorithm that formalizes the propositions found in the message effects literature, and writing a computer program for tracing the linguistic entailments of selected political slogans through a body of texts. Operationalizations must be justified, of course, and available theory, literature, or acknowledged experts may be consulted for this purpose. Ultimately, the application of any operationalization of analysts' knowledge to given texts must yield valid inferences.

4.2.2 Testing Analytical Constructs as Hypotheses

The most traditional way to come to a valid analytical construct is to test constructs as hypotheses, as mutually exclusive constructs of relations between textual and contextual variables, and let empirical evidence select the most predictive one.

This is how researchers establish psychological tests, validate behavioral indices, and develop predictive models of message effects. Once the correlations between textual and extratextual features are known, content analysts can use these correlations to infer contextual correlates from given texts—provided the correlations are sufficiently determinate and generalizable to the current context. This is why we speak of stable or relatively enduring relations operating in the chosen context. Osgood (1959), for example, conducted word-association experiments with subjects before building the correlation he found between word co-occurrences in text and patterns of recall into his contingency analysis (see also Krippendorff & Bock, 2009, Chapter 3.1). In a carefully executed study, Phillips (1978) established a correlation between reports of suicides of important celebrities and the fatality rate due to private airplane crashes. He found that the circulation of such suicide reports did predict an increase in airplane crashes (see also Krippendorff & Bock, 2009, Chapter 2.4). Whether such an index has practical consequences is another matter.

To test such statistical hypotheses, one must have large enough sample sizes available and make sure that the resulting generalization holds in the current content analytical context as well. This design therefore applies only to situations in which the research questions are asked frequently and the relations between texts and the answers to these questions are stable, not unique (see Figure 4.5).

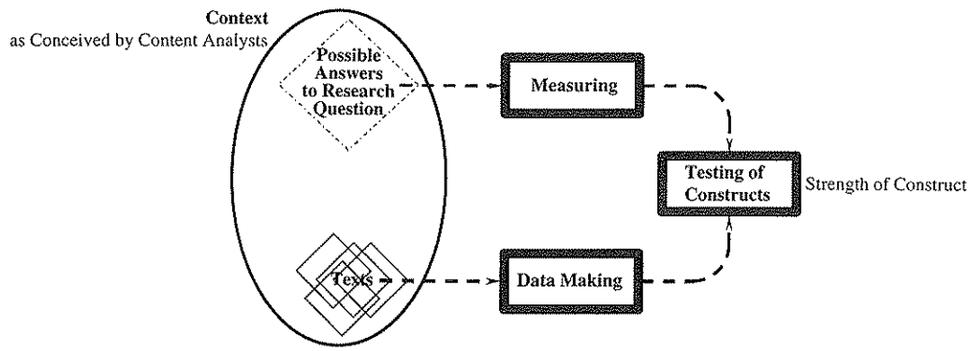

Figure 4.5 Testing Analytical Constructs as Hypotheses

4.2.3 Developing a Discriminant Function

This design proceeds iteratively: The analyst compares inferences from a content analysis of text with relevant observations of the context and uses any discrepancies found to alter incrementally the relevant parts of the analysis, typically its analytical construct. Through this process, the design converges toward a "best fit." This is how intelligent content analysts learn from their failures, as did the Federal

Communications Commission propaganda analysts during World War II, who simply became better analysts with time (George, 1959a).

More interesting, however, are the procedures involved in this process. For example, to help teachers who must grade large numbers of essay exams, software has been developed that can be taught to distinguish, in students' written answers to exam questions, particular words and phrases that correlate with grades assigned by the instructor on a subset of exams; eventually, the software can assign grades without further human involvement. Houle (2002) describes artificial intelligence experiments with so-called support vector machines (SVMs), which can be trained within a few seconds on 30,000 documents to develop easily comprehensible rules that distinguish whether similar documents have or do not have a given property. He reports accuracy rates as high as 90% in the SVMs' distinguishing Associated Press news wire stories in about 30 categories and as low as 60% in their distinguishing medical papers in more than 1,000 categories. In current content analyses, paths to discriminant functions are provided by neuronal networks that "learn" the most successful connections between texts and selected contextual variables (see Chapter 11, section 11.4.2) and by traditional discriminant analyses that improve the accuracy of answers to questions by combining features of text best suited to distinguish among them. Even regression analyses that attempt to predict extratextual (and dependent) variables by identifying their textual (and independent) predictors may be mentioned here as a one-step process (see the discussion of LIWC in Chapter 11, section 11.4.1; and Krippendorff & Bock, 2009, Chapter 7.7). Processes that converge to a discriminant function are iterative and circular, as shown in Figure 4.6. Measured discrepancies between proposed answers and validating evidence (observations) cause the discriminant function (the analytical construct in a content analysis) to reduce these discrepancies the next time around.

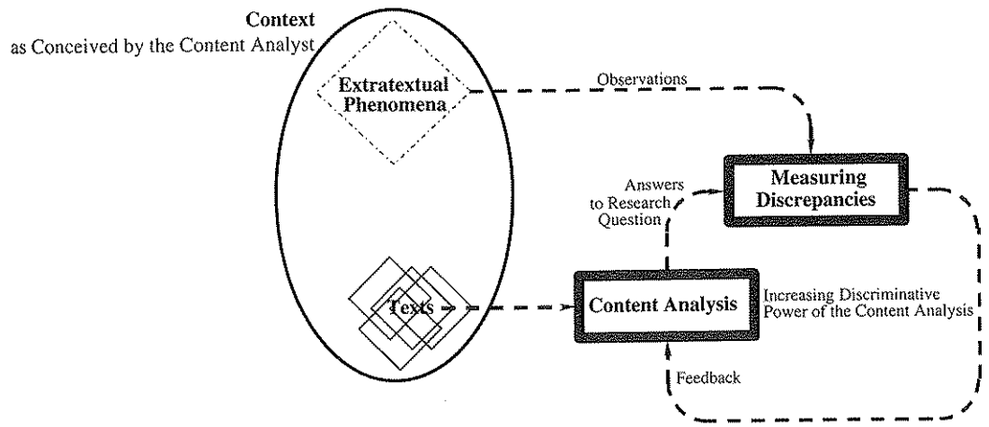

Figure 4.6 Developing a Discriminant Function

4.3 Designs Exceeding Content Analysis

Unfortunately, starting with Berelson's (1952) account, the content analysis literature is full of insinuations that content analyses are aimed at testing scientific hypotheses, which brings us back to the notion of content as something inherent in or indistinguishable from text, a conception we have abandoned (see Chapter 2). According to the definition of content analysis employed in this volume, content analysts rely on hypothetical generalizations in the form of analytical constructs. But the proof of these generalizations lies in their effects. It comes after content analysts have answered their research questions, made their abductive inferences, or interpreted their texts systematically. For example, to test a hypothesis concerning the behavioral correlates of anxiety, one must know the level of anxiety and separately observe the behavioral correlates of interest. By inferring the level of anxiety from an individual's talk—from accounts of feelings, distress vocabulary, or speech disturbances (Mahl, 1959)—the content analysis becomes a necessary part of a larger research effort. Despite what Figure 4.1 might suggest, content analyses do not need to stand alone, and they rarely do. Below, I briefly discuss three research designs in which content analysis is instrumental.

4.3.1 Comparing Similar Phenomena Inferred From Different Bodies of Texts

In this design, researchers have reasons to draw distinctions within a body of text and apply the same content analysis to each part (see Figure 4.7). For example, to

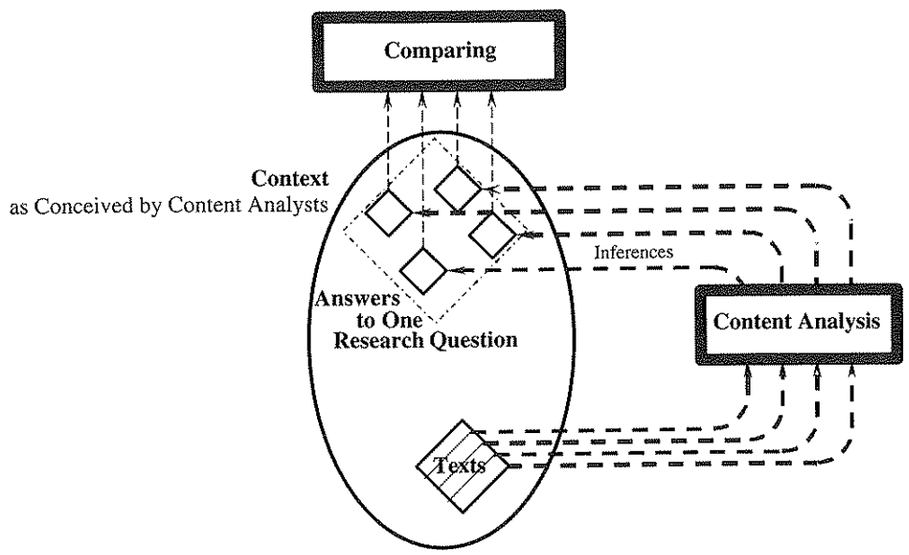

Figure 4.7 Comparing Similar Phenomena Inferred From Different Texts

study speeches made before, during, and after a given event—or trends—analysts must distinguish texts according to time periods. To compare the treatment of one event in different media, analysts would have to distinguish texts by source. To examine how candidates for a political office tailor their promises to different audiences, analysts would want to distinguish texts according to audience demographics. And to test hypotheses regarding the impacts of competition between newspapers on the papers' journalistic qualities, analysts would distinguish texts by how their sources are situated. What content analysts compare—the hypotheses they test—in this design do not concern differences among textual properties but differences among the inferences drawn from texts, which are a function of the assumed context, not directly observed.

4.3.2 Testing Relationships Among Phenomena Inferred From One Body of Texts

In this design, the researcher analyzes one body of texts from different perspectives, with reference to different contexts, through different analytical constructs, or addressing different dimensions of meaning, and then correlates the results (see Figure 4.8). In behavioral research, such separately inferred phenomena tend to appear as different variables, which can be compared, correlated, or subjected to

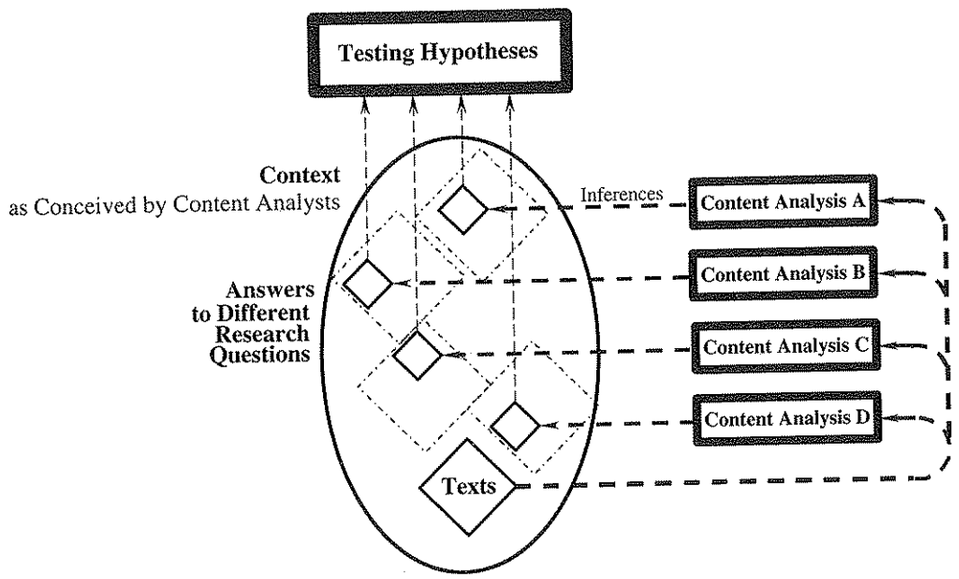

Figure 4.8 Testing Hypotheses Concerning Relations Among Various Inferences From One Body of Texts

hypothesis testing. On a micro level, examples of such designs are found in analyses of attributions (multiple adjectives that qualify nouns), co-occurrences of concepts (inferred from word co-occurrences), KWIC lists (keywords in their textual contexts), contingencies (Osgood, 1959), and conversational moves (adjacency pairs or triplets). On a macro level, examples include efforts to understand how public concerns—crime, environment, health, unemployment, and politics—compete with or stimulate each other in the mass media. Such designs also enable an analyst to compare readings of the same texts by readers of different genders or readers from divergent socioeconomic, educational, ethnic, or ideological backgrounds. Here, the content analyst would define diverse contexts in reference to which texts are being read and analyzed.

4.3.3 Testing Hypotheses Concerning How Content Analysis Results Relate to Other Variables

Typically, this kind of design brings communicational or symbolic and behavioral variables together. For example, the cultivation hypothesis, which asserts that there are correlations between media coverage and audience perceptions, calls for comparing the results of a content analysis of mass-media presentations with interview data on audience members' perceptions of everyday reality. Gerbner and his colleagues have explored the relationship between the "world of TV violence" and how TV audiences perceive the world outside television (see, e.g., Gerbner, Gross, Morgan, & Signorielli, 1995; and the debate reproduced in Krippendorff & Bock, 2009, Chapter 6.6). In comparing newspaper coverage of crime with crime statistics and public opinion, Zucker (1978) found that the frequency of crime reports in the media correlated more highly with public opinion than with official crime statistics. Conversation analysts usually are satisfied with their own accounts of what they see in the transcripts of naturally occurring conversations; thus their approach conforms to the design illustrated in Figure 4.8. However, if they were to relate their interpretations to participants' awareness of the phenomena being inferred, then they would compare inferences from texts with other accounts.

Such designs have three primary aims:

- To provide variables about the nature of communications that enable the testing of hypotheses concerning the causes, correlates, and effects of such communications
- To enrich indicators of observed behavioral phenomena by adding measures that concern the meanings of these phenomena (multiple operationalism), especially concerning individuals' perceptions or interpretations of social phenomena, which cannot be observed as such
- To substitute more economical measures for measures that are cumbersome (for example, using content analysis of TV news instead of surveys of what the public knows)

This design is represented in Figure 4.9.

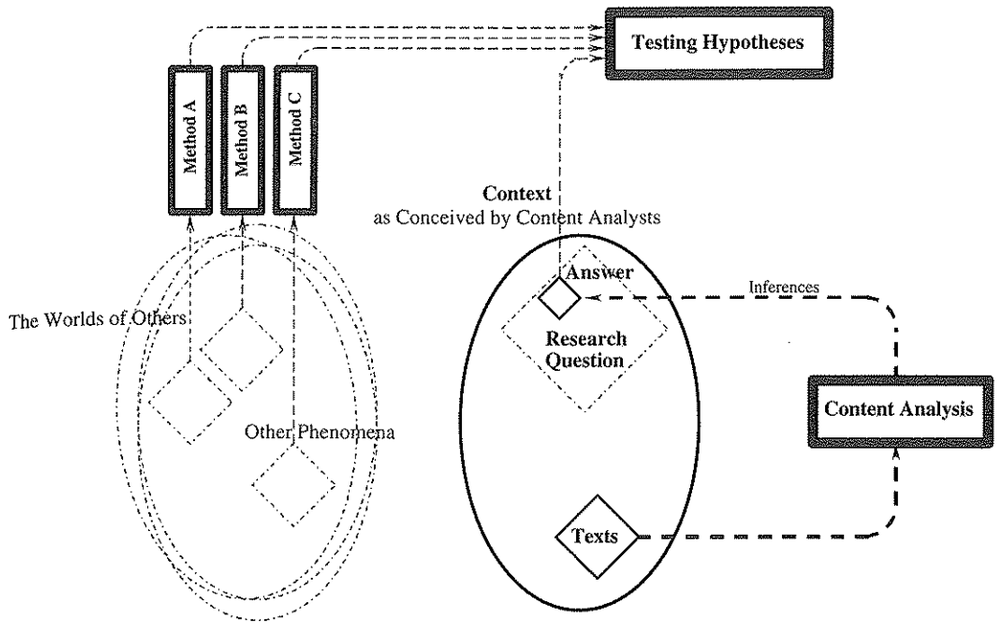

Figure 4.9 Testing Hypotheses Concerning Relations Between Observations and Inferences From Texts

I should emphasize that content analysts are not limited to the research designs distinguished above. Researchers can combine designs to obtain more complex forms that embrace many variables, and they can use any design in tandem with other techniques. There is no methodological limit to the use of content analysis in large social research projects.