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Issue phases in attention cycles : a study of the Exxon Valdez disaster

Samuel Coad Dyer

To the Graduate Council:

I am submitting herewith a dissertation written by Samuel Coad Dyer entitled "Issue phases in attention cycles : a study of the Exxon Valdez disaster." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Communication.

M. Mark Miller, Major Professor

We have read this dissertation and recommend its acceptance:

Accepted for the Council:

Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

To the Graduate Council:

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ISSUE PHASES IN ATTENTION CYCLES: A STUDY OF THE EXXON VALDEZ DISASTER

A Dissertation

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Samuel Coad Dyer, Jr.

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S.C.D.

DEDICATION

This dissertation is dedicated
to the memory of Paul D. Yake and Ione S. Dyer;
maternal and paternal great-grand-parents who took turns
teaching me how to argue by continually instructing me in
the grammar of language and the art of speech.

ABSTRACT

Crisis events are disruptive times in the lives of communities and companies. The news media coverage of a crisis event and the organizational response to that same event are asserted in the communications literature to flow in well ordered and predictable phases.

This study examines issues associated with a crisis event, the Exxon Valdez disaster, to test the orderliness of those phases. Two wire services (AP Wire and Business Wire), three issues types (economic issues, environmental issues and legal issues), two informational source types (Exxon sources and non-Exxon sources), three phases (pre-crisis, crisis, and crisis resolution phases) and two windows of opportunity (the first week and the second week of the crisis) are used to test specific predictions about how characterizations of crisis events should unfold over time in the media. Using a binary coding strategy and categorical analysis of variance procedures, tests are made of specific propositions concerning relationships among these variables.

Fifteen individual hypotheses were tested. Hypothesis tests were divided into three categories: 1) a test for the window of opportunity, 2) 11 tests of phase, issue, and source interactions, and 3) tests for wire service differences. Only four of these hypotheses were found to be

significant. And only three of the hypotheses were significant in the predicted direction.

Chi-square tests demonstrate that Exxon is found to have missed the window of opportunity in the first week of the crisis event. The public relations literature leads one to expect that organizational crisis communications plans come into play at the outset of a crisis event to control the flow of information to the media. Organizational sources would be expected to be associated with this information flow in greater frequency than non-organizational sources. This study was unable to find a significant difference between the two source types in the first two weeks of the AP coverage of the crisis event.

None of the 11 hypotheses were found to be true in the phase interactive hypothesis tests. This result may be due to the flawed assumption that organizational communicators are highly successful in their placement of organizational sources in the news media. Non-organizational sources are more frequent in AP Wire coverage of the Exxon Corporation whether before, immediately after, or during the Exxon Valdez crisis event.

Maximum-likelihood analysis of variance procedures in two waves do show that: 1) Non-Exxon corporation source citations are found to dominate AP Wire newscopy regardless of phase, 2) Exxon Corp. was found to be reactive to the crisis event and not proactive, and 3) Issue types were

found to interact in ways that can have serious and detrimental effects on the media coverage of organizations in crisis. AP Wire and Business Wire were found to significantly differ in their coverage of issue types during the third phase of the crisis event. AP wire was found to be much more likely to mention environmental, legal, and economic issues in news copy than Business Wire.

AP Wire and Business Wire were found to significantly differ in their coverage of issue types during the third phase of the crisis event. AP wire was found to be much more likely to mention environmental, legal, and economic issues in news copy than Business Wire. This result suggests issue avoidance by Exxon Corporation.

The study was limited by: 1) the size of the Business Wire sample, 2) the issue term selection process, and 3) dependence on the raw frequencies of single words to assess the significance of the issue categories in the analysis.

A variety of research needs to be conducted with the source names list and with the terms in the issue categories developed for the study. The advent of computerized content analysis in the past decade has resulted in the ability to search for very complex and lengthy ideational constructs in text. This will have the result of enriching theory in the media coverage of organizations.

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CHAPTER I

INTRODUCTION AND STATEMENT OF PROBLEM

Crisis events are important times in the life of a nation. They are important not only because of the significance of the event itself, but also for the things that can be learned about how people communicate in times of crisis. As Schramm (1965) has observed: "...because communication is one of the most common behaviors of man, and because in a crisis those who are responsible for information are deeply and powerfully involved, it is often possible in a time of crisis to see the social institution and use of communication in sharp outline and clear perspective" (p. 1).

Barton (1963) and Kreimer (1980) have both published compendiums of research into how the social system responds in times of crisis. Central to a discussion of how that social system communicates in a time of crisis is the mass media. As Nimmo and Combs (1985) have observed, it is the mass media that are the conduit of most of the information diet of the American people, and a crisis becomes a crisis event "when press reports say that it is or is not occurring" (p. 12).

"Media coverage," write Lang and Lang (1980), "reflects what is relatively permanent and retrievable about any disaster" (p. 269). This study proposes, therefore, to

investigate the flow of news resulting from an organizational crisis event. It may well be that issue development during a crisis event can be found to behave in predictable and perhaps controllable ways.

Unfortunately, as Kreimer (1980) has observed, research into this area needs improvement. Kreimer writes: "There has been minimal research on mass media reporting of disasters, and most of the studies that can be cited have concentrated on media activities in either disaster warning or immediate postimpact periods. It is probably not surprising that conventional wisdom rather than scientific measurement is the basis for most assessments of the mass media's performance in time of disaster" (p. 2).

Statement of problem

Contrasted to the media disaster reporting literature, the literature in organizational crisis management is vast. Recommendations for organizational response during a crisis event are based on past crisis events (Detwiler, 1979, Snyder, 1983, Fink, 1986), planning for special interest group attacks (Riggs, 1985), or based on general communication principles for how to respond during a crisis (Pines, 1985, Pinsdorf, 1987).

Organizational crisis events can be triggered in a number of ways. They can be triggered by a significant

change in ownership, stock performance, employee dispute, activist group attack or accident. As Tabris (1984) has noted: "The recent emergence of 'crisis management' as a recognized specialty within public relations suggests that crises are occurring more frequently than in the past" (p. 57). He attributes the increase in organizational crisis events to instant and electronic communications, changes in news coverage's emphasis on drama, the rise of citizen activist groups, and increased access to the media by activist groups (p. 57-73).

Meyers & Holusha (1986) describe nine crises that business can face. The nine crises are: "1) public perception, 2) sudden market shift, 3) product failure, 4) top management succession, 5) cash, 6) industrial relations, 7) hostile takeover, 8) adverse international events, 9) regulations and deregulation" (p.8). It is clear from this analysis that the crisis event can visit an organization in a variety of ways.

However, the crisis event is believed to unfold over time in the media in predictable and some say controllable ways. Tichenor, Donohue, and Olien (1973, 1980) demonstrated that controversy surrounding issues tends to follow a predictable pattern over time. During a critical event, Hainsworth (1990) notes, "issues appear to evolve in a predictable manner" (p. 34). Various authors describe

these evolutions as cycles (Downs, 1972), stages (Fink, 1986) or phases (Hainsworth, 1990).

What this study does is to examine the informational characteristics of these attention cycles. In other words, an attempt is made to measure the meaning boundaries of the crisis event from the perspective of the afflicted organization (the issue advocate) and the press (the issue adversary). Clearly the two sources of information are going to differ on their characterizations of the crisis event as it unfolds over time. It is these differences in issue treatments and how they are shaped by the attention cycle in phases of issue development over time that are the focus of this study.

The benefits of this study are manifold. First, public relations practitioners should be interested in the results. The study provides an indication for them, during actual crisis events, of what phase they are in during that event. This knowledge would help practitioners in crafting communications strategies by indicating the ways in which issues can be treated during a specific phase of a crisis event.

Understanding issue treatments by phase during crisis events can be useful not only to P.R. practitioners but to the mass media themselves. Because of being provided with a way to characterize the informational content of their news

coverage during a crisis the press will be better equipped to evaluate the content of their messages.

Additionally, this study will aid improvement in the way that the media covers business crises. It will do so by providing characterizations of issue coverage as a crisis unfolds over time. Thus media practitioners would be better equipped to understand what stage a crisis event is in and how their analysis needs to proceed to develop for their publics a better understanding of the crisis event as a whole.

Finally, this study will increase the abstract understanding of the crisis event news coverage process. Most studies about the media coverage of crisis events deal with the accuracy of that coverage immediately after a crisis event, the speed of dissemination of information after a crisis event, and the role of the press in the ability of the social system to cope with a crisis event. This study will expand theory in this area by: 1) providing a long term in duration analysis of information content before and after a crisis event, 2) operationalizing phases before and during a crisis event that could aid in the prediction of the informational characteristics of media and organizational treatment of a crisis event, and 3) providing a characterization of how an organization in crisis and the media compare in their characterization of a crisis event over time.

CHAPTER II

THE NATURE OF CRISIS AND THE THEORY OF ISSUE PHASES IN ATTENTION CYCLES

To understand how crisis events are developed in the news and responded to by organizations, a conceptualization of crisis events needs to be made. Clearly, the term crisis can be understood from two perspectives: 1) the organization in crisis and 2) the society at large. Both of these perspectives will be examined in turn.

In defining "crisis" from the organizational perspective, Fink (1986) defines crisis as "a time or state of affairs in which a decisive change is empending--either one with the distinct possibility of a highly undesirable outcome or one with the distinct possibility of a highly desirable and extremely positive outcome. It is usually a 50-50 proposition, but you can improve the odds" (p. 15). Hayes (1985) offers a similar concept of corporate crisis; it "occurs when there is a large, important difference between the expectations that corporate management has about the way its plans will interact with the environment and what actually happens" (p. 24).

Contrast these definitions to the "social" perspective on crisis events; they interrupt life. Graber (1980) states that crises are "natural or manmade events that pose an immediate and serious threat to the lives and property or

to the peace of mind of large numbers of citizens" (p. 225). Fritz (1961) offers the most often quoted definition of "crisis" and it is from the social perspective:

> "An event, concentrated in time and space, in which a society, or a relatively self-sufficient subdivision of society, undergoes severe damage and incurs such losses to its members and physical appurtenances that the social structure is disrupted and the fulfillment of all or some of the essential functions of the society is prevented" (p. 665).

Crisis events in the "social" perspective come to be understood as events that are so catastrophic that the lives of those affected cannot continue as they had before.

It becomes clear that in such an event two agendas of diverse character come into being: the agenda of the stricken organization and the agenda of the stricken public. According to Cobb and Elder (1971), an agenda can be broadly construed as "a general set of political controversies that will be viewed as falling within the range of legitimate concerns meriting the attention of the polity" (p. 905).

According to Cobb, Ross, and Ross (1976) there are basically two kinds of agendas: "the public agenda consists of issues which have achieved a high level of public interest and visibility; the formal agenda is the list of items which decision makers have formally accepted for serious consideration" (p. 126). The concepts of agenda and

issue will be developed in more detail later in this chapter. But what is important to the analysis here is the realm of discourse that a crisis creates; a selection of issues on the agenda of a people. This study proposes to examine how the media agenda and the organizational agenda conflict in their interpretation of the significance of issues that compose a crisis event. The institutional agenda, represented by the communication activities of the corporation, and the media agenda are seen to be in conflict.

It is this locus of conflict, this crisis event, that provides the greatest opportunity to examine how issues are developed over time by sources with divergent and often self serving interests. As Lang and Lang (1980) state, "a spate of disaster stories helps to mobilize people" (p. 277), and the "mass media force attention to certain issues" (Lang and Lang, 1966, p. 468).

There are a variety of theoretical perspectives that attempt to explain how this process operates. As Schramm observed about the social system in a time of crisis: "Systems theory would describe the response to crisis as a sudden imbalance in the system, followed by emergency steps to restore balance, and then a gradual restoration of normal function around whatever new balance is achieved" (p. 7). This dissertation seeks to measure the nature of that imbalance as it unfolds and is apparently resolved over

time. It is the nature of these shifts in media coverage and organizational communications from before a crisis to immediately after a crisis, to a crisis resolution, that is the focus of this dissertation.

Authors seem to be consistent in their presentation of a three, four, or five stage process to the coverage of issues over time. Four of these typologies will be presented briefly to document this assertion.

Downs (1972) describes a five step process: 1) the pre-problem stage, 2) the alarmed discovery and euphoric enthusiasm stage, 3) the realizing of the cost of significant progress stage, 4) gradual decline of intense public interest, and 5) a post-problem stage (pp. 36-7). Downs states: "Public perception of most "crises" in American domestic life does not reflect changes in real conditions as much as it reflects the operation of a systematic cycle of heightening public interest and then increasing boredom with major issues" (p. 36). Downs offers no empirical evidence to support the major divisions of his typology, but instead relies upon a critical analysis of the public perception of environmental issues to document his claims.

Fink (1986) offers a similar process description and states: "A crisis can consist of as many as four different and distinct phases. And if their names sound medically rooted, it is because a crisis can be viewed as a disease"

(p. 20) The phases are: 1) Prodromal crisis stage, 2) Acute crisis stage, 3) Chronic crisis stage, 4) Crisis resolution stage (p. 20).

Fink defines the prodromal crisis stage as "the warning stage, if there is any warning stage. In many instances, this is the real turning point, too. And...if the turning point, the prodrome, is missed entirely, the acute crisis can strike with such swiftness that so-called crisis management after the fact is, in reality, merely damage control" (p. 21). The acute stage is "the stage which most people have in mind when they speak of a crisis" (p. 22). It is described as the time during which the crisis event is occurring. The chronic stage is a bad time for organizations. Fink states, "It is during this stage (chronic) that the carcass gets picked clean. Assuming, of course, that a carcass remains to be picked. This is sometimes called the clean-up phase, or the postmortem" (p. 23). The crisis resolution phase brings about an end to the crisis and a return to precrisis normality.

Hainsworth (1990), calling the process an "issue cycle," also identifies four stages: 1) origin, 2) mediation and amplification, 3) organization, and 4) resolution. The origin is the critical event. The mediation and amplification stage is defined as the time during which dissemination of the crisis through the media occurs. The organization stage is time during which the

implementation of an organizational response to the crisis is made. The resolution stage is the time during which gradual return to precrisis normality occurs.

Meyers and Holusha (1986) describe three stages of crisis events: 1) precrisis, 2) crisis, and 3) postcrisis (p. 16). They make specific recommendations for the construct of communications during each of these stages. They state that "If the crisis is detected early and is aggressively managed all the way, events are likely to unfold in this manner: Precrisis: evidence--acknowledgment--resolve; Crisis: Climax--assessment--direction; [and] Postcrisis: Rebuilding --recovery--reform" (p. 206).

What each of these typologies has in common is a crisis event that precipitates extensive media agenda prominence followed by a resolution phase or a termination of the crisis. A complete list of typologies of issues or crisis events coverage would be very lengthy indeed. But what most have in common is a lack of empirical evidence to document the transition points between phases or even the existence or likely composition of the phases themselves.

What each author does agree on is that the media portrayal of the event or issue will be different from the organizational portrayal. It is agreed that these portrayals will have different characteristics in each of the phases. This is the focus of this dissertation; the

differences in framing or defining the issue or event in the locus of conflict by the advocate (organizational communications) and the adversary (the mediated coverage afforded a crisis event by the news media). This dissertation proceeds to develop conceptually the major concepts for this study. These concepts are: adversaries, advocates, issues, and phases.

Adversaries

As William Rivers (1970) has noted, "the proper role of the political reporter is that of adversary. That is to say, that however friendly an official and a reporter may seem to be, however often they may drink together or have lunch together, ...there should be a degree of tension between them when they serve their professional roles" (p. 47). Sandman continues that the adversarial role may be defined as "a relationship in which each institution perceives its own role and the role of the other to be such that they must, and should, come into conflict some appreciable percentage of the time" (in Rivers, 1970, p. 226). The role of the press is to provide the public with the information that they need to make correct decisions (Rivers, p. 227). The information the press provides the public should often be in conflict with "official" information sources (Rivers, p. 227).

This conflict is described in various ways. Some authors distinguish between an investigative press and an adversarial press (Lerner, 1984). Trilling (1965) uses the term "Adversary Culture" to characterize modern writing.

Schudson (1978) terms this culture the "critical culture" (pp. 176-177). The development of a critical culture, asserts Schudson, deeply affected the press. Schudson writes: "the wider and growing adversarial culture's influence on the culture of the press has perhaps not been emphasized enough" (p. 181).

Reston (1966) in answering the question "what is the news?" states that members of the press "rush from crisis to crisis, like firemen, and then leave when the blaze goes out" (p. 83). His solution to this problem is to build a press that is more evaluative in nature (p. 82).

Whatever the level of press adversariness, the press is still nonetheless a powerful source of information. As Paletz and Entman (1981) note: "By dint of the subjects they cover (and do not cover) and the ways they structure them, the mass media tell Americans what to think about, how to think about it, sometimes even what to think" (p. 6). Paletz and Entman note that the media can reduce the ability of those in power to control events, they can reallocate power among the powerful, and foment discontent among the public, among other things (p. 6). However, Paletz and Entman recognize that the realm of business news is

"infrequently deemed newsworthy because they are usually devoid of glamor, sex, conflict, or suspense, and are difficult to personalize" (p. 132). The crisis event changes all of this.

As has been noted, the crisis event catapults the organization to immediate media prominence. The adversarial press is then that source of information about an organizational crisis event that conveys to the public an image of the crisis. The media become the adversary by virtue of the fact that their coverage of an organizational crisis event is not linked to the survival goals of the organization in crisis.

The media adversarial role, whatever else it may be, is certainly a stance of the media afforded by their role in our culture. The press strives for an impartial reportage of the facts, but its reports contain information over which politicians and corporations can exert only indirect influence.

The content of press coverage of crisis events is the result of a variety of factors some of which include: the reflection of social reality, media routines, journalists' socialization and attitudes, social and institutional forces, and the "ideology of the powerful" (Shoemaker and Mayfield, 1987, p. 2). The press is said to be an adversary to the organization in crisis to the extent that press interpretation of a crisis event differs from those of the

stricken organization. This study therefore views the role of adversary as a natural function of the press in modern society and not an aberration.

In a crisis event then, it would be expected that the media adversary would work to determine responsibility for damages that are environmental and economic. As Lang and Lang (1980) note, this is what is termed the mobilization function of the media in a time of disaster or crisis. They write: "This mobilizing function of disaster reporting also is noticeable in the postdisaster activity to determine causes and fix blame and responsibility" (p. 278). Lang and Lang assert that "Until a few years ago, what we now call an ecological disaster was practically unheard of. But now we not only have television to monitor the day-by-day progress of an oil slick; we also have hundreds of thousands of other symptoms of ecological problems, many of which would have remained unnoticed and certainly unreported had it not been for such muckraking as Rachel Carson's *Silent Spring*" (p. 278). In adversarial reporting, it would be expected that during a crisis event ecological or environmental damage issues would receive significant coverage.

However, Paletz and Entman contend that there is little lasting impact to negative coverage of business in the media since "the media do not contextualize. Thus each separate report of corporate malfeasance leaves an impression of

companies being caught and punished" (p. 136). They note that the capitalist system in the U.S. remains basically unchanged by reports of safety law violations and other illegalities (p. 137).

Additionally, there is some reason to suspect that because of changing ownership patterns in the media, coverage of business in the U.S. is not likely to be terribly intensive (Bagdikian, 1987, Schudson, 1983, Lindblom, 1978). It may well be true, as Altschull (1984) has asserted, that the coverage afforded issues by the mass media is due in large part to those individuals who finance the mass media. Shoemaker and Mayfield (1987), using Altschull's argument, have made an attempt to build a theory of media content based on this premise: Economics shapes news content. It may well be that what is "new and different" sells media to the consuming public better than more substantive coverage of issues (Shoemaker and Mayfield, p. 27). Therefore, it could be expected that effective media coverage of a crisis event would be very important to media economic viability and success because stories of crises have such high levels of reader interest.

In summary then, the adversarial press presents a view of the crisis event that measures the economic and ecological impacts for the society and the stricken organization. The press would be expected to assess blame for a crisis, influence the mobilization of efforts to affix

responsibility for a crisis event, and to secure such blame firmly on the culpable organization.

Advocates

It is when the crisis situation hits business that the advocacy writers come into play: the public relations practitioners. In the crisis event, they are the organizational advocates. As Oxley (1987) notes: "Practitioners...prefer to call themselves, more positively, advocates for their clients. It is an accepted public relations principle that *the public relations practitioner supports his client as much as possible and continually tries to promote his best interests.* This is advocacy" (p. 26, emphasis in original). The purpose of the business advocacy source is clear: "to combat whatever adverse news reaches the press about business transgressions, and to sustain elite and public support for their activities" (Paletz and Entman, 1981, p. 135).

The influence of the public relations practitioner on media content is significant. As Blyskal and Blyskal have noted, over 50 percent of the information in the press can be attributed to public relations (In Newsom and Wollert, 1988, p. 263). Newsom and Wollert (1988) note that "The fact is that P.R. is the principal source of all news..." (p. 263).

In the crisis event then, the advocate would be expected to put the organizational view in the news and credit that view with organizational sources. As Moore (1981) notes: "One person with authority in each facility should be designated to speak for the company, to give information to the media, and to answer questions of reporters" (p. 166). Moore notes that in planning for emergency publicity, "the public relations director represents the company or acts as liaison between management and the media. Information issued by the management should be channeled through the public relations director, who receives reporters calling on the public relations department for information" (p. 166). Moore notes that "Favorable facts should be given to the press, such as promotion of brave action that minimized a more serious situation, steps being taken to relieve the distress of the injured and their families, and the company's favorable safety record" (p. 166).

Lesly (1983) demonstrates how the organizational advocate moves to satiate the legitimate information needs of reporters covering a crisis event at the outset of a crisis. He states: "If the facts are freely available quickly to the media, the chances of their exaggerating the seriousness of the event or of criticizing the organization for efforts to cover up or mislead will be lessened" (p. 462). Therefore, at the outset of a crisis event it could

be expected that organizational sources would be in control or have dominance in news coverage of an organizational crisis event. That is true if the organization has a crisis communications plan. As Vincent, Crow, and Davis (1989) have noted, the most intense coverage afforded a crisis event is the first few days (p. 21).

Issues

But whatever corporate communication is, it is the communication of institutional advocacy. It is the rhetoric of institutional persuasion. The process of influencing the public agenda via the media has become known in the communications literature as "agenda-building" (Cobb and Elder, 1972). The process of how the media influences public opinion is called "agenda-setting" (McCombs and Shaw, 1972).

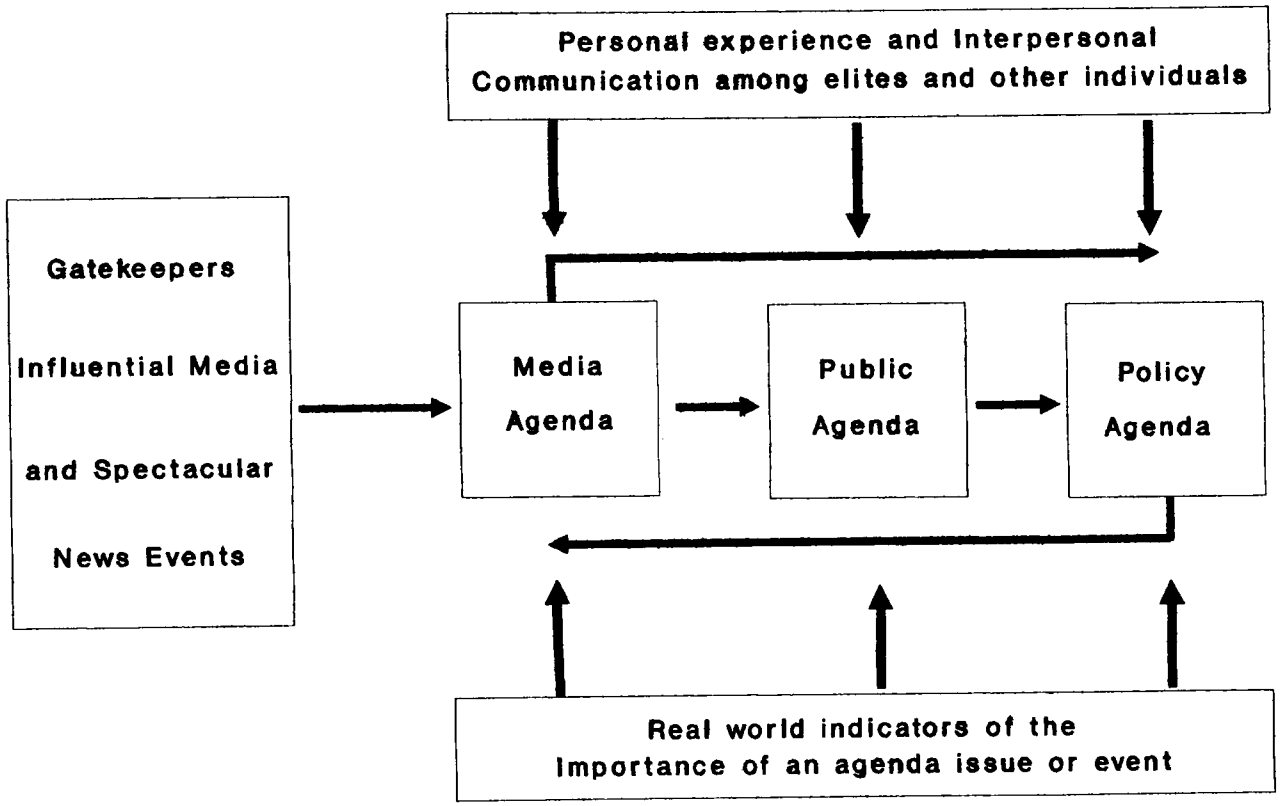
To describe the process of agenda-building, Manheim and Albritton (1984) present a triadic model of agendas. The three agendas are the public, policy, and media agendas (p. 644). They examined in their research how foreign countries have attempted to influence the content of the media agenda in the United States. These authors concluded that, in their study of seven countries that had hired public relations firms to increase their coverage in the media, all of them experienced significantly increased coverage. What

is important from their research is their conception of how the triadic model of agendas is influenced by the public relations practitioner; an attempt is made to directly influence the information flow in the media agenda and the policy agenda (p. 644).

Rogers and Dearing (1987) also present a triadic model to describe the process of agenda-setting. Their model has the same three major component parts: policy, public, and media agendas. Their model lists a number of external influences to this process. One of these external influences is the crisis event. Crisis events enter the media agenda as "spectacular news events" which feed directly into the media agenda affecting the content of the other two agendas (p. 557). Their model is displayed in Figure 1.

Whereas a spectacular news event is seen as one of the potential factors driving agenda prominence, the "personal experience and interpersonal communication among elites and other individuals" is seen as contributing to the character of the agendas' contents.

Finally, in distinguishing between the building and setting of agendas, Manheim (1987) offers the clearest distinction. He writes: "it is useful to think less of agenda setting or agenda building per se than of a comprehensive system of interactive agendas" (p. 499).



Adapted from Rogers and Dearing (1988).

Figure 1. Agenda model.

Agendas, broadly construed then, are composed of issues. Issues are points of conflict. When an organization becomes an item on the media agenda because of a crisis event, then that organization and the media are going to differ on interpretations of the nature of issues composing that crisis (Newsom, 1983, p. 35).

Manheim (1987) describes the nature of this conflict well. He writes: "...journalistic norms and practices play a predominant role in determining the content of the media agenda, but that their influence is significantly and systematically tempered by business or other organizational requirements, by the practicability of affording complete new coverage to actors or events, and by efforts on the part of news sources to manipulate or control the flow of information" (1987, p. 501). Therefore, it could be expected that an organization in crisis would seek to establish the boundaries of a crisis in the media by providing information and sources of information that work to that end. Organizations have been found in the research literature to differ in their approach to this process because of different communication styles (Grunig, 1976). But one factor remains the same regardless of organizational character; points of conflict (issues) require response. Additionally, and more important to this research, is the idea that the portrayal of an issue is not a static phenomenon, but instead is dynamic and changing over time.

Corporations tend to be reactive (Grunig, 1976). It could be expected that organizations would, as has already been noted, reactively seek to: 1) minimize the negative portrayal of a disaster, 2) influence the sources used to document the extent and nature of crisis, and 3) work actively to decrease the volume and duration of crisis coverage by the media.

In summary, issues are the conflicts and points of disagreement between individuals or organizations (Cobb, 1983, p. 82). The mechanism that drives the development of issues over time is the concept of agenda (Manheim, 1987, p. 499). In other words, organizations in crisis (the advocates) are making attempts to influence the content of the media agenda (the adversaries) and hence the public agenda (Manheim, 1987, p. 501). This process has been well researched and documented by a variety of sources. But what is important for this study is the notion that the character and composition of issues on the public agenda change over time in what could be termed cycles (Hainsworth, 1990, p. 34) or phases (Olien, Donohue, and Tichenor, 1984, p. 5).

Phases

For the purposes of this study, the coverage afforded an organization by the media during an organizational crisis event will be said to occur in phases. Phases are

understood conceptually to be stages in the development of a topic in the media or public agenda. For this study, the issue attention cycle is said to occur in three phases: 1) the precrisis phase, 2) the crisis phase, and 3) the crisis resolution phase.

The first phase is the pre-crisis phase. It is understood here to be the period of time prior to an organizational crisis event. Because of the effectiveness of public relations in placing the organizational story in the media, it would be expected that in periods of time before a crisis event, the media coverage of an organization would be expected to: 1) have a greater frequency of organizational sources in newscopy than non-organizational sources, and 2) have coverage that is more or less evenly distributed in terms of frequency of stories per day.

The second phase of the attention cycle is the crisis phase. This phase is defined in this study as the period of time after the crisis event and proceeding to the point of greatest per-day story coverage. This phase is characterized by a rapidly increasing level of coverage afforded the organization in the media as measured by the per-day frequency of stories. The phase is said to end on the day that the organization receives the greatest frequency of story coverage. This point is chosen for the demarcation of the end of the phase because it is at that point that coverage begins to decline. The organization can

begin to look forward to the end of the daily coverage of the crisis in the media as it notes the decline in occurrence of stories on a per-day basis.

During this second phase the organization has a chance, at the outset of the crisis event, to exert influence over the coverage afforded the organization. This chance is referred to here as the window of opportunity. Immediately after a crisis event, it is expected that an organization would be the primary source of information concerning a crisis event. During this time, as the media establish their coverage, analysis and characterization of the event, the organization has the opportunity to provide the initial characterization of the event. This influence would be evidenced by the greater frequency of organizational sources during the first few days of the crisis event. The media would rely on organizational sources at the outset since organizational communication practitioners would be expected to put into effect crisis communication plans. As has already been noted, these plans emphasize the preparation of outlets of information and the attribution of corporation sources to that information.

After the window of opportunity, however, it would be expected that the media would place greater emphasis on the use of non-organizational sources. Specifically, it would be expected that non-organizational sources would occur in greater frequency per story in news copy soon after a crisis

event than would organizational sources. The reason for the decreased emphasis on organizational sources is the complete mobilization of the press to respond to the crisis. As the press becomes established in its coverage of a crisis, it is expected that the decreased emphasis on organizational sources will occur due to the adversarial function of the press. It will seek other, outside sources of information to balance coverage of the crisis with organizational advocate sources.

The third phase is the crisis resolution phase. This phase is the period of time from the day of the greatest frequency of stories on a per-day basis to the time that organizational coverage returns to pre-crisis levels of daily coverage. It is during this period of time that press coverage winds down from its high point.

Summary

In summary, what does the communications literature say about the nature of press and P.R. coverage of a crisis event as it unfolds over time by phases? First, in the crisis situation an organization would be expected to have a formal informational response to the crisis.

Second, communication in the crisis coverage can be expected to be confused at the outset of the crisis (Modzelewski, 1990). It could be expected that the media

interpretation of the event could be largely determined by the information provided to it by the organization in crisis. But this similarity would be expected to diminish quickly with the passage of time (Scanlon, Luukko, & Morton, 1978).

Third, this crisis situation presents a different context for a normal approach to external organizational communications. As has been observed, the crisis event often places the very survival of the organization at stake (Fink, 1986). The crisis event requires not only information but also advocacy since the press can be expected to fix blame for the cause of a crisis event (Vincent, Crow, and Davis, 1989, Lang and Lang, 1980).

Fourth, as Lippmann (1922) observed, the press provides the stereotypical construction by which the public at large defines reality. It is clear from the foregoing analysis that organizations in crisis attempt to influence the construction of those stereotypes. Since the public cannot be physically present at the time of a crisis, it relies upon the media to portray the crisis event and to define its boundaries of meaning. Key symbols could be expected to come into play during the crisis event since the media could be expected to work actively to make the issues that compose the crisis event understandable by their target readers.

Fifth, before a crisis event most models of issue cycles indicate a relatively constant flow of information

about an organization (See for example Hainsworth, 1990). This constant flow is due in part to the routine disclosure of information about business activities (Hainsworth, 1990). Because of the high level of effectiveness that modern public relations has in influencing the content of the media agenda, it would be expected that institutional sources would dominate news about an organization in pre-crisis event time periods.

Sixth, after a crisis event, public relations experts indicate that the press tends to withhold evaluation for a period of time as the press relates the factual nature of the crisis to the consuming public (Lukaszewski, 1989). This represents an important "window of opportunity" for organizations. They are provided an important time during which they can influence the characterization of the crisis (Lukaszewski, 1989). If the window is missed, then the organization could suffer an unfavorable characterization in the media (Fink, 1986), and the two agendas would be seen to take rapid departures from one another.

In view of these findings the research question arises: does media coverage of an organization in crisis conform to established patterns for issue emergence over-time?

The next chapter presents the methodology for the dissertation. A specific crisis event will be adopted for the study, and then a step by step procedure will be developed for measuring the distribution of sources and issues during the phases of the crisis event.

CHAPTER III

METHODOLOGY

Choosing a crisis event to study

On March 24, 1989 at 10:30 a.m. Eastern Time, The New York Times states, the Exxon oil tanker Valdez struck a reef during maneuvers around icebergs in Alaska's Prince William Sound (Schabecoff, 1989, p. 1). As soon as reports of the accident reached the media, Exxon Corporation had a problem that would not soon go away. When reports of the incident reached the media, the event became a crisis.

As Exxon corporate communications experts may or may not have anticipated, the oil spill in Prince William Sound commanded front-page and evening news attention for several months. Coverage of the oil spill was tremendous. Prince William Sound, with its 125,000 miles of rugged coast-line, would become the site of an army of Exxon cleanup workers and a legion of media reporters (Wells and Chase, 1989, p. 1). One year later, a critic would charge: "The name Exxon has become a household word for environmental irresponsibility" (Sullivan, 1990, p. 1).

The Exxon Valdez disaster represents a good opportunity to test some of the assumptions about issue attention cycles. It is a good candidate for this study because the accident commanded national attention, was a crisis of

relatively long-term duration, and affords the possibility for the examination of a large scale effort at issue management during a crisis event. The Exxon Valdez disaster is a crisis of both kinds; it is both social and institutional. The size and scale of the disaster make it one of the foremost media events of the past 10 years. And the coverage afforded to the event makes it an important source of news copy and press releases concerning a single organizational entity.

In the Exxon Valdez situation, it is clear that the organization had planned for the event of a major oil spill from one of its tankers. But from the public perspective, as documented in the media, Exxon's efforts were seen as too little too late. The corporation's image suffered. Irate gas credit card holders sent to Exxon their severed credit cards and environmental groups picketed Exxon headquarters in an overt expression of their disgust (Wells and Chase, 1989, Wells and McCoy, 1989, and Mauer, 1989)

Data

The Business Wire became available in 1986 as a way of getting unedited press releases directly from a large assortment of companies in the United States (Dialog Information Retrieval Service, 1987). In this data base, all corporate press releases mandated by external

organizational communication needs can be released (Dialog Information Retrieval Service, 1987, p. 610-01). The database represents nothing less than a rich source of information concerning one way in which organizations are trying to communicate their messages to their publics. The wire is described as containing the "full text of press releases from over 10,000 companies and other organizations (e.g., hospitals, universities). Covers new products, legal actions, financial information, personnel changes, and company announcements of general interest" (Directory of Online Data Bases, 1990). Business Wire is chosen for this study because it represents a source of unedited press releases from corporations in the United States.

AP Wire is chosen for this analysis because it can represent the general media version of a crisis event. It is used by more than 6,000 broadcast stations and 90% of the major daily newspapers in the United States, and can be considered the backbone of news in the U.S. (Shaw, 1988). Associated Press News is available in electronic form from January 1, 1977 to the present (Nexis and Related Services, 1989). Thus it represents an important source of information provided to the public about the crisis.

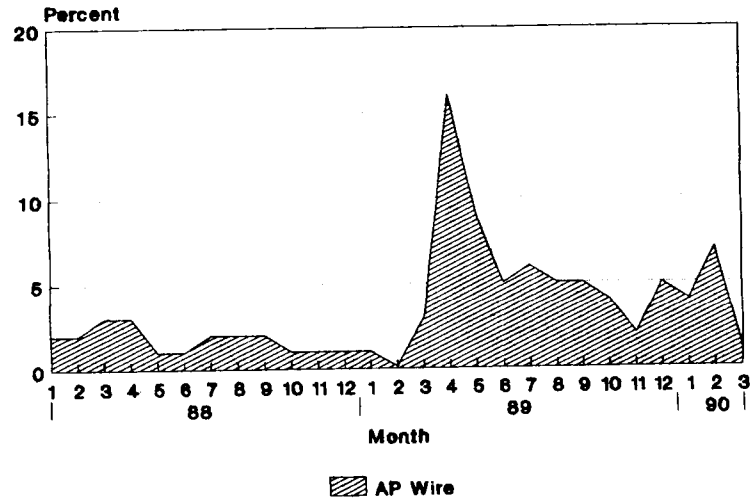
Furthermore, the AP Wire has been used effectively and accurately to measure the semantic boundaries of news events in a variety of situations. These situations include the effectiveness of public information campaign messages about

the advantages of smoking cessation, the accuracy of information about the AIDS epidemic, the impact of public opinion on the presidential election of 1988, and press characterizations of U.S. presidential candidates (Fan, D.P. 1985, Fan, D.P. & McAvoy, G., 1989, Fan, D.P. & Tims, A.R., 1989, Melany and Buss, 1976).

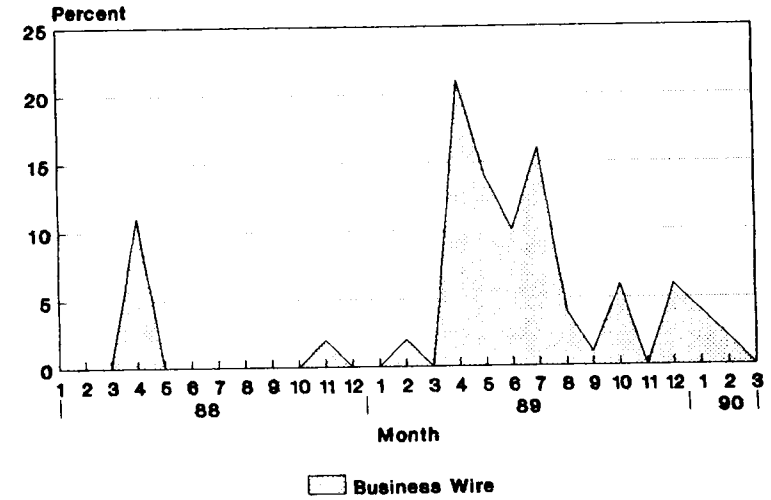
For this dissertation, 2,142 total articles are available from the two wire services using the Dialog Data Retrieval Service (Dyer, Miller, & Boone, 1991); 2,091 from AP Wire and 51 from Business Wire. The percentages of occurrence of these articles by month for each wire service are displayed in Figure 2. These stories were retreived from the time period of 1-1-88 to 3-5-90.

Variables

How could the nature of the issue attention cycle in this crisis event be assessed empirically? It can be argued that an issue on the public agenda will be described by the significance and visibility of coverage. As Theus (1988) has observed, "gaps between organizational versions of reality and journalist versions of reality may be caused by disagreements on the salience, selection and interpretation of issues affecting organizations" (p. 45).



n=2,142



n=61

Figure 2. Percentage of stories by month by wire service.

For the purposes of this study, phases in an attention cycle are differentiated one from the other by several quantitative differences. First, the frequency of coverage afforded an organization in the media (the number of stories that contain mention of the organization) would be expected to vary by phase. Second, source types (the attributed names of individuals and organizations in news copy and press releases that are associated with the advocacy of ideas) would be expected to be different in times of crisis than in times of no crisis. Third, the frequency of issue types over time would be expected to be different. Therefore, as the crisis event moves from one phase to another, these frequencies by phase are hypothesized to change: 1) organizational and non-organizational sources will occur in different frequencies, 2) the overall frequency of stories will change, and 3) issue types will have different frequencies.

Sources are the names of people and organizations that journalists use in news-stories to document ideas and lend credibility to the news story. In the context of the Exxon Valdez disaster, this study seeks to compare two source types. These sources are: 1) corporation sources (defined as those directly representing the corporation in crisis), and 2) non-corporation sources (defined as all those individuals or organizations quoted in news copy that are

not identified as being an employee or subsidiary of the culpable company).

The issue categories of economic, environmental, and legal issues are chosen for this study. These categories worked well in a study conducted by Dyer, Miller, and Boone (1991). The categories and terms deemed relevant to those categories for that study, are displayed in Table I.

For the purposes of this study, the choice of these three issue types is based upon: 1) the nature of the crisis event under study, 2) the way the event unfolded in the media over time, and 3) the nature of the business environment being influenced by the crisis event. Each one of these points will now be argued in turn.

The crisis chosen for this study is environmental in that a pristine natural wilderness was severely damaged. Environmental issues are currently high on the public agenda (Atwater, 1990). An environmental movement developed in the United States in the past two decades that has become a formidable catalyst for change in the way that corporations conduct business in the United States (Smith, 1987).

The crisis is economic in nature because the economic viability and survivability of the culpable organization and the affected communities were immediately called into question. It is argued here that Exxon stock suffered immediately (Wells and McCoy, 1989).

TABLE I

SEARCH TERMS FOR DYER, MILLER, AND BOONE (1991).

Issue Categories		
Legal	Economic	Environmental
Legal	Economic	Environment
Class Action	Cost	Otter
Prosecution	Stock	Bird
Prosecutor	Financial	Seal
Litigation	Financial News	Beach
Crime	Composite Updates	Wildlife
Trial	Business Mirror	Fish
Reparation	Bus. Highlights	Prince Wm Sound
Group Action	Fund	Environmental
Judge	Business	Oil spill
Judicial	Profit	Spill
Lawyer	Merger	Cleanup
Arbitration	Buy	Containment
Law	Stock in Spotlight	Eagles
Claims	Products	Dispersants
Liability	Services	Oil
Reimbursement	Customers	Shoreline

Finally, definitions of crisis from the organizational perspective all emphasize organizational health and economic viability as being directly related to the organizational response to the crisis.

The third category of issues is the legal issue. This crisis has a legal dimension in that the responsibility for the disaster implies social and ethical responsibility to respond that is enforced through existing statutory, criminal, and civil law. Several hundred court cases are still pending against Exxon (Wall Street Journal, 1990).

Overall, as has been noted previously (Lang and Lang, 1984) the media in a crisis would be expected to have a mobilization effect. The Langs state that the media would be expected to 1) fix blame and demand punishment (legal implications), 2) define the damage and danger of the crisis event (economic and ecological impacts), and 3) lead public knowledge of the crisis.

Developing categories for analysis in this way is what Krippendorff (1980) refers to as "verbal designation" (p. 76). He describes these as "single-word designations of characteristics or properties including names for individuals, concepts, or classes of events..." (p. 76). For example, if this study were examining the Drexel-Lambert junk bond empire crisis and collapse, clearly the "environmental" category would not be relevant. A more appropriate category might be "ethical" issues.

Procedure for selecting issue terms and source names for issue categories and source categories

In order to identify source citations in both AP Wire newscopy and Business Wire press releases articles were searched using attributional term lists. Attributional lists are lists of terms that aid in the identification of sources being used to support ideas in an article. Such lists have been used successfully by researchers in the past to generate meaningful and complete lists of sources being cited in AP Wire newscopy (see Miller, Fowler, and Boone, 1989).

In the newscopy and press releases for this study, a preliminary analysis has shown that the word "said" occurs 4,846 times, "say" 368 times, and "says" 285 times. These and other attributional words are used in the study to identify in context sources being quoted.

To accomplish this, words like these that identify a source being used for documentation in context are first chosen from a frequency list of all of the words in the entire data-set. Next, the entire data-set is searched electronically for paragraphs in which these attributional terms occur. The resultant paragraphs are then read, and the sources cited are recorded along with the source's qualifications. A preliminary analysis of the data

indicated that this procedure was rather straight forward, but a lengthy process. The two years of newscopy and press releases constitute approximately 8.61 megabytes of information. A preliminary list of attributional search terms resulted in a search output of 1,292 pages. The resultant list of corporation and non-corporation sources are used to code the entire data-set for the frequency of occurrence of these two source categories by time period of the study.

To generate the list of terms assigned to each of the three issue categories, a similar procedure is used. First, the frequency list of all terms in the data-set, some 189 pages of 21,470 different words, is searched for terms in each of the categories. In searching for the terms the following definitions and thesaurus entries are applied to each word in the list:

> Economic: "Pertaining to the production, distribution, and use of income, wealth and commodities" (Random House Dictionary of the English Language, 1987, p. 618). The thesaurus entry for this term includes: "1. material, monetary, productive, distributive. 2. monetary, pecuniary, financial, fiscal, budgetary" (Random House Thesaurus, 1989, p. 227).
>
> Environment: "the air, water, minerals, organisms, and all other external factors surrounding and affecting a given organism at anytime" (Random House Dictionary of

the English Language, 1987, p. 650). The thesaurus entry for this term includes: "1. medium, habitat, element; surroundings, setting, locale, scene, milieu, atmosphere, ambience, situation, background; circumstances, living conditions, climate" (Random House Thesaurus, 1989, p. 240).

Legal: "of or pertaining to law; connected with the law or its administration"(Random House Dictionary of the English Language, 1987, p. 1098). The thesaurus entry for this term includes: "1. of law; juridical, jurisprudential, juristic; forensic, judicial, adjudicatory; courtroom" (Random House Thesaurus, 1989, p. 420).

When a word does not merit being assigned to either of the three issue categories of the study, it is discarded from the analysis. The resultant lists of terms in each category are then used to code for the frequency of the occurrence of each issue type by time periods of the study.

The selection of these issue categories for this analysis seems to be the typical approach taken in the communications literature. Pool (1952) had his researchers read a selection of European and American newspapers. From this reading, a list of democracy relevant symbols was created based on the judgements of the readers (Pool, 1952, p. 75). Studies on how the press portrays presidential

candidates during election campaigns typically use nestorian (nets) or naturally occurring categories for their analysis (for example, see Malaney & Buss, 1979). Smith (1987) used the frequency of terms associated with issues of public concern in a time-series analysis of newspaper coverage of issues and public concern of issues. Lule (1989) used natural categories in his analysis of victimage in Times coverage of the KAL Flight 007 shooting.

For the purposes of this research then, the significance attributed to any issue term in an issue category or source term in a source category, is based on the frequency of occurrence of that symbol. As Pool (1970) observed: "A given ideology can be conveniently summarized according to the key terms receiving positive or negative treatment (*or frequent mention of any kind*)" (p. 14, emphasis added). Later in the same work Pool notes: "The symbol analyst works with words by selecting those which best stand for the attitudes whose presence or absence he wishes to detect and describe. Symbols, thus conceived, serve as his 'operational indices' of attitude" (p. 22).

Phases

The precrisis phase is operationalized as all stories within nine months prior to the critical event. For the purposes of this study that is from June 1st of 1988 to

March 23rd of 1989. An examination of the frequency of stories shows a large increase in stories during the month of April 1988. A reading of stories in this period shows that Exxon Corp. acquired Regal Oil during this time. This is by definition an organizational crisis event. Therefore, to control for the influence that this crisis event could have on the results of subsequent analyses of this data, only the wire stories appearing after June 1st, 1988 will be included in the analysis for the dissertation. This results in a total sample of 1,906 AP Wire stories and 43 Business Wire stories. In the time period June 1, 1988 to March 24, 1989 (crisis date) there are 307 AP Wire stories for analysis.

The crisis phase itself is defined as the coverage afforded an organization from the moment of the crisis to the moment of peak coverage counted in terms of the frequency of stories by day. For this study, peak coverage occurs on April 3rd, 1989 with 28 total stories that day. Peak coverage is chosen as the demarcation point for the third phase because it is up to this point that the organization is experiencing the maximum level of uncertainty in terms of its control of the coverage of an event. During this 11-day time period there are 154 stories available for analysis.

In the crisis phase there is one subphase that the literature and this study posit to exist. It is called the

window of opportunity. It is said to exist from the moment of the critical event to the time that non-organizational sources come to dominate coverage of the crisis event. For the purposes of this study the window is said to be the first week after the crisis event. This first week's source attributions are compared to the second week's source attributions to gauge the extent to which organizational source citations were more numerous than non-organizational source citations.

The resolution phase is operationalized as the time from peak coverage to the time when organizational sources return to precrisis levels. For the purpose of this study this period of time is from April 3rd, 1989 to March 5th, 1990. This period contains 1,445 stories in both wire services (1,402 in AP Wire and 43 in Business Wire).

Figure 3 displays graphically the three phase divisions for this attention cycle and is based on the actual data.

Research Question and Hypotheses

The central research question of this study is: ***Will issues and sources associated with issues for the Exxon Valdez disaster coverage in the media and in press releases conform to established patterns for issue emergence over time?*** The following specific hypotheses address predictable

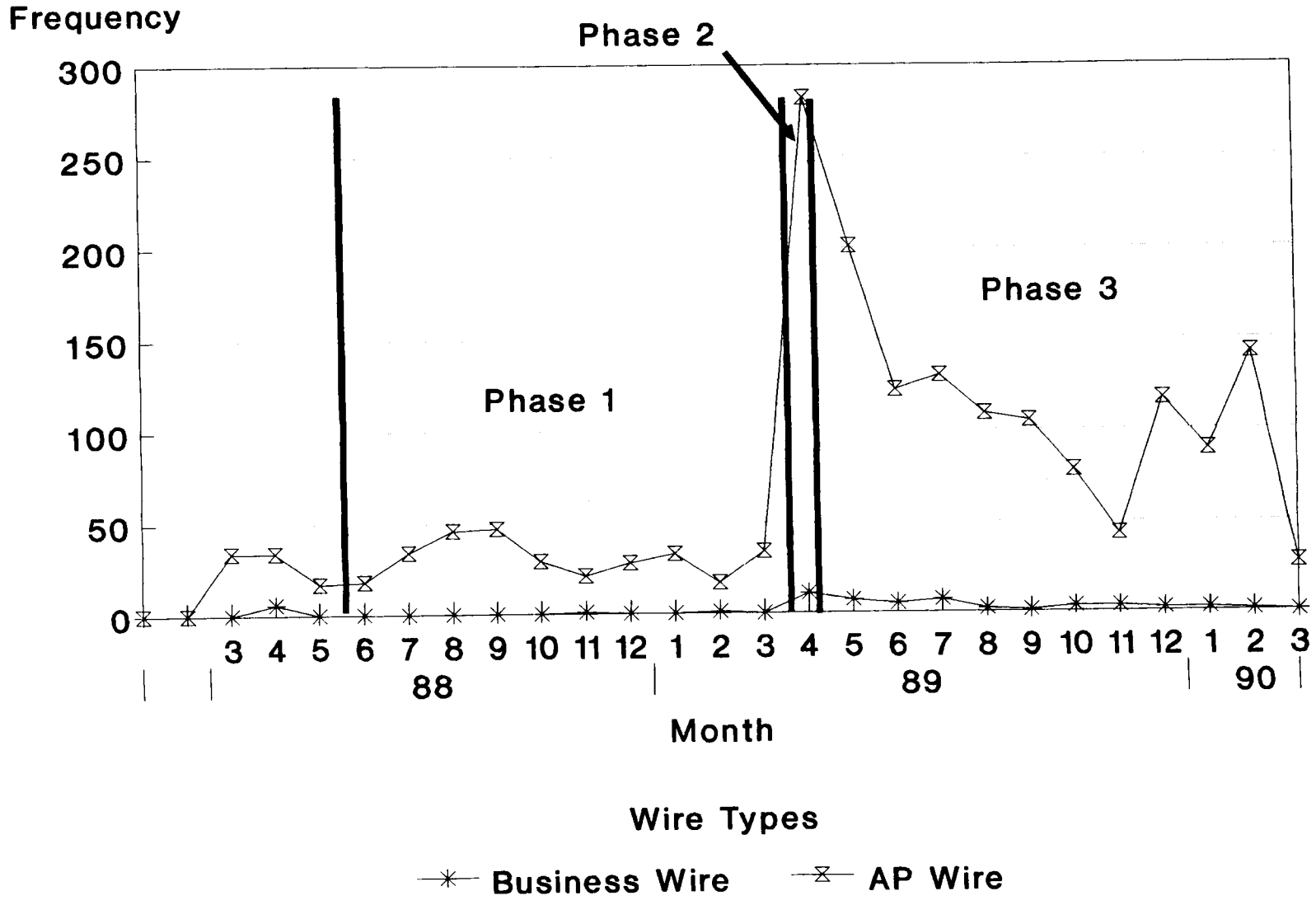


Figure 3. Phase divisions

directions that issue treatments and source frequencies would be expected to take in each phase of the cycle.

Hypotheses

There are several general principles that these hypotheses are based on. First, shortly after a crisis event it could be expected that organizational sources would occur with greater frequency than would non-organizational sources; organizations are the first source of information about a crisis event. Soon after a crisis event, however, non-organizational sources would be expected to occur in greater frequency than organizational sources; The reason for this decrease in the coverage afforded organizational sources is clear: At the outset of a crisis they are the only source of information. However, soon after the crisis event the press seeks other sources of information.

Second, in times of no crisis, it would be expected that, because of the effectiveness of public relations in influencing the content of the media agenda, organizational sources will be associated with the news coverage of an organization on a per issue basis.

Third, organizational and non-organizational sources would be expected to be associated with the issue types in different ways. That is the nature of a crisis event.

There are different stories being told about the crisis event for different purposes.

Finally, issue types would be expected to be related in different ways as the attention cycle proceeds. As the label "attention cycle" implies, attention is paid to different aspects of a crisis event as that event develops over time in the media (Downs, 1974). Therefore, it would be expected that as the crisis event develops over time, issue types would be expected to converge into a single interactive description of how the media is portraying the crisis.

The hypotheses tests that follow offer tests based on each of these major principles of the study. First, a hypothesis is offered to test for the window of opportunity phenomenon: that period of time directly after a crisis event. Second, 11 specific hypotheses are offered to test for differences between the corporate story of the crisis event and the non-corporation story of the crisis event by issue type and phase; phase interactive hypotheses. Finally, hypotheses are offered to test the specific differences in issue treatments that could be expected between the two wire services.

The window of opportunity

To test the window of opportunity phenomenon, data in the study will be divided into two one-week windows after the crisis event. Frequency of source attributions by source type (Exxon vs. non-Exxon) will be compared from window one to window two. The hypothesis is thus worded:

H_1: The ratio of Exxon sources to non-Exxon sources will be greater during the first week of the crisis than in the second week of the crisis.

What this hypothesis states is that Exxon sources will occur with greater frequency at the outset of a crisis. Non-Exxon sources, after the crisis event has had time to develop in the media, become more frequent. It is expected, as Lukaszewski (1989) asserts, that Exxon missed the window of opportunity; they will lose their influence over the content of the news stories about the crisis event very soon after the crisis event; in the first window. In summary, if Exxon sources are significantly more frequent in the first week, then Exxon has not missed the window of opportunity. If Non-Exxon sources are more frequent or they can be established as not being significantly different from the Exxon sources, then Exxon missed the window of opportunity.

Phase hypotheses

During the early stage of the crisis event, it would be expected that the Exxon version of the story would dominate news coverage of the crisis event. Therefore, Exxon sources would be expected to be strongly associated with each of the issue types during the crisis phase because Exxon Corp. would be the major source of information about the crisis event. Therefore, Exxon source types would be expected to interact with each of the issue types in the crisis phase, that is, it would be expected that Exxon Corp. sources would co-occur significantly with each of the issue types. Since Non-Exxon sources types would be expected to be more frequent in subsequent phases of the crisis, non-Exxon source types would be expected to co-occur (interact) with each of the issue types in later phases of the crisis. Therefore, the following hypotheses are offered for analysis.

H_2: Exxon sources will be more strongly associated with economic issue type in the pre-crisis phase than in the crisis or crisis resolution phases.

H_3: Exxon sources will be more strongly associated with environmental issue types in the pre-crisis phases than in the crisis or crisis resolution phases.

H_4: Exxon sources will be more strongly associated with legal issue types in the pre-crisis phase than in the crisis or crisis resolution phases.

H_5: Non-Exxon sources will be more strongly associated with economic issue types in the crisis-resolution phase than in the crisis or precrisis phases.

H_6: Non-Exxon sources will be more strongly associated with environmental issue types in the crisis resolution phase than in the crisis or precrisis phases.

H_7: Non-Exxon sources will be more strongly associated with legal issue types in the crisis resolution phase than in the crisis or precrisis phases.

What each of these hypotheses tests is the idea that in times of no crisis, Exxon sources would be more likely to co-occur in stories in which each of the issues types occurs. The reason for this relationship is clear: in times of no crisis the Exxon story is the dominant story in the media because of the effectiveness of public relations

in placing the corporate story in the media. After a crisis event, however, that changes as the organization comes under greater scrutiny by the press (Paletz and Entman, 1981). What is tested by these propositions is a phase by issue by source type interaction.

In addition to the association of Exxon sources with each of the individual issue types is the contention that legal issues will be strongly associated with each of the other issue types in phases after the crisis event. The reason for this expected relation is that as the crisis event unfolds in the media over time, it is expected that the media will reflect the social system response to the crisis event. With an oil spill on the scale of the Exxon Valdez, a legal response can be expected. Therefore, the following source, issue, and phase interactive hypotheses are offered for analysis:

H_8: The three-way association among Exxon sources, legal issues, and economic issues will be greater during the precrisis phase than in subsequent phases.

H_9: The three-way association among Exxon sources, legal issues and environmental issues will be greater in the precrisis phase than in subsequent phases.

What is sought in the test of these two questions is the idea that in the pre-crisis phase Exxon sources will be positively related to the interaction of these issue combinations. Why? Because there is no active hedging (Grunig and Hunt, 1984) by the organization against the interaction of these issue types in a crisis event. Therefore, before a crisis event it would be expected that Exxon sources would occur in frequency in stories in which both of these pairs of issue types occur.

Non-Exxon sources, however, will be positively related to the interaction of legal issues with the other two issues types in phases after the precrisis phase. Therefore, two hypotheses are offered to test this assertion:

H_{10}: The three-way association of Non-Exxon sources, legal issues and environmental issues will be greater during the crisis resolution phase than in prior phases.

H_{11}: The three-way association of Non-Exxon sources, legal issues and environmental issues will be greater during the crisis resolution phase than in prior phases.

Non-Exxon sources are asserted to interact with these two pairs of issue types after the crisis phase as the attention cycle develops over time. What each of these

hypotheses tests is a legal by economic or environmental issue by source type by phase interaction.

Finally, among the phase interaction hypotheses must be a hypothesis to assess the development of issue types over the time period of the study. It is asserted here that issue types could be expected to interact in late phases of the crisis event since the story of the crisis event would be well developed by that time. Stories in the crisis resolution phase would be expected to have greater frequencies of economic, environmental, and legal issues together than in prior phases. Therefore, the hypothesis is worded:

H_{12}: **The three way association among Economic, Environmental, and Legal issues will be greater in the crisis resolution phase than in prior phases.**

What this hypothesis tests then is a phase by environmental issue by economic issue by legal issue interaction. What this hypothesis seeks to demonstrate is that the three issue categories interact (co-occur) in periods of time after a crisis event.

Wire service differences

It has been asserted that the adversarial wire and the advocacy wire would be expected to differ in their coverage of issue types. In phase three, the crisis resolution phase, are found the only significant frequencies of occurrence of Business Wire stories (n=43). In the pre-crisis phase there are only two Business Wire stories. In the crisis phase there is only one Business Wire story.

The Business Wire does, however, present a unique opportunity to detect differences in the corporate and non-corporate story about the Exxon Valdez. However, because of the distribution of the Business Wire stories over time, propositions testing for differences among the wire services are confined to the crisis resolution stage of the attention cycle.

To the extent that coverage of an issue in the crisis is damaging to an organization's economic viability, it would be expected that the organization would place different emphasis on that issue than would the adversarial press. This would be especially true, as has been noted already, for the frequency of mention of legal issues. In summary, any significant variation among the wire services in their coverage of the issues categories would be interesting to the extent that it demonstrates different

stories of how the crisis can come to be understood in all of its facets.

H_{13}: The frequency of occurrence of economic issues by AP Wire will be greater than the frequency of portrayal of economic issues by Business Wire in the crisis resolution phase.

H_{14}: The frequency of occurrence of environmental issues by AP Wire will be greater than the frequency of portrayal of environmental issues by Business Wire in the crisis resolution of the attention cycle.

H_{15}: The frequency of occurrence of legal issues by AP Wire will be greater than the frequency of portrayal of legal issues by Business Wire in the crisis resolution phase of the attention cycle.

What each of the three proceeding hypotheses tests is a wire service by issue type difference in the third phase. In other words, where Economic issues are found, for example, they are more likely to be found in any given AP Wire story than in any given Business Wire story. These hypotheses assess the differences in the portrayal of the crisis event that can most directly be associated with the

communication actors of the study; corporation advocates and adversaries.

Testing procedures for the study

Each of the variables of the study will be analyzed descriptively using figures and tables where appropriate. In addition to using descriptive methods to illustrate the aggregate characteristics of each of the variables of the study and since all the variables of the study are categorical variables, a log-linear analysis is appropriate (Kerlinger, 1986, p. 166).

For the first, thirteenth, fourteenth, and fifteenth hypotheses chi-square tests will be conducted. For the second through twelfth hypotheses two different procedures will be used. A maximum-likelihood analysis of variance model (a log-linear model) will be developed and tested using the same procedure used and described in the pilot study for the entire time period of the study. A second series of maximum-likelihood analysis of variance models will be constructed for each phase of the study to control for phase interaction and to aid in the broader description of the attention cycle under study.

The table that results from the log-linear analyses for hypotheses two through twelve will be searched for the interactions implied by the hypotheses. In each case cross-

tabulations will be constructed to examine the extent and direction of relationships confirmed or disconfirmed by the log-linear models. Additionally, the models will generate relationships that could not be predicted prior to the analysis. These relationships will be discussed as well. Table II summarizes all of the hypotheses of the study with all of the statistical procedures that will be used to test them.

Because of the large number of terms involved in the study, the data will be binary coded for each issue, source, and wire type. Binary coding is necessary to insure the construction of a matrix for testing that has a sufficient number of individual cell frequencies for a meaningful test of each hypothesis. This is necessary because of the large number of individual terms and names that will be generated. Without binary coding, many of the terms selected for analysis will not occur except in only a few of the stories in the study. That results in a large matrix for testing that has very many empty cells. Binary coding solves for this problem in the log-linear analysis.

TABLE II

SUMMARY OF HYPOTHESES AND TESTING PROCEDURES

Hypothesis and implied interaction	Statistical Test
H_1: Window by source type	Chi-Square
H_2: Exxon source by economic issue by phase	Log-linear
H_3: Exxon source by environmental issue by phase	Log-linear
H_4: Exxon source by legal issue by phase	Log-linear
H_5: Non-Exxon source by economic issue by phase	Log-linear
H_6: Non-Exxon source by environmental by phase	Log-linear
H_7: Non-Exxon source by legal issue by phase	Log-linear
H_8: Exxon source by legal issue by economic issue by phase	Log-linear
H_9: Exxon source by legal issue by environmental issue by phase	Log-linear
H_{10}: Non-Exxon source by legal issue by economic issue by phase	Log-linear
H_{11}: Non-Exxon source by legal issue by environmental issue by phase	Log-linear
H_{12}: Economic issue by environmental issue by legal issue by phase	Log-linear

TABLE II (continued)

Hypothesis and implied interaction	Statistical Test
H_{13}: Wire by economic issue	Chi-square
H_{14}: Wire by environmental issue	Chi-square
H_{15}: Wire by legal issue	Chi-square

Summary of method

This study examines the crisis event in three phases (precrisis, crisis, and crisis resolution) and in two one-week windows of time directly after the crisis event. Two source types (company and non company) in three issue categories (economic, environmental, and legal) are hypothesized to interact with other variables in the study in predictable ways.

This research proceeds by using a computerized content analysis program to first frequency-sort all of the words in the entire data-base of the study. From this frequency sorted list attributional words, words that identify entities being quoted in news copy, are selected. Terms for each of the three issue categories are also selected from the frequency-sorted list by applying the operational definitions of each of the issue types.

Next, the entire data-base of the study is searched for the incidence of the attributional terms. A file containing all paragraphs that have attributional terms in them is developed using a computerized content analysis system. This output is then read, and source types (either Exxon Corp. or Non-Exxon Corp. related) are collected. The output is then coded for the frequency of occurrence of each of the source names identified in the search as being either Exxon Corp. related sources or Not Exxon Corp. related sources.

Next, the entire data-base of the study is searched for the incidence of issue types. A frequency listing of the occurrence of all three issue term categories is developed on a story by story basis.

The two frequency lists are then combined. The resultant lists are coded by story for: 1) date, 2) phase, 3) wire service and 4) window of the study. The statistical analysis is then conducted on this coded frequency list on a hypothesis by hypothesis basis. .

The results of this study methodology are reported in the following chapter. The results are divided into two broad categories: 1) the results of procedures for developing the search lists of the study, and 2) the results of the specific tests of the hypotheses of the study.

CHAPTER IV

RESULTS

Introduction

The results obtained here are made possible through the use of a computerized content analysis program. The program used for this study is VBPro. The program was developed by M. Mark Miller at the University of Tennessee. The version used for this study is an experimental version of the program.

In order to generate the results recorded here, the AP Wire and Business Wire news copy collected for the dissertation had to be processed and formatted so that it could be read and coded by the program (Miller, 1991). What follows is a discussion of each of the frequency lists that were developed for the study. The lists developed for the study are: 1) attributional terms list, 2) source type lists, and 3) issue term category lists.

Following the discussion of the application of procedures used to generate the lists used for the coding of the stories in the study, a complete presentation of the results of tests for each of the hypotheses of the dissertation will be presented. Tables and figures are used to display the results of all tests where appropriate.

Developing the search lists for the study

Using VBPro the data from the two wire services were sorted by frequency of occurrence of all words in alphabetical order (VBpro, 1991). Using this frequency sorted and alphabetized list the operational definitions of attributional terms and issue types were applied, and terms were selected for inclusion or exclusion from the lists. Terms were selected from the list for assignment to either the attributional terms list or the issues list only if they could be unambiguously assigned to each list. All terms that could not be unambiguously assigned to the categories were dropped from the analysis.

Attributional search list and source type search list

The first list developed was the attributional search list. Ninety-three terms were selected for inclusion in this list. This list of terms and their frequency of occurrence by term is displayed in Appendix I.

The entire data set for the study was then searched for the occurrence of these attribution terms by paragraph. This resulted in a file of paragraphs 2.9 megabytes and 1,294 pages in length or about 33 percent of the entire data base. These paragraphs were then read word for word.

Source types, either Exxon or not Exxon, were recorded. Each source type was recorded by full name and stated qualifications as printed in the news copy. The resultant list is displayed in Appendix II and is composed of 611 different names and related qualifications.

The list includes generic source citations such as "Exxon attorneys said..." if the generic citation was a plural. It was found from an investigation of generic source attributions, that plural citations such as the one above were less likely to be followed by an actual name than were singular source citations such as "An Exxon spokesman said..." Therefore, in the interest of reducing the chance for duplicative source citations, the singular generic source citations found in the attributional term output file were deleted from the source type list.

Additional complications were encountered in generating the list of source names for the study. First, some names of sources are also the names of common objects or affectations of human speech. For example, the names Bird and Fields were found in the attributional output file. But because the computerized content analysis program recognizes capitalized letters and can control for them, such words do not pose a danger to the study's accuracy (Miller, 1991). However, a word such as fields could occur at the beginning of a sentence as in the hypothetical statement: "Fields were also endangered by the spill...." or "Pike is a type of

fish also endangered by the spill...." But no incidence of the occurrence of such duplication was observed in the attribution term output file. Whatever incidence of such term duplication does occur in the data-base, this study controls for it by coding the frequency of source types only from the attributional search term output file.

Another problem with the source type list is the duplication of names among Exxon and non-Exxon sources. These duplications were found to be of two types: Significant duplication where a major source for one list is duplicated on another list, and insignificant duplication where a source citation that occurs only a few times in the entire data based is duplicated. To handle the latter duplications, the full name of the source citation was used for this source type list. All other names were listed for the computer search by last name only to aid counts of the use of names after the initial full citation in the data base. An example of this would be as in "...Dixon said," or "Dixon, an EPA attorney says...."

To deal with significant duplications the insignificant name was eliminated from the study. There were only a few examples of this problem. For example, Harry Rogers occurs on the non-Exxon list of source citations. He is attributed in AP Wire newscopy as being a "School Superintendent." His full name occurs only four times in the entire data base. However, Les Rogers is a major Exxon Spokesman and his name

occurs over 200 times in the data base. Therefore, to eliminate the potential to count "Rogers" on both source type lists, Harry Rogers was eliminated from the analysis. The full names could have been used for the search, but the clear disadvantage would be to eliminate all quotes such as "Exxon Spokesman Rogers said...", and "Rogers said...." Eliminating these kinds of source attributions in the news copy was felt to have the potential of significantly decreasing the frequency of Exxon Corp. source citations in the news copy. A similar decision was made for non-Exxon sources Ted Stevens and Fred Smith in favor of Exxon sources W. D. Stevens, President Exxon Corp. U.S.A. and Bill and Perry Smith, both Exxon Spokesmen.

A final problem associated with developing the source citation list was what to do with the name James Hazelwood, the ill-fated captain of the Exxon Valdez. According to raw frequency data, the word Hazelwood occurs 777 times in the AP Wire copy and is the 58th most frequent word. However, an examination of the name in context shows that nowhere is Hazelwood quoted. Very early in the crisis event AP Wire reports: "The only crewman willing to talk to investigators has been Robert Kagan, who was at the helm...." (March 29th, 1989). The AP Wire made it quite clear why Hazelwood was not being quoted in its newscopy: "On the advice of their lawyers, Hazelwood and Cousins have refused to talk to investigators..." (March 30, 1989a).

Gregory Cousins, the Third Mate at the helm of the 987-foot Exxon Valdez at the time it ran aground in Prince William Sound, is also a very frequent name occurring 102 times in AP Wire copy (AP Wire, July 19, 1989). Both names were eliminated from the names file since only sources to whom quotes or paraphrases are directly attributable were included in the source names list.

In summary, it seemed as though Hazelwood constitutes an issue category in and of himself. He was captain of one of the largest vessels on Earth and yet his driver's license had been revoked 3 times (AP Wire, March 31, 1991). He became the focus of the subsequent federal investigation (AP Wire, March 30, 1989b).

The list of names retained for the study appears to be a very rich source of information. The final chapter of the dissertation will discuss directions that future research could take using the source names list.

Issue type search list

Generating the issue type search list was much more straight forward. 441 terms were selected and assigned to the three categories of issues. This list of terms and their frequency of occurrence is displayed in Appendix III. The limitations of this list and all terms chosen for this study will be discussed in the following chapter.

It must be noted here that only single words were chosen for inclusion in the list. The computerized content analysis program, when it produces a frequency coded and alphabetized list of all terms in the data base, produces a list of single terms. Therefore, there are no combined terms on the list. All parts of speech (nouns, adverbs, verbs, etc.) that could be construed in the context of the frequency list to be environmental, legal, or economic terms, were included in the list. The only term eliminated from the analysis for being inappropriate for the lists after having been selected for the list was the term "Bayway." Subsequent reading of the AP Wire and Business Wire news copy shows that "Bayway" is the name of an Exxon refinery in New Jersey. No incidence of the term bayway as anything other than a name for a refinery was observed in either AP Wire or Business Wire copy.

Hypothesis tests

After the source and issue lists were developed, VBPro was used to develop a frequency count, by story, of the incidence of each source and issue in both wire services. This output was then coded for date, phase, wire service and window of the study. For hypotheses 2 through 15, source type frequencies and issue type frequencies were then converted to binary codes. For example, if a story contains

an environmental term, then that story was coded 1. If the story did not contain an environmental term, then the story was coded 0.

The following is a presentation of the results of the test of each hypothesis for the study. First is the test of the first hypothesis for source type differences during the window of opportunity phase of the study. Second, a maximum-likelihood analysis of variance model (a log-linear model) for the entire time period of the study is presented. All interactions implied by H_2 through H_{12} are tested for phase interaction. Third, a maximum-likelihood analysis of variance is presented for each phase of the study to control for phase interaction in testing hypotheses 2 through 12 and to accomplish a more complete phase by phase study of the attention cycle. Finally, tests are made for specific issue by wire service differences posited by hypotheses 13 through 15.

The window of opportunity

To test the window of opportunity phenomenon, data in the study were divided into two one week windows after the crisis event. Frequency of source attributions by source type (Exxon vs. non-Exxon) were compared from window one to window two. The hypothesis is worded:

H_1: The ratio of Exxon sources to non-Exxon sources will be greater during the first week of the crisis than in the second week of the crisis.

The results of the test of this hypothesis are displayed in Table III.

The row totals indicate that there are a greater number of non-Exxon sources than Exxon sources. The Chi-square test, however, does not detect significant differences in source types from week one to week two. The column percentages though show little difference in the distribution of the two source types from window to window.

Because of the proportionally larger number of Non-Exxon sources in the two windows of the study, t-tests were computed to compare the mean occurrence of the source types in each window. Non-Exxon sources have a greater mean occurrence per story than do Exxon sources in both the first week ($t=6.36$, $p>.0001$) and in the second week ($t=7.95$, $p>.0001$).

Both of these tests indicate that the hypothesis is false. Exxon sources do not occur with greater frequency than Non-Exxon sources in the first window of the study compared to the second window. In actuality, Non-Exxon sources occur with greater frequency in both of the one week windows directly after the crisis event. However, the difference is not statistically significant.

TABLE III

SOURCE TYPE BY WEEK OF COVERAGE [a]

	Window [b]		
	First Week	Second Week	Totals[c]
Exxon sources	15.91	12.42	177
Non-Exxon sources	84.09	87.58	1,070
Totals	635	612	1,247

[a] Test of H_1. $X^2=3.112$, d.f.=1, $p > .078$

[b] Cell values expressed as column percentages.

[c] Marginal values expressed as the frequency of mention of the source types.

The next series of hypotheses (H_2 to H_{12}) assess the extent to which the two source types differ in relationship to each of the issue categories in each of the phases. To test these hypotheses two series of log-linear models were constructed. For the first series, a single log-linear model was constructed for the entire time period of the study. The second log-linear analysis discusses the results of testing these hypotheses by constructing a log-linear model for each individual phase.

To construct the models that follow, a saturated model was developed that contains all the variables of the study. Then model parameters that were not significant were eliminated one by one until the model of best fit for the overall design was obtained. This procedure is termed a maximum-likelihood analysis of variance. Each series will now be presented.

Maximum likelihood analysis of variance for phase interactive hypotheses

The model for this first analysis is displayed in Table IV. The model tested and reported here is composed of a phase by Exxon source by non-Exxon source by economic issue by environmental issue by legal issue interaction. This presentation proceeds first by examining Table IV for each of the interactions implied by the hypotheses.

TABLE IV

MAXIMUM-LIKELIHOOD ANALYSIS OF VARIANCE

Source	df	Chi-square	p-value
Phase	2	290.62	.0000
Exxon source	1	4.24	.0394
Phase by Exxon source	2	41.70	.0000
Phase by Non-Exxon source	2	15.05	.0005
Exxon source by Non-Exxon source	1	14.28	.0002
Phase by Exxon source by Non-Exxon source	2	6.76	.0341
Economic issue	1	131.65	.0000
Exxon source by economic issue	1	62.96	.0000
Phase by Exxon source by economic issue	2	32.19	.0000[a]
Non-Exxon source by economic issue	1	21.50	.0000
Environmental issue	1	19.55	.0000
Phase by environmental issue	2	146.80	.0000
Non-Exxon source by environmental issue	1	85.50	.0000
Exxon source by Non-Exxon source by environmental issue	1	35.82	.0000
Economic issue by environmental issue	1	7.39	.0066

TABLE IV (continued)

Source	df	Chi-square	p-value
Exxon source by economic issue by environmental issue	1	35.13	.0000
Exxon source by Non-Exxon source by economic issue by environmental issue	1	20.84	.0000*
Legal issue	1	11.24	.0008
Phase by legal issue	2	14.39	.0007
Exxon source by legal issue	1	9.07	.0026
Non-Exxon source by legal issue	1	13.50	.0002
Economic issue by legal issue	1	26.02	.0000
Exxon source by economic issue by legal issue	1	9.04	.0026
Non-Exxon source by economic issue by legal issue	1	5.70	.0170
Exxon source by non-Exxon source by economic issue by legal issue	1	14.68	.0001
Environmental issue by legal issue	1	85.90	.0000
Exxon source by non-Exxon source by environmental issue by legal issue	1	14.00	.0002*
Economic issue by environmental issue by legal issue	1	12.86	.0003

TABLE IV (continued)

Source	df	Chi-square	p-value
Non-Exxon source by economic issue by environmental issue by legal issue	1	21.80	.0000
Likelihood Ratio	28	19.54	.8807

[a] This is the only significant interaction predicted prior to the analysis by H_2 through H_{12}.

* These unique interactions were not predicted prior to the analysis.

Cross-tabulations are then consulted to assess the direction and intensity of the relationships confirmed or denied by the log-linear model.

Testing for phase interaction

In Table IV it is clear that only one of the interactions predicted in hypotheses two through eleven occurs. Specifically, the hypothesis stated in H_2, an Exxon source by Phase by economic issue interaction, is significant. It is interesting to note, however, that many interactions without phase as a variable are confirmed in the model. Many of these are related directly to each of the hypotheses being tested here. Each of these interactions will be examined as the results are presented.

In total, the model shows four four-way interactions that were not predicted by the hypotheses tests are significant in the log-linear model. Also one unique three-way interaction is significant and two unique two-way interactions are significant. Each of these interactions will also be discussed as they relate to each of the hypotheses tests.

The presentation of hypothesis tests in this series begins with Hypotheses two, three and four. These hypotheses each posit an Exxon source by phase by issue type

interaction for each of the three issues. The hypotheses state:

H_2: Exxon sources will be more strongly associated with economic issue type in the pre-crisis phase than in the crisis or crisis resolution phases.

H_3: Exxon sources will be more strongly associated with environmental issue type in the pre-crisis phases than in the crisis or crisis resolution phases.

H_4: Exxon sources will be more strongly associated with legal issue type in the pre-crisis phase than in the crisis or crisis resolution phases.

As has been noted, an examination of Table IV shows only the interaction implied by H_2 as significant. The cross-tabulation displayed in Table V and the lines in Figure 5 examine this relationship. Although the interaction is significant, it is not in the hypothesized direction. An examination of the column totals in the table

TABLE V

EXXON SOURCE BY PHASE BY ECONOMIC ISSUE INTERACTION[a]

	No Exxon sources			Exxon sources			
	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Totals[b]
No economic issue	.38	3.74	8.40	2.27	4.26	18.96	170
Economic issue	99.62	96.26	91.60	97.30	95.74	81.04	1,736
Totals	263	107	1,060	44	47	385	1,906

[a] Test of H_2. $X^2=32.19$, d.f.=2, $p > .00001$. The interaction is significant, but it is not in the predicted direction. The large number of stories in the third phase when Exxon sources are present, 385, is the opposite direction the hypothesis was expected to take. Exxon sources were expected to be most numerous in the precrisis phase in relationship to economic issues.

[b] Cell values expressed as column percents. Marginal values expressed as the frequency of mention of stories containing the variable types.

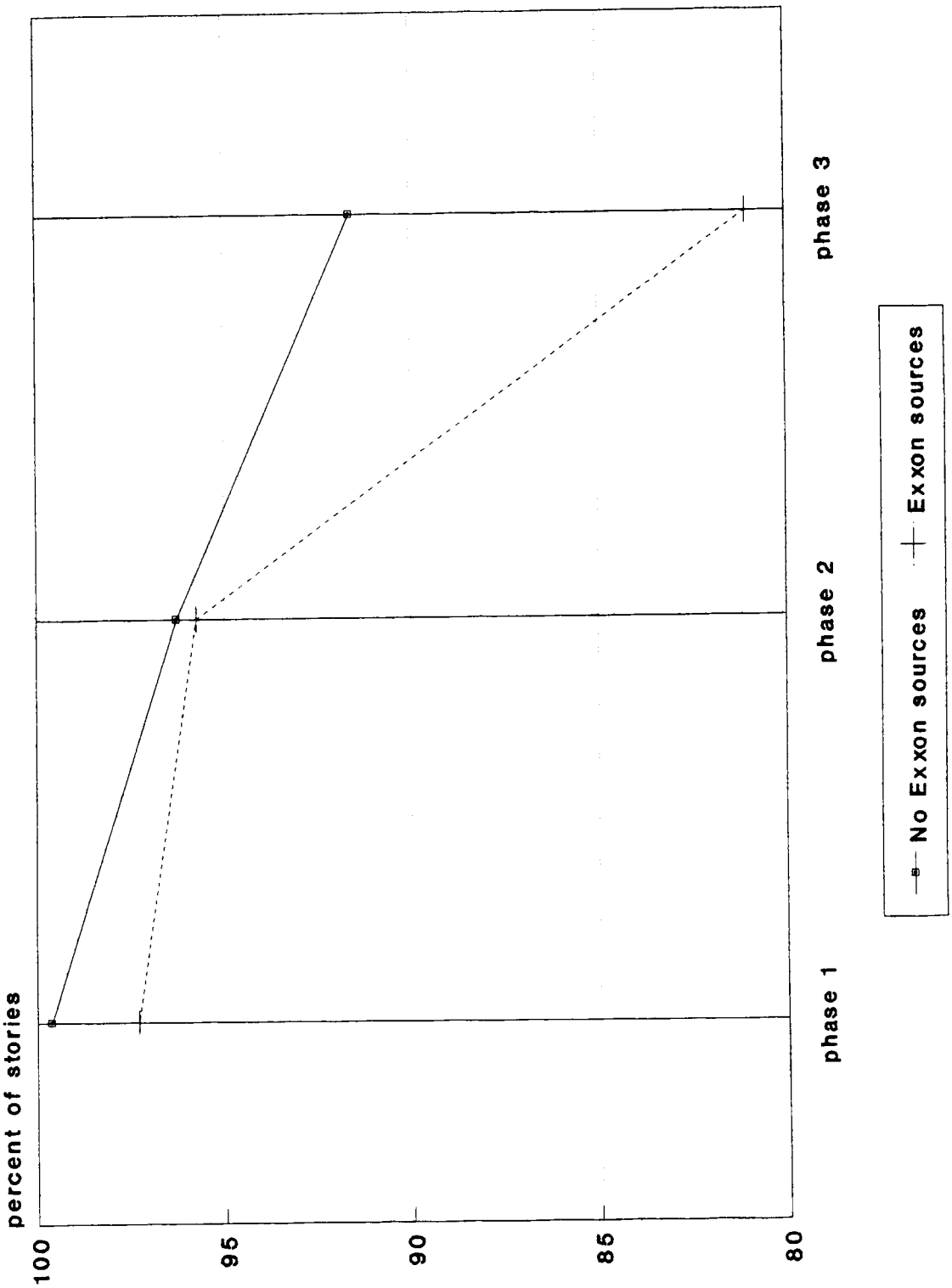


Figure 4. Percent of stories containing Exxon sources by phase in the presence of economic issues (H_2).

shows that 385 stories contain at least one Exxon source in the crisis resolution phase, only 47 in the crisis phase, and only 44 in the precrisis phase. The hypothesis predicts that the relationship of Exxon sources and Economic issues in the precrisis phase will be significant. Therefore the hypothesis is not supported.

An examination of the row percentages displayed in the table shows consistent appearance of economic issues in the presence or absence of Exxon sources. Additionally it is clear that when economic issues do not occur Exxon sources are likely not to occur. This suggests a positive relationship between Exxon sources and economic issues in all phases of the attention cycle.

Figure 5 confirms this relationship. In the presence of environmental issues, Exxon sources seem more likely to occur. This occurrence is in the third phase, and not the first phase as predicted in the hypothesis test.

The interactions predicted by H_3 and H_4 are not significant in this log-linear analysis. Tables VI and VII display the cross-tabulations for these two hypotheses and Figures 6 and 7 display the data visually. From the tables it is clear that the preponderance of stories containing Exxon source citations occur in the third phase (the crisis resolution phase) of the study.

TABLE VI

EXXON SOURCE BY PHASE BY ENVIRONMENTAL ISSUE INTERACTION[a]

	No Exxon sources			Exxon sources			
	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Totals[b]
No environ. issue	87.83	14.02	28.87	50.00	2.13	10.39	615
Environmental issue	12.17	85.98	71.13	50.00	97.87	89.61	1,291
Totals	263	107	1,060	44	47	385	1,906

[a] Test of H_3. The interaction is not significant in the log-linear model.

[b] Cell values expressed as column percents. Marginal values expressed as the frequency of mention of stories containing the variable types.

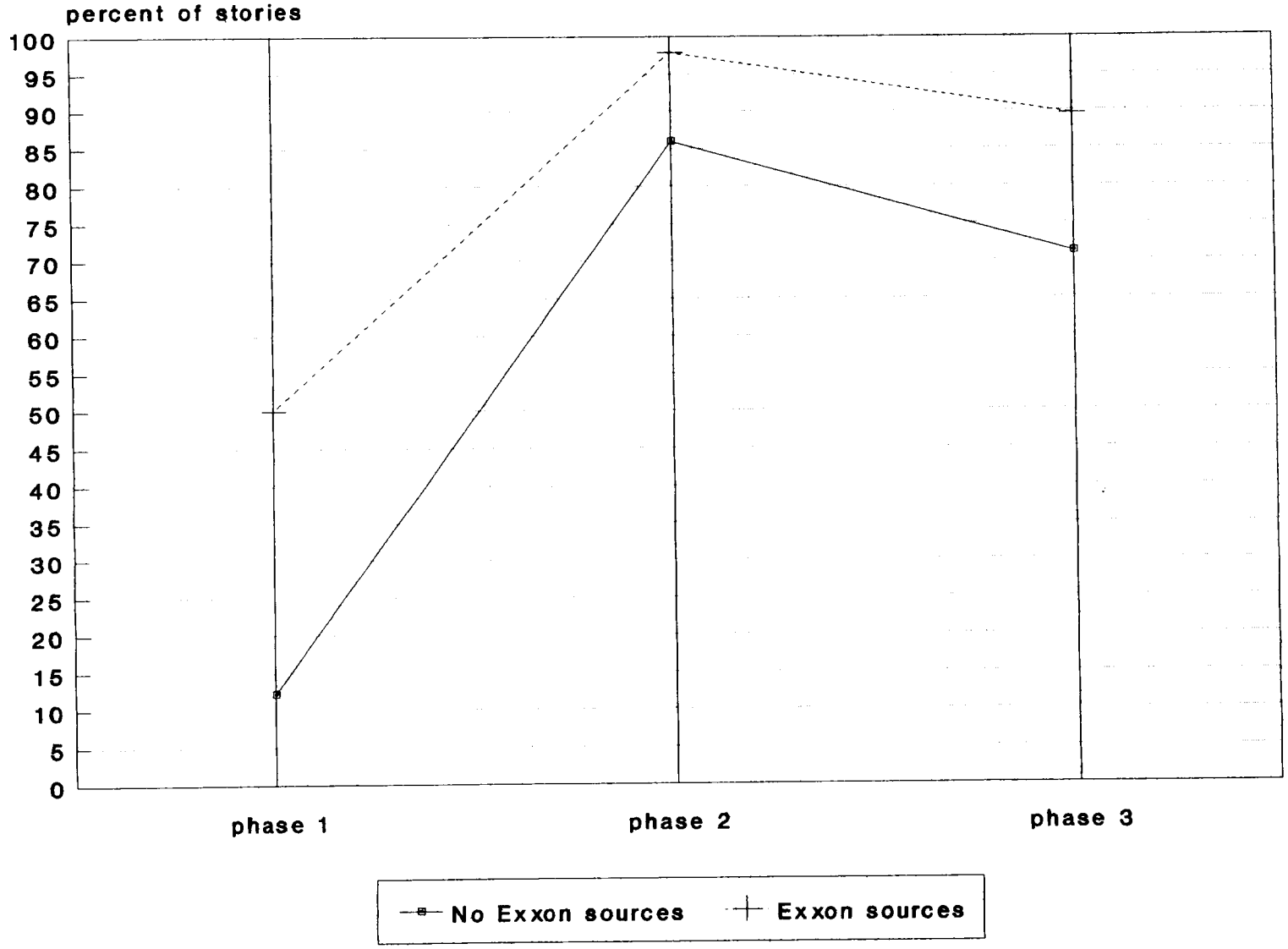


Figure 5. Percent of stories containing Exxon sources by phase in the presence of environmental issues (H_3).

TABLE VII

EXXON SOURCE BY PHASE BY LEGAL ISSUE INTERACTION[a]

	No Exxon sources			Exxon sources			
	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Totals[b]
No Legal issue	80.99	28.97	37.26	61.36	14.89	25.97	773
Legal issue	19.01	71.03	62.74	38.64	85.11	74.03	1,133
Totals	263	107	1,060	44	47	385	1,906

[a] Test of H_4. The interaction is not significant in the log-linear model.

[b] Cell values expressed as column percents. Marginal values expressed as the frequency of mention of stories containing the variable types.

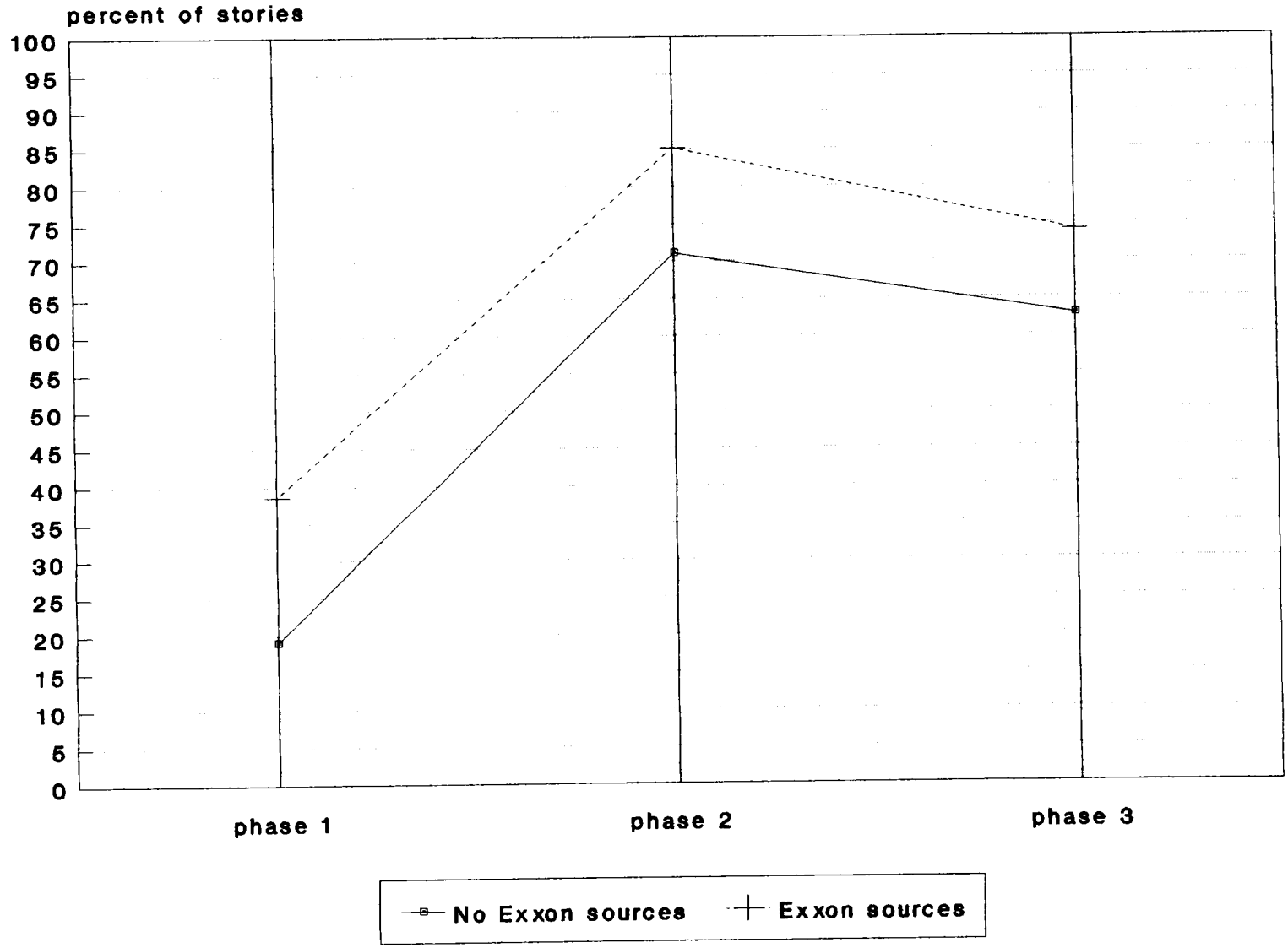


Figure 6. Percent of stories containing Exxon sources by phase in the presence of legal issues (H_4).

This indicates that even if the two interactions had been significant they would probably be significant in the third phase of the study rather than in the first phase as is hypothesized. Figures 5 and 6 confirm these findings. The figures show a greater incidence of Exxon source types in the third phase in the presence of the two issue types, but this occurrence is not significant by phase.

For Exxon sources in Table IV, they do interact with economic (X^2=62.96, d.f.=1, p>.00001) and with legal issues (X^2=9 .07, d.f.=1, p>.0026), but not by phase. The only interaction of Exxon sources with environmental issues occurs in an interaction that includes Non-Exxon sources and economic issues (X^2=14.68, d.f.=1, p>.0001). Of course, the interaction is not by phase and bears no relevance to the tests of hypotheses three and four.

Hypothesis five, six and seven posit non-Exxon source by phase by issue type interaction for each of the three issues. The hypotheses state:

H_5: Non-Exxon sources will be more strongly associated with economic issue type in the crisis-resolution phase than in the crisis or precrisis phases.

H_6: Non-Exxon sources will be more strongly associated with environmental issue type in the crisis resolution phase than in the crisis or precrisis phases.

H_7: Non-Exxon sources will be more strongly associated with legal issue type in the crisis resolution phase than in the crisis or precrisis phases.

What each of these hypotheses tests is the idea that in times of crisis, Non-Exxon sources would be more likely to co-occur in stories in which each of the issues types occurs. After a crisis event the organization comes under greater scrutiny by the press (Paletz and Entman, 1981) and non-organizational sources come into significant relationship with each of the issue types.

An examination of Table IV shows no phase interactions with non-Exxon sources and any of the three issues types taken together, so the hypotheses are not supported. However, examination of the cross-tabulations for each of the three hypotheses show significant relationships among phase and issue types in the presence of non-Exxon sources. From Table VIII, Table IX, and X it is clear that the relationships are in the desired phase direction. Specifically, in all three cases the preponderance of stories with the three issues and non-Exxon sources is in the third phase (the crisis resolution phase).

The log-linear analysis does support, at least partially, the interactions posited by hypotheses five, six and seven. In Table IV there is a phase interaction with

non-Exxon sources (X^2=15.05, d.f.=2, p>.0005). This suggests that non-Exxon sources do occur in the predicted direction, namely most numerously in the third phase (the crisis resolution phase). Figures 7, 8 and 9 display these relationships graphically.

Of the three figures, Figure 7 is the most interesting because it displays crossed lines indicative of an interaction effect. Although not significant in the log-linear model, the figure clearly shows the decreased likelihood of a story not containing a non-Exxon source in the third phase. In phase one and phase two Figure 7 indicates non-Exxon sources are very likely not to occur.

Further examination of Table IV shows that there is also a Non-Exxon source interaction with each of the three issues types: 1) Economic issues (X^2=21.50, d.f.=1, p>.00001), 2) Environmental issues (X^2=85.50, d.f.=1, p>.00001), and 3) Legal issues (X^2=13.50, d.f.=1, p>.0002). Tables VIII, IX, and X confirm the direction and intensity of these relationships.

All of these significant relationships are strong two-way relationships. However, the three-way interaction of phase with non-Exxon sources and each of the three issue types does not occur in this log-linear model making all three hypotheses unsupported by the data.

The next two hypotheses (H_8 and H_9) test the idea that in the pre-crisis phase Exxon sources will be positively

TABLE VIII

NON-EXXON SOURCE BY PHASE BY ECONOMIC ISSUE INTERACTION[a]

	No non-Exxon sources			Non-Exxon sources			
	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Totals[b]
No economic issue	.42	3.45	16.12	1.41	4.00	8.23	170
Economic issue	99.58	96.55	83.88	98.59	96.00	91.77	1,736
Totals	236	29	546	71	125	899	1,906

[a] Test of H_5. The interaction is not significant in the log-linear model.

[b] Cell values expressed as column percents. Marginal values expressed as the frequency of mention of stories containing the variable types.

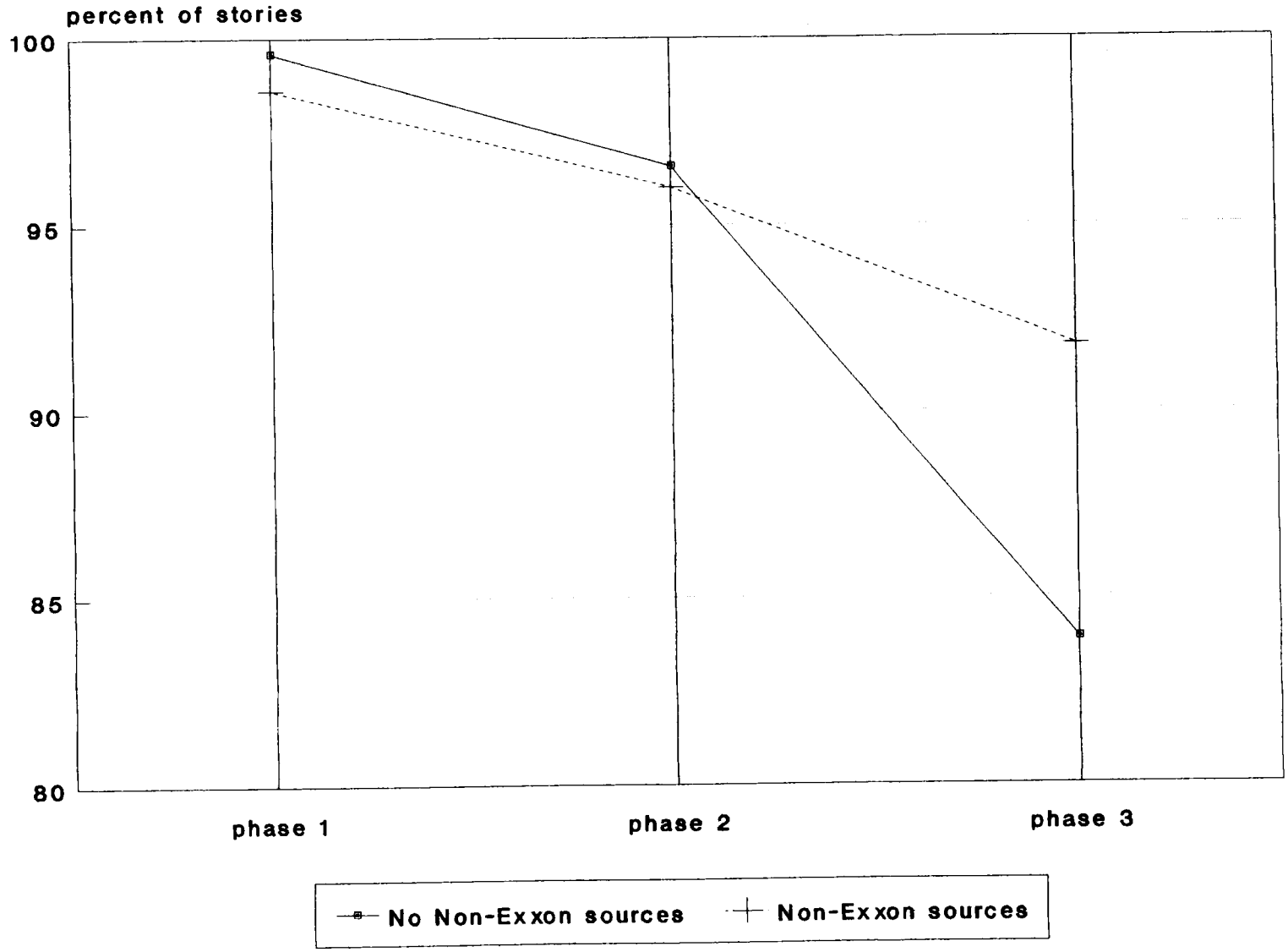


Figure 7. Percent of stories containing Non-Exxon sources by phase in the presence of economic issues (H_5).

TABLE IX

NON-EXXON SOURCE BY PHASE BY ENVIRONMENTAL ISSUE INTERACTION[a]

	No non-Exxon sources			Non-Exxon sources			
	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Totals[b]
No environ. issue	94.49	41.38	50.55	42.25	3.20	7.79	514
Environmental issue	5.51	58.62	49.45	57.75	96.80	92.21	1,392
Totals	236	29	546	44	47	385	1,906

[a] Test of H_6. The interaction is not significant in the log-linear model.

[b] Cell values expressed as column percents. Marginal values expressed as the frequency of mention of stories containing the variable types.

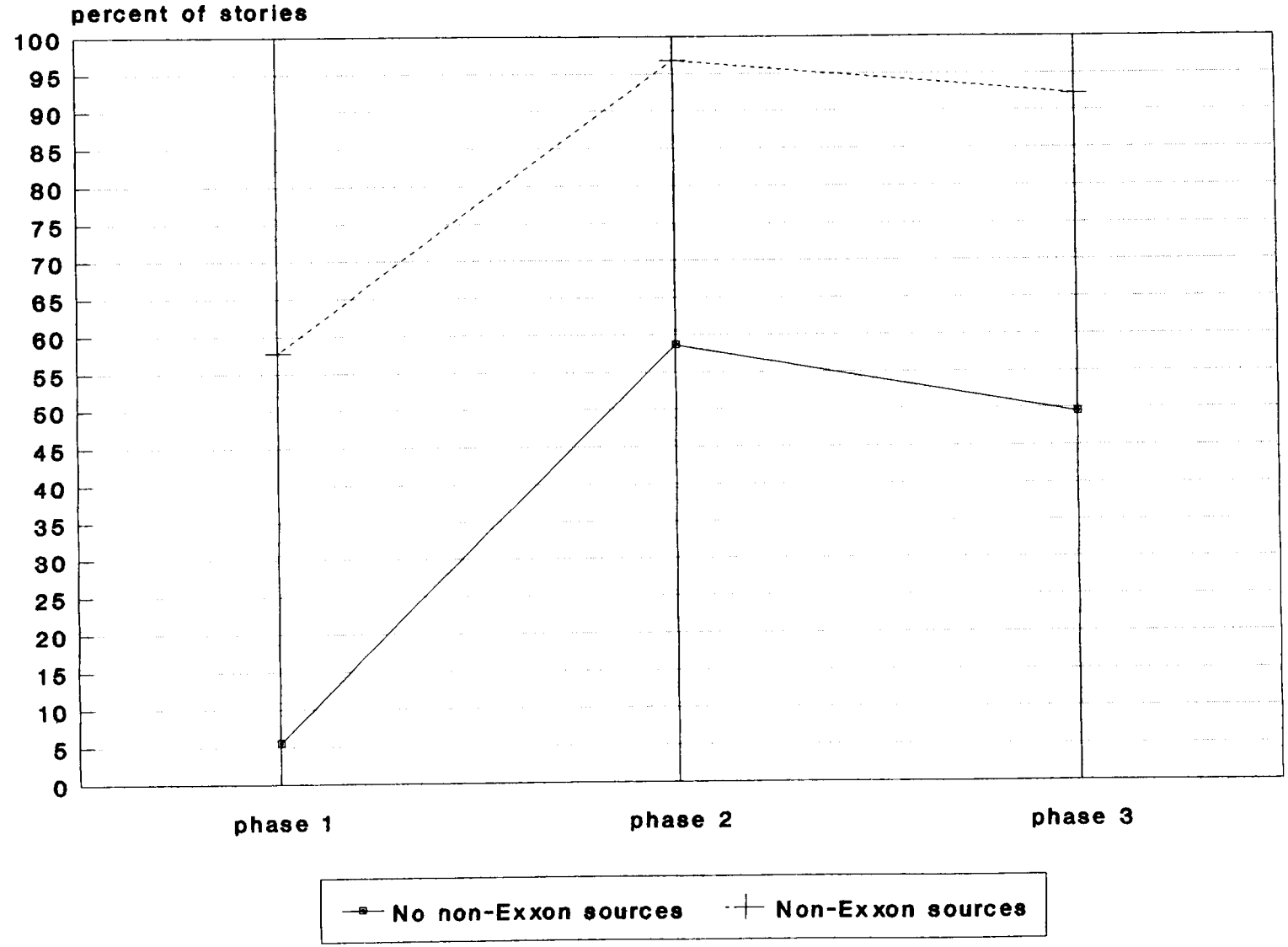


Figure 8. Percent of stories containing Non-Exxon sources by phase in the presence of environmental issues (H_6).

TABLE X

NON-EXXON SOURCE BY PHASE BY LEGAL ISSUE INTERACTION[a]

	No non-Exxon sources			Non-Exxon sources			
	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Totals[b]
No Legal issue	91.95	44.83	58.24	32.39	20.00	19.69	773
Legal issue	8.05	55.17	41.76	67.61	80.00	80.31	1,133
Totals	236	29	546	71	125	899	1,906

[a] Test of H_7. The interaction is not significant in the log-linear model.

[b] Cell values expressed as column percents. Marginal values expressed as the frequency of mention of stories containing the variable types.

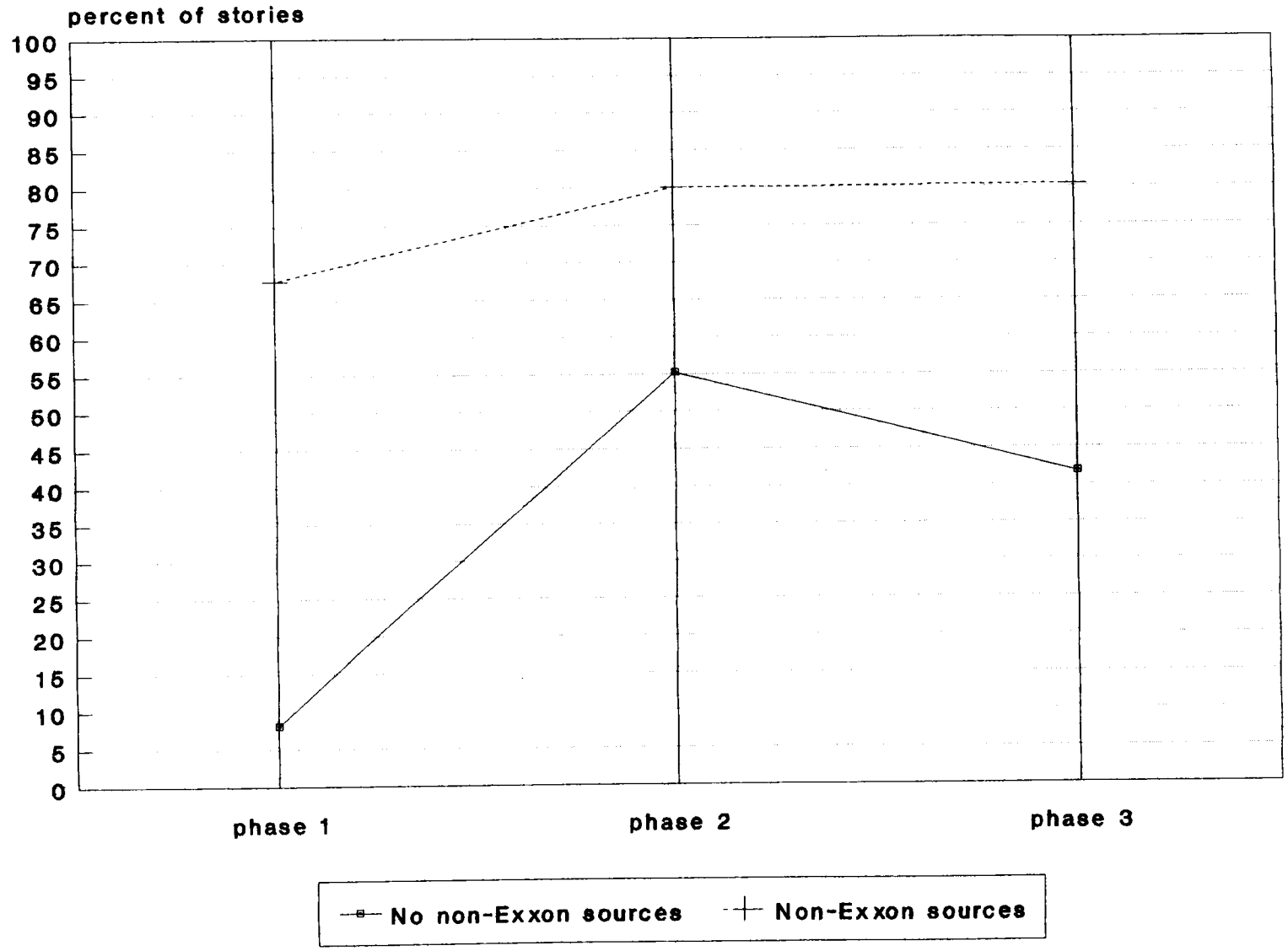


Figure 9. Percent of stories containing Non-Exxon sources by phase in the presence of legal issues (H_7).

related to the interaction of legal issues with other issues. Why? Because there is no active hedging (Grunig and Hunt, 1984) by the organization against the interaction of these issue types in a crisis event. Therefore, before a crisis event it would be expected that Exxon sources would occur in frequency in stories in which both of these pairs of issue types occur.

Non-Exxon sources, however, will be positively related to the interaction of legal issues with the other two issue types in phases after the precrisis phase (H_{10} and H_{11}).

The four hypotheses together state:

H_8: The three-way association among Exxon sources, legal issues, and economic issues will be greater during the precrisis phase than in subsequent phases.

H_9: The three-way association among Exxon sources, legal issues and environmental issues will be greater in the precrisis phase than in subsequent phases.

H_{10}: The three-way association of Non-Exxon sources, legal issues and environmental issues will be greater during the crisis resolution phase than in prior phases.

H_{11}: The three-way association of Non-Exxon sources, legal issues and environmental issues will be greater during the crisis resolution phase than in prior phases.

Finally in this series of hypotheses, stories in the crisis resolution phase would be expected to have greater frequencies of economic, environmental, and legal issues together than in prior phases. Therefore, the hypothesis is worded:

H_{12}: The three way association among Economic, Environmental, and Legal issues will be greater in the crisis resolution phase than in prior phases.

What this hypothesis tests then is a phase by environmental issue by economic issue by legal issue interaction. What this hypothesis seeks to demonstrate is that the three issue categories interact in periods of time after a crisis event.

An examination of Table IV shows that the interactions implied by all five hypotheses are not significant. However, each of the hypotheses is significant without phase as a variable in the interaction. Each hypothesis will now be discussed in turn by first presenting cross-tabulations that show the failed four-way interactions. Each four-way table will then be followed by the relevant three-way table

or four-way table that is significant in the log-linear analysis.

H_8 tests for an Exxon source by phase by economic issue by legal issue interaction. The results of that test are displayed in Table XI-A and Figure 10. In examining the 24 cell matrix in Table XI-A, it is clear that two of the cells are empty, four contain only 1 observation, and two contain only two observations. There is clearly not enough evidence to test the hypothesis under consideration. Figure 10 confirms this suspicion. The left-hand side of the figure shows that when economic issues are not present, Exxon sources are likely to not be present as well. There is very little data present from which to construct a test.

Also shown as significant in the log-linear model is the high order, four-way interaction of Exxon sources, non-Exxon sources, economic issues and legal issues. This relationship is displayed in Table XI-B and Figure 11. From this table the four-way relationship comes into sharper focus. A number of interesting relationships are observed here. The most important of these relationships appears to be that when legal and economic issues occur together they are more likely to be found together in the presence of non-Exxon sources alone (n=568) than in the presence of Exxon sources alone (n=46). This is quite a large disparity in coverage. Recalling that this analysis is for the entire time period of the study regardless of phase, then it

TABLE XI-A

EXXON SOURCE BY PHASE BY LEGAL ISSUE BY ECONOMIC ISSUE INTERACTION[a]

		No Exxon sources			Exxon sources			
		Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Totals[b]
No Econ. Issue	No legal Issue	1 .003	2 1.87	65 6.13	1 2.27	1 2.13	39 10.13	109
	Legal Issue	0 00.00	2 1.87	24 2.26	0 00.00	1 2.13	34 8.83	61
Econ. Issue	No legal Issue	212 80.61	29 27.10	330 31.13	26 59.09	6 12.28	61 15.84	664
	Legal Issue	50 19.01	74 69.16	641 60.47	17 38.64	39 82.98	251 65.15	1,072
Totals		263	107	1,060	44	47	385	1,906

[a] Test of H_8. The interaction is not significant in the log-linear model.

[b] Cell values expressed first as the frequency of stories and then as column percents. Marginal values expressed as the frequency of mention of stories containing the variable types.

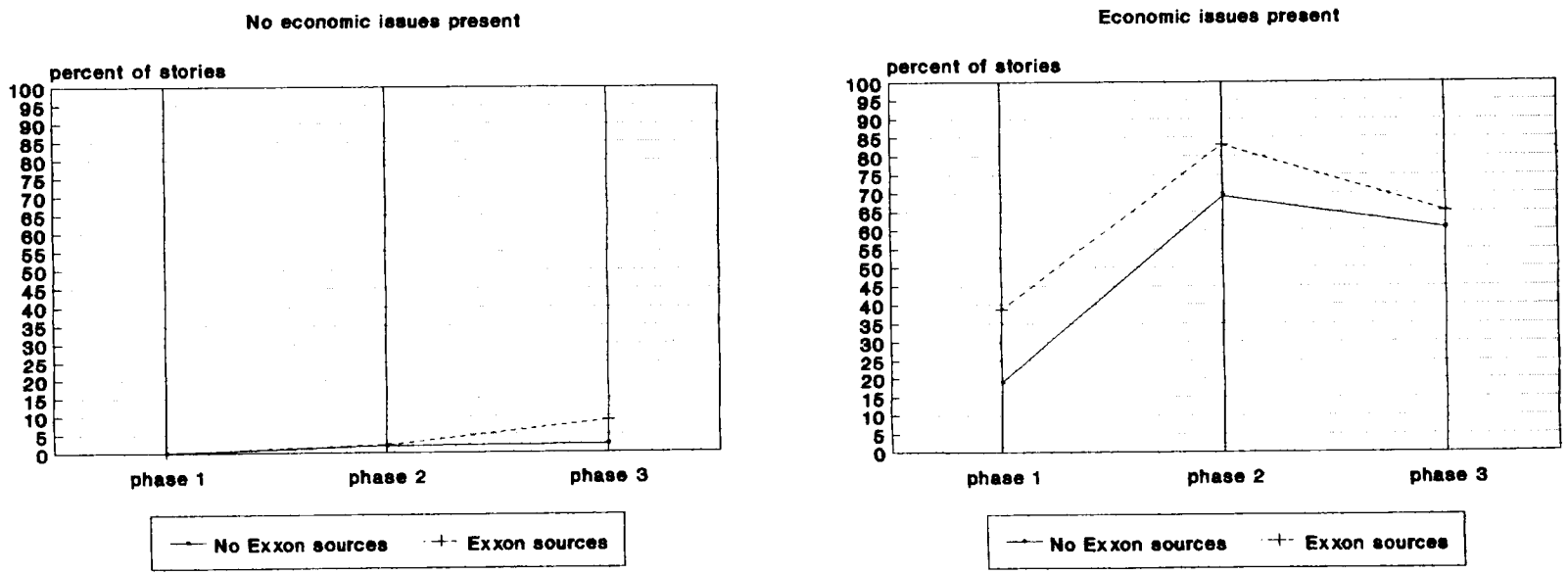


Figure 10. Percent of stories containing Exxon sources by phase in the presence or absence of economic issues and in the presence of legal issues (H_8).

TABLE XI-B

EXXON SOURCE BY NON-EXXON SOURCE BY LEGAL ISSUE BY ECONOMIC ISSUE INTERACTION[a]

		No Exxon sources		Exxon sources		
		No Legal Issue	Legal Issue	No Legal Issue	Legal Issue	Totals[b]
No non-Exxon Sources	No econ. Issue	50 7.82	10 1.26	20 14.92	20 5.68	100
	Econ. Issue	444 69.48	197 24.90	34 25.37	46 13.07	721
Non-Exxon Sources	No econ. Issue	18 2.82	16 2.02	21 15.67	25 7.10	80
	Econ. Issue	127 19.87	568 71.81	59 44.03	261 74.15	1,095
Totals		639	791	134	352	1,906

[a] Unexpected interaction from the log-linear model: X^2=14.68, d.f.=1, p>.0001.

[b] Cell values expressed as column percents. Marginal values expressed as the frequency of mention of stories containing the variable types.

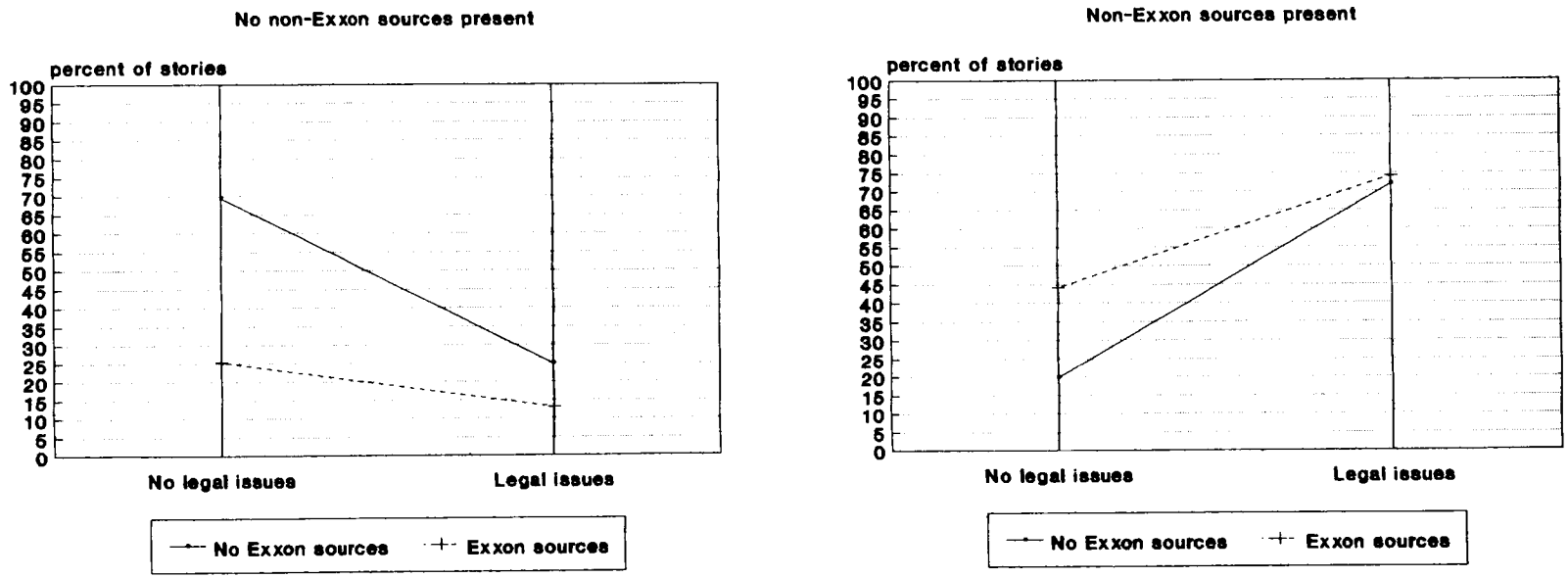


Figure 11. Percent of stories containing Exxon sources and non-Exxon sources in the presence or absence of legal issues and in the presence of economic issues (Unexpected interaction).

becomes clear that AP Wire places a much greater emphasis on non-Exxon source types when these two issues interact than it does on Exxon source types. Figure 11 confirms these relationships. In the figure it is clear that the four issues are more likely to occur together in the presence of economic issues (right-hand side of the figure) than in the absence of economic issues (left-hand side of the figure). The implication is clear: The issues do tend to occur together in the presence of the two issue types.

This relationship is in the predicted direction although it is still not in the expected phase direction on a source by source basis. It is recalled from the hypothesis test that it was expected that Exxon source types would, in times of no crisis, have associations with legal and economic issues. It was expected that this relationship would not be true in subsequent phases.

These results confirm a level of association of Exxon source types with the interaction of legal and economic issues. However, the relationship holds true for the entire data set in the attention cycle rather than in specific phases imbedded in the attention cycle.

The next set of tables display data associated with the test of H_9. Table XII-A and Figure 12 display the data in the four-way interaction of Exxon sources, phase, environmental issues and legal issues predicted by the hypothesis test. It was felt that Exxon sources could be

TABLE XII-A

EXXON SOURCE BY PHASE BY LEGAL ISSUE BY ENVIRONMENTAL ISSUE INTERACTION[a]

		No Exxon sources			Exxon sources			
		Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Totals[b]
No Envi. Issue	No legal Issue	202 76.81	12 11.21	248 23.40	18 40.91	1 2.13	32 8.31	513
	Legal Issue	29 11.03	3 2.80	58 5.47	4 9.09	0 00.00	8 2.08	102
Envi. Issue	No legal Issue	11 4.18	19 17.76	147 13.87	9 20.45	6 12.76	68 17.66	260
	Legal Issue	21 7.98	73 68.22	607 57.26	13 29.54	40 85.11	277 71.95	847
Totals		263	107	1,060	44	47	385	1,906

[a] Test of H_9. The interaction is not significant in the log-linear model.

[b] Cell values expressed first as the frequency of stories and then as column percents. Marginal values expressed as the frequency of mention of stories containing the variable types.

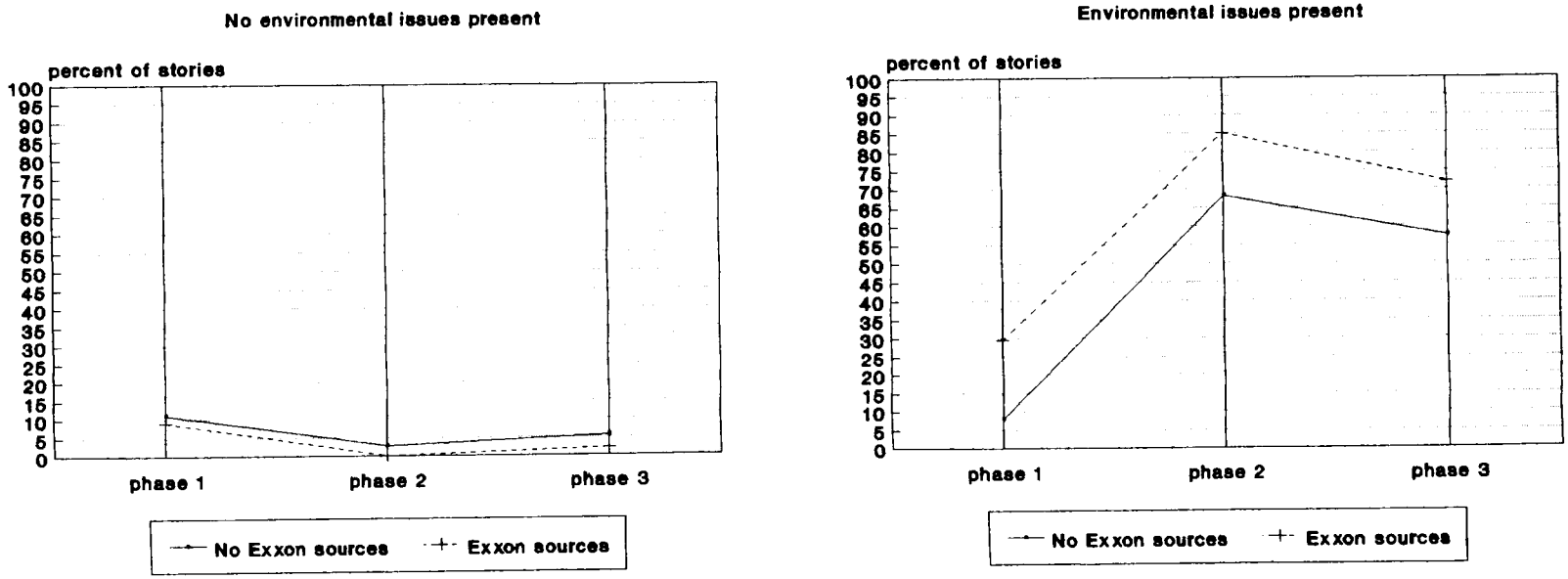


Figure 12. Percent of stories containing Exxon sources by phase in the presence or absence of environmental issues and in the presence of legal issues (H_9).

TABLE XII-B

EXXON SOURCE BY NON-EXXON SOURCE BY LEGAL ISSUE BY ENVIRONMENTAL ISSUE INTERACTION[a]

		No Exxon sources		Exxon sources		
		No Legal Issue	Legal Issue	No Legal Issue	Legal Issue	Totals[b]
No non-Exxon Sources	No envi. Issue	440 68.86	36 4.55	30 22.39	5 1.46	511
	Envi. Issue	54 8.45	171 21.62	24 17.91	51 14.91	300
Non-Exxon Sources	No envi. Issue	22 3.44	54 6.83	21 15.67	7 2.05	104
	Envi. Issue	123 19.25	530 67.00	59 40.03	279 81.58	1,095
Totals		639	791	134	352	1,906

[a] Partial test of H_9 and H_{11}. $X^2=14.00$, d.f.=1, $p>.0002$.

[b] Cell values expressed as column percents. Marginal values expressed as the frequency of mention of stories containing the variable types.

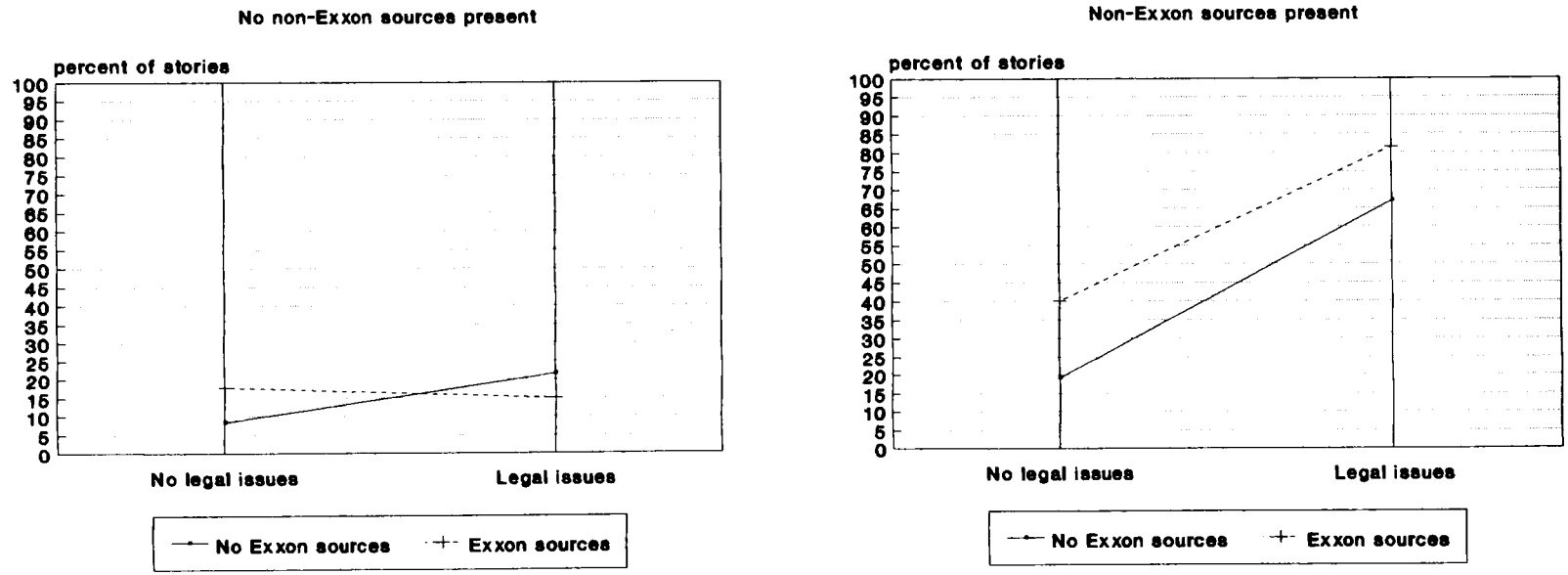


Figure 13. Percent of stories containing or not containing Exxon sources and non-Exxon source in the presence or absence of legal issues and in the presence of environmental issues (Partial test of H_9 and H_{11}).

expected to be strongly associated with this issue interaction in the pre-crisis phase and would be less associated with the issue interaction in the subsequent phases. As has been stated, the interaction is not significant in the log-linear model.

It is clear from the table that there is much more data to test than was the case with H_8. Only one cell is completely empty. Of the 24 cells in the matrix, six other cells have values of less than ten. As in the test of H_8 there appears to be insufficient data for a test. Even if there would be sufficient data for the test the table shows that the greatest frequency of issue and source association is in the third phase of the study and not in the first phase as was anticipated. Figure 12 shows that the greatest frequency of Exxon sources can be expected in the second and third phases in relationship to the two issue types.

In Table IV however, there appears to be sufficient data to support an Exxon source by Non-Exxon source by legal issue by environmental issue interaction. This interaction is displayed in Table XII-B and Figure 13.

It is clear from the table and the figure that when legal issues and environmental issues are found together, Exxon and non-Exxon sources are also found (n=279 stories). However, legal issues and environmental issues are more likely to occur with non-Exxon sources in the absence of Exxon sources (n=530).

What remains clearest about the four-way interaction of the variable types is the strong emphasis in AP Wire copy on the use of non-institutional sources in the presence of environmental and legal issues types. Both source types have a positive relationship with the occurrence of the two issue types. The non-Exxon source occurrence is simply a more numerous one.

Table XIII and Figure 14 display the data associated with the test of H_{10}. The four-way interaction of Non-Exxon sources, phase, legal issues and economic issues is not significant in the log-linear model displayed in Table IV.

An examination of Table XIII shows that it contains three empty cells, three cells that contain only one observation, one cell with only two observations, and one cell with only three observations. That is a total of 8 cells with insufficient levels of observations to test the proposition. Therefore, the test of the hypothesis suffers from a lack of data to support the four-way interaction. The right-hand side of Figure 14 confirms this lack of data to support the proposition.

Referring back to the four-way interaction in Table XI-B, the interaction of Exxon and non-Exxon sources with legal and economic issue types, it is clear that the positive relationship of non-Exxon sources to the co-occurence of economic issues and legal issues continues. Legal and economic issues are more likely to occur in the presence of

TABLE XIII

NON-EXXON SOURCE BY PHASE BY LEGAL ISSUE BY ECONOMIC ISSUE INTERACTION[a]

		No non-Exxon sources			Non-Exxon sources			
		Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Totals[b]
No econ. Issue	No legal Issue	1 .004	0 00.00	69 12.64	1 1.41	3 2.40	35 3.89	109
	Legal Issue	0 00.00	1 3.45	19 3.48	0 00.00	2 1.60	39 4.34	61
Econ. Issue	No legal Issue	216 91.52	13 44.83	249 45.60	22 30.98	22 17.60	142 15.79	664
	Legal Issue	19 8.05	15 51.72	209 38.28	48 67.60	98 78.40	683 75.97	1,072
Totals		236	29	246	71	125	899	1,906

[a] Test of H_{10}. The interaction is not significant in the log-linear model.

[b] Cell values expressed first as the frequency of stories and then as column percents. Marginal values expressed as the frequency of mention of stories containing the variable types.

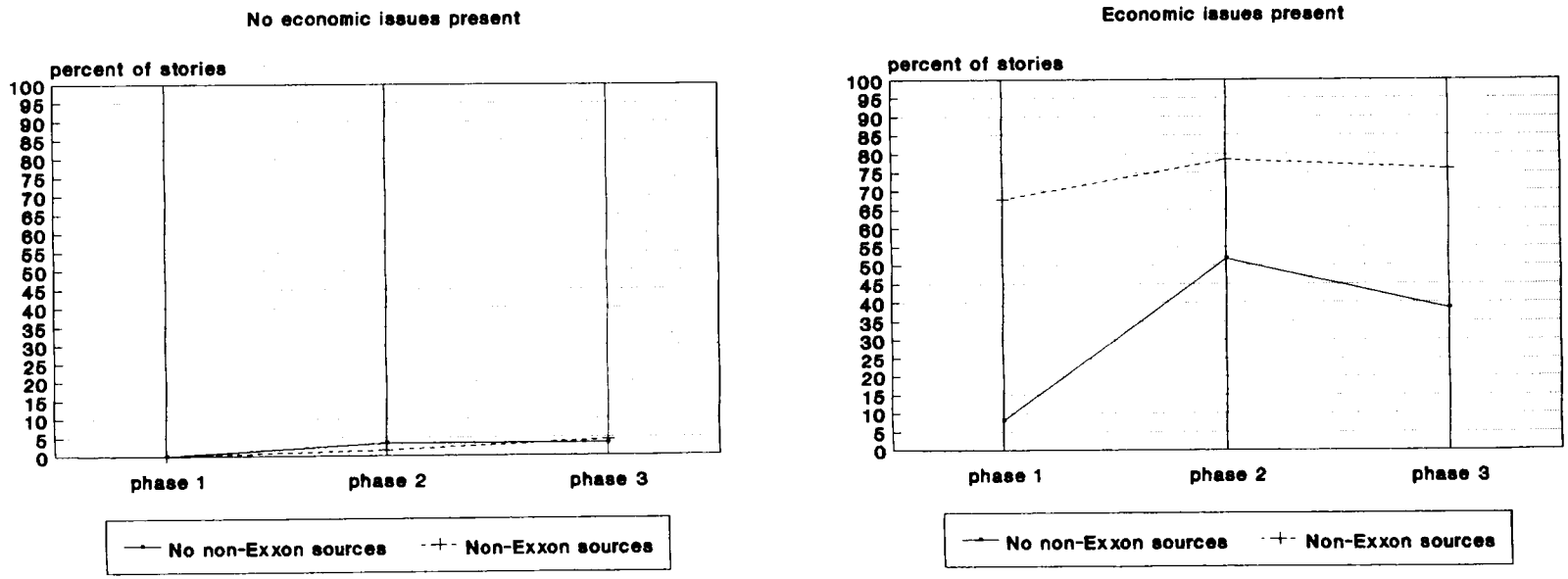


Figure 14. Percent of stories containing Non-Exxon sources by phase in the presence or absence of economic issues and in the presence of legal issues (H_{10}).

non-Exxon sources (n=568) than in the absence of non-Exxon sources (n=197).

Table XIV and Figure 15 display the data testing hypothesis eleven. The four-way interaction of non-Exxon sources, phase, legal issues and environmental issues posited by H_{11} is not significant. Of the 24 cells in the matrix, four have values of less than five. There are a large number of stories in which all of the variables occur in the third phase as hypothesized (n=682). However, this interaction is not significant by phase in the log-linear model. Figure 15 confirms a lack of data in the absence of environmental issues in the second and third phases.

Table XII-B displayed the results of an Exxon source by Non-Exxon source by legal issue by environmental issue interaction. The results of that interaction have already been discussed.

Thus, in the presence or absence of Exxon sources the strong positive relationship of Non-Exxon sources and the two issue types occurs as hypothesized. But the interaction is significant without phase as a significant variable in the relationship. The significance of this unexpected four-way interaction is clear: AP Wire associates two source types with issue coverage.

TABLE XIV

NON-EXXON SOURCE BY PHASE BY LEGAL ISSUE BY ENVIRONMENTAL ISSUE INTERACTION[a]

		No non-Exxon sources			No non-Exxon sources			
		Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Totals[b]
No Envi. Issue	No legal Issue	209 88.56	11 37.93	250 45.79	11 15.49	2 1.60	30 3.34	513
	Legal Issue	14 5.93	1 3.45	26 4.76	19 26.76	2 1.60	40 4.45	102
Envi. Issue	No legal Issue	8 3.39	2 6.89	68 12.45	12 16.90	23 18.40	147 16.35	260
	Legal Issue	5 2.12	15 51.72	202 36.99	29 40.84	98 78.40	682 75.86	1,031
Totals		236	29	546	71	125	899	1,906

[a] Test of H_{11}. The interaction is not significant in the log-linear model.

[b] Cell values expressed first as the frequency of stories and then as column percents. Marginal values expressed as the frequency of mention of stories containing the variable types.

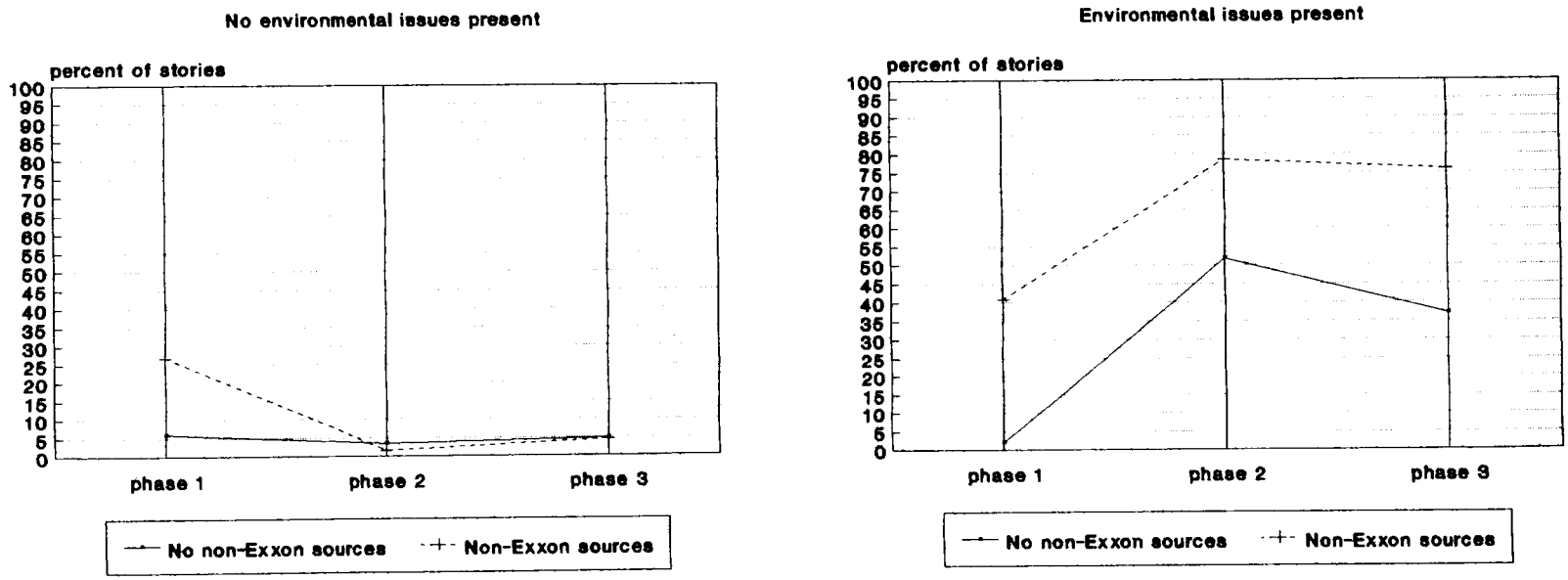


Figure 15. Percent of stories containing or not containing Non-Exxon sources by phase in the presence or absence of environmental issues and in the presence of legal issues (H_{11}).

This result clearly shows that AP Wire does introduce both sides of the story into their coverage even if that coverage is dominated by non-institutional sources. What is also interesting here is that the coverage is irrespective of phase suggesting continuous coverage regardless of crisis events.

The final hypothesis in this series, H_{12}, posits a four-way interaction of each issue type with phase as a variable. The results of the test are displayed in Table XV-A and Figure 16, and they are not significant in the log-linear model by phase. An examination of the table shows that fully four of the 24 cells have null values. Of the remaining cells, six have values of less than five. Therefore, there is not enough data to support the hypothesis in relationship to the phase variable.

Figure 16 shows the environmental issues are more likely to co-occur with legal and economic issues in the third phase. The figure shows that when legal issues are not present, the other two issue types are less likely to be present in the second and third phases, but more likely to be present in the first phase.

TABLE XV-A

PHASE BY ECONOMIC ISSUE BY ENVIRONMENTAL ISSUE BY LEGAL ISSUE INTERACTION[a]

		No environmental issues			Environmental issues			
		Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Totals[b]
No legal Issue	No Econ. Issue	1 .004	0 00.00	76 15.35	0 00.00	0 00.00	4 .004	81
	Econ. Issue	219 91.25	13 34.21	204 41.21	33 49.25	3 2.58	62 6.53	534
Legal Issue	No Econ. Issue	1 .004	3 7.89	28 5.65	0 00.00	3 2.588	54 5.68	89
	Econ. Issue	19 7.91	22 57.89	187 37.78	34 50.75	110 94.84	830 87.37	1,202
Totals		240	38	495	67	116	950	1,906

[a] Test of H_{12}. The interaction is not significant in the log-linear model.

[b] Cell values expressed first as the frequency of stories and then as column percents. Marginal values expressed as the frequency of mention of stories containing the variable types.

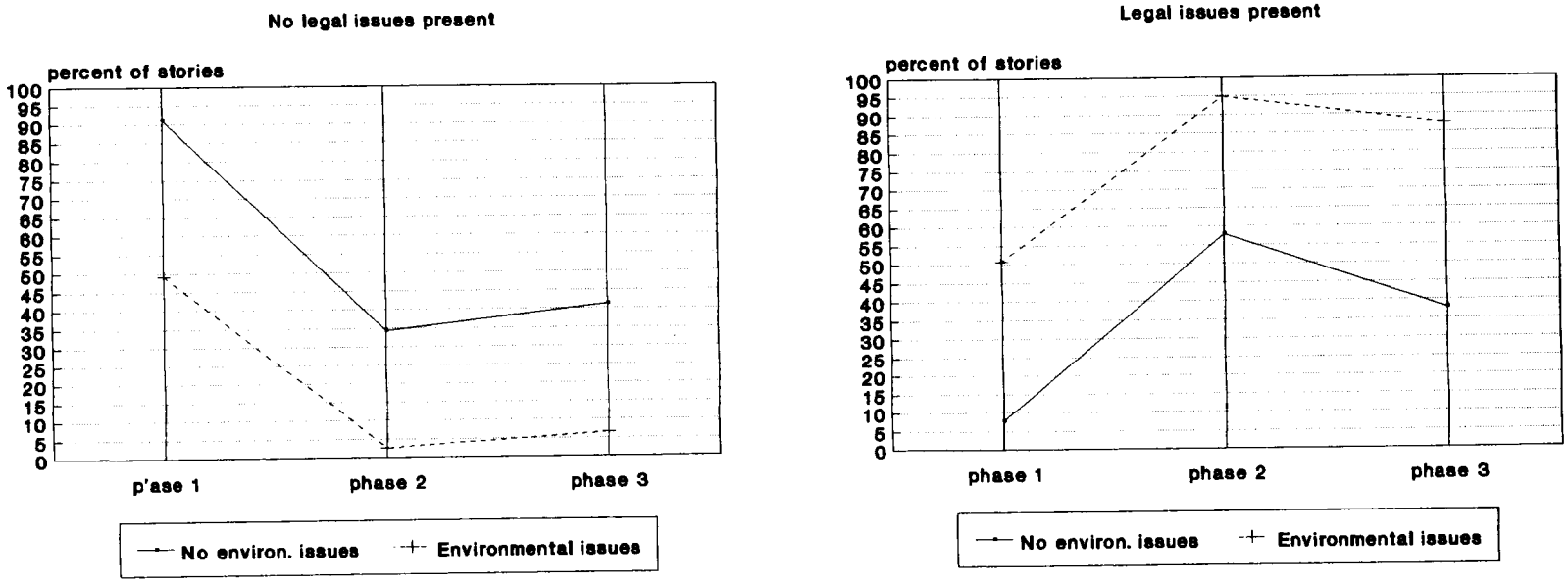


Figure 16. Percent of stories by phase containing or not containing environmental issues and legal issues in the presence of economic issues (H_{12}).

Two related interactions are significant in the log-linear model. The four-way interaction of non-Exxon sources economic issues, environmental issues, and legal issues is significant (X^2=21.80, d.f.=1, p>.00001). The lower order three-way interaction of the three issue types is also significant in the log-linear model (X^2=12.86, d.f.=1, p>.0003).

The result of the four-way interaction is displayed in Table XV-B and Figure 17. The table very clearly shows the strong positive relationship among the three issues types. But legal and economic issues appear to be more strongly related than legal and environmental or environmental and economic. It is clear from the table that environmental issues are more likely to occur with economic issues in the presence of legal issues and non-Exxon sources (n=769) than in the absence of legal issues in the presence of non-Exxon sources (n=162). Figure 17 very clearly shows this relationship.

In the left-hand side of Figure 17, in the absence of economic issues, legal issues are very likely to not be present when controlling for the presence of environmental issues and the absence of non-Exxon sources. When non-Exxon sources are present and economic issue are present, the

TABLE XV-B

NON-EXXON SOURCE BY ECONOMIC ISSUE BY LEGAL ISSUE BY ENVIRONMENTAL ISSUE INTERACTION[a]

		No non-Exxon sources		Non-Exxon sources		
		No Legal Issue	Legal Issue	No Legal Issue	Legal Issue	Totals[b]
No Economic Issues	No envi. Issue	58 10.58	3 1.14	19 8.44	1 .001	81
	Envi. Issue	12 2.19	17 6.46	20 8.89	40 4.60	89
Economic Issues	No envi. Issue	412 75.18	38 14.45	24 10.67	60 6.89	534
	Envi. Issue	66 12.04	205 77.95	162 72.00	769 88.39	1,202
Totals		548	263	225	870	1,906

[a] Unexpected interaction in the log-linear model: X^2=21.80, d.f.=1, p>.00001.

[b] Cell values expressed as column percents. Marginal values expressed as the frequency of mention of stories.

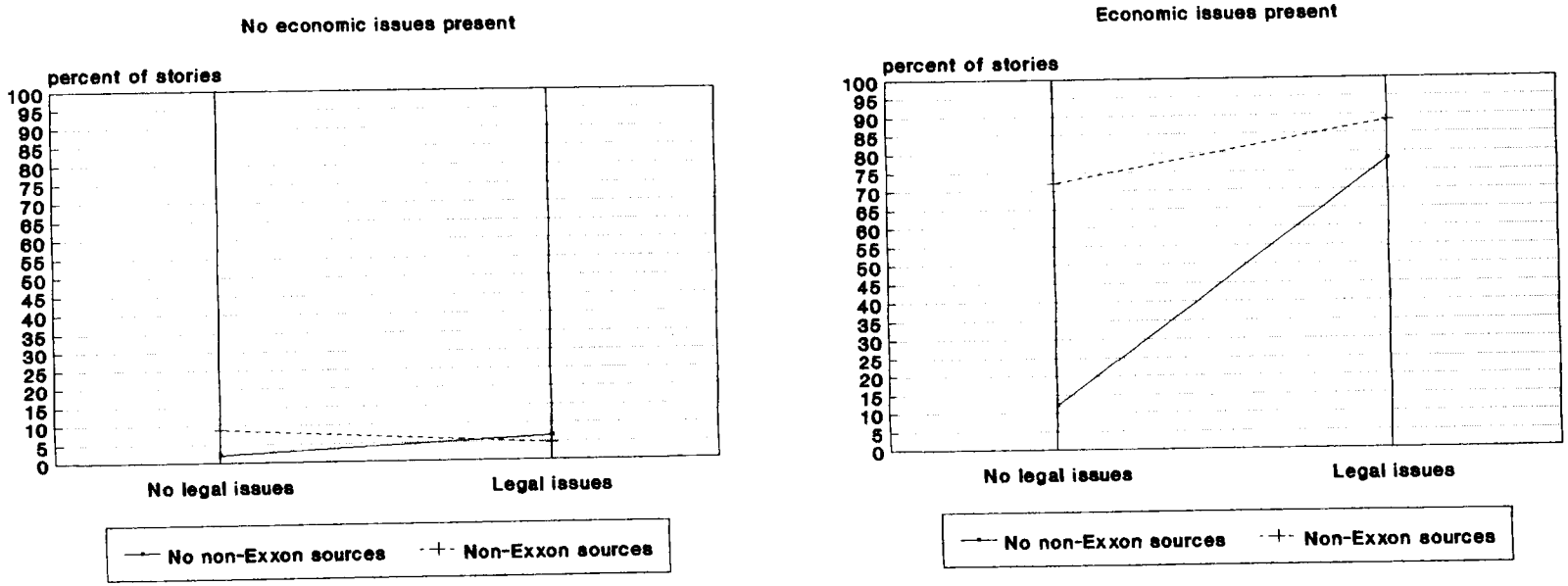


Figure 17. Percent of stories containing or not containing Non-Exxon source in the presence or absence of economic issue and legal issues in the presence of environmental issues (Unexpected interaction).

figure shows a very strong likelihood that legal issues will be present. But, as has been noted, this interaction is not significant when phase is one of the interactive variables.

Unpredicted relationships

In summarizing this portion of the study, it can be said that none of the predicted phase interactions occurred. However, both source types did interact with phase in a three-way interaction in the log-linear model that is significant (X^2=6.76, d.f.=2, p>.0341). Additionally, for the phase variable in Table IV, there are phase interactions with environmental issues (X^2=146.80, d.f.=2, p>.00001), and legal issues (X^2=14.39, d.f.=2, p>.0007). These phase interactions are interesting and could be anticipated prior to the analysis, although no specific hypothesis tests were offered for them. Finally, one other four-way interaction that was not predicted by the hypotheses tests is found in the model. The interaction of Exxon sources by non-Exxon sources by economic issues by environmental issues is significant (X^2=20.84, d.f.=1, p>.00001).

The unexpected three-way interaction of phase and both of the source types is displayed in Table XVI-A and figure 18. From the table it is clear that more often than not, Exxon sources do not occur frequently in AP Wire newscopy regardless of phase (n=476 vs. n=1,430).

TABLE XVI-A

PHASE BY EXXON SOURCE BY NON-EXXON SOURCE INTERACTION[a]

	Phase One		Phase Two		Phase Three		
	No Non-Exxon Sources	Non-Exxon Sources	No Non-Exxon Sources	Non-Exxon Sources	No Non-Exxon Sources	Non-Exxon Sources	Totals[b]
No Exxon sources	90.25	70.42	93.10	64.00	84.43	66.63	1,430
Exxon Sources	9.75	29.58	6.90	36.00	15.57	33.37	476
Totals	236	71	29	125	546	899	1,906

[a] Unexpected result from the log-linear analysis. $X^2=6.76$, d.f.=2, $p>.0341$

[b] Cell values expressed as column percents. Marginal values expressed as the frequency of mention of stories containing the variable types.

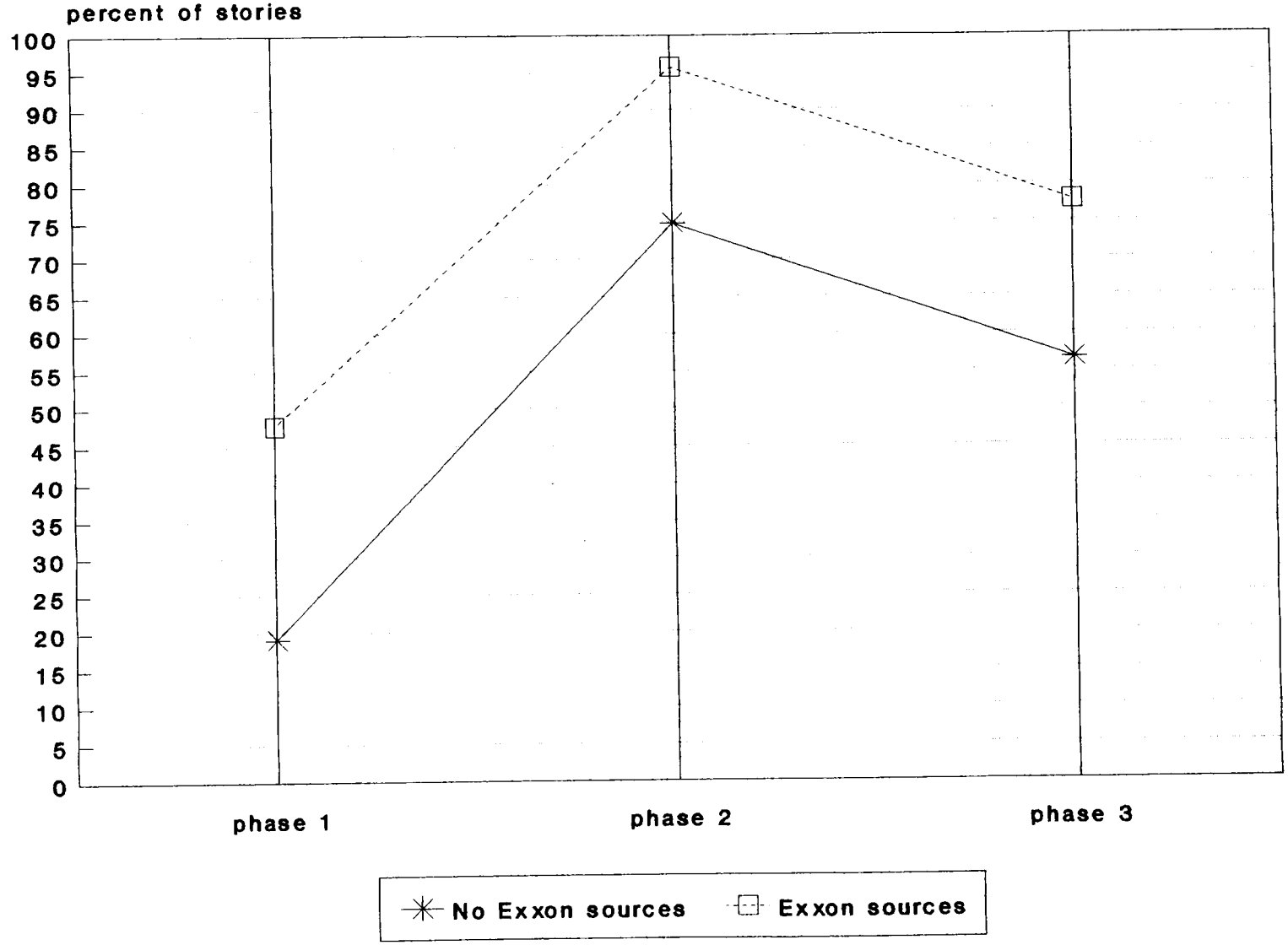


Figure 18. Percent of stories by Phase containing or not containing non-Exxon sources in the presence of Exxon sources (Unexpected interaction).

Additionally, in examining the row percentages it is possible to see that Exxon sources are quite unlikely to occur alone in the absence of non-Exxon sources (phase 1, 9.75 percent; phase 2, 6.90 percent; phase 3, 15.57 percent), but are more likely to occur alone in the third phase than prior phases. Figure 18 illustrates this relationship well. In the figure it is clear that Exxon sources are used in a much greater frequency in relationship to non-Exxon sources in the crisis phase and the resolution phase. Fully 95 percent of the stories in the second phase have Exxon sources occurring the presence of non-Exxon sources.

In addition to this unpredicted phase interaction, two issue types interact with phase: Environmental issues and legal issues. These unique two-way interactions are displayed in Tables XVI-B and XVI-C. As would be expected and as the tables indicate, both issue types occur relatively infrequently in phase one and with relatively high frequency in phases two and three. Clearly after the crisis event the news coverage of the organization shifts from largely an economic coverage to a coverage that is characterized by high levels of environmental and legal issues coverage.

The four-way interaction of Exxon sources, non-Exxon sources, economic issues and environmental issues is displayed in Table XVII and Figure 19.

TABLE XVI-B

PHASE BY ENVIRONMENTAL ISSUE INTERACTION[a]

	Phases			
	Phase One	Phase Two	Phase Three	Totals[b]
No Environmental Issues	82.41	10.39	23.94	615
Environmental Issues	17.79	89.61	76.06	1,291
Totals	307	154	1,445	1,906

[a] Unexpected result from the log-linear analysis. X^2=146.80, d.f.=2, p>.00001

[b] Cell values expressed as column percents. Marginal values expressed as the frequency of mention of stories containing the variable types.

TABLE XVI-C

PHASE BY LEGAL ISSUE INTERACTION[a]

	Phases			
	Phase One	Phase Two	Phase Three	Totals[b]
No Legal Issues	78.18	24.68	34.26	773
Legal Issues	21.82	75.32	65.74	1,133
Totals	307	154	1,445	1,906

[a] Unexpected result from the log-linear analysis. $X^2=14.39$, d.f.=2, $p>.0007$

[b] Cell values expressed as column percents. Marginal values expressed as the frequency of mention of stories containing the variable types.

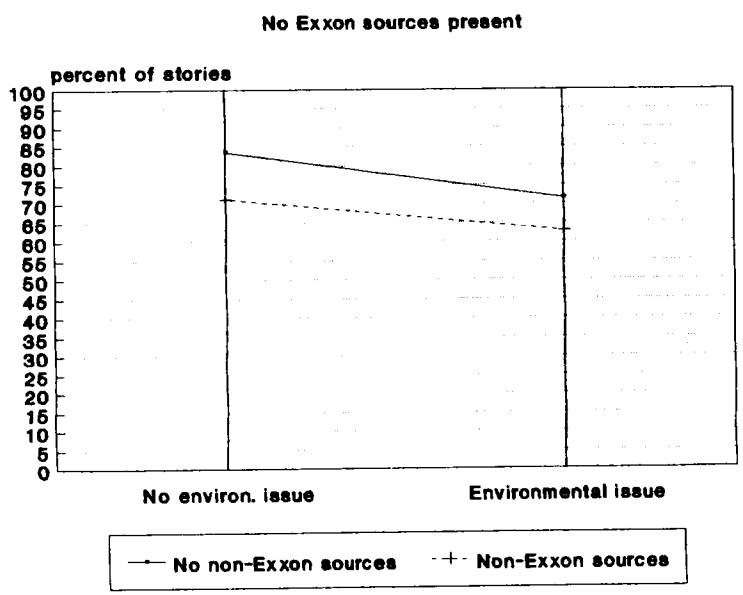
TABLE XVII

EXXON SOURCE BY NON-EXXON SOURCE BY ECONOMIC ISSUE BY ENVIRONMENTAL ISSUE INTERACTION[a]

		No non-Exxon sources		Non-Exxon sources		
		No Envi. Issue	Envi. Issue	No Envi. Issue	Envi. Issue	Totals[b]
No Exxon Sources	No econ. Issue	49 9.58	11 3.67	2 1.92	32 3.23	94
	Econ. Issue	427 83.56	214 71.33	74 71.15	621 62.66	1,336
Exxon sources	No econ. Issue	12 2.35	18 6.00	18 17.31	28 2.82	76
	Econ. Issue	23 4.50	57 19.00	10 9.61	310 31.28	400
Totals		511	300	104	991	1,906

[a] Unexpected interaction in the log-linear model: $X^2=20.84$, d.f.=1, p>.00001.

[b] Cell values expressed as column percents. Marginal values expressed as the frequency of mention of stories.



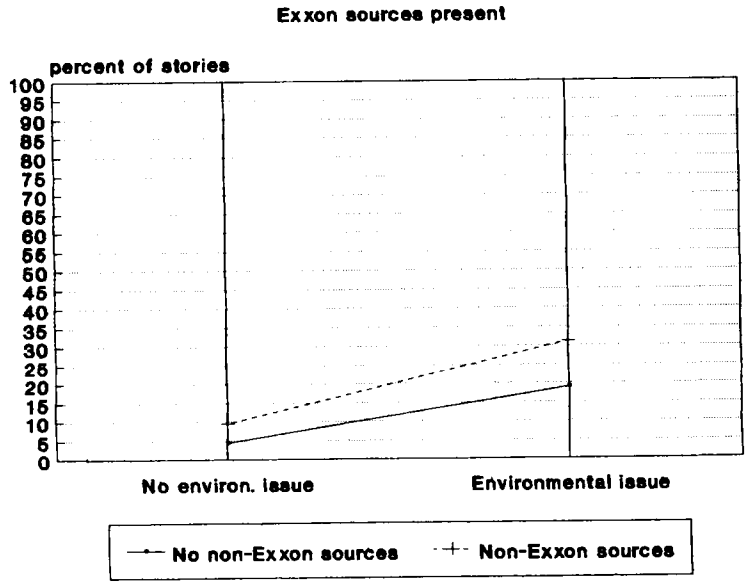


Figure 19. Percent of stories containing or not containing Exxon sources or non-Exxon sources in the presence or absence of environmental issues in the presence of economic issues (Unexpected interaction).

Reading the second row of Table XVII, it is clear that in the absence of Exxon sources in the presence of economic issues, stories in AP Wire quite consistently place emphasis on non-Exxon sources when reporting economic and environmental issues. What is interesting from the table is that when non-Exxon sources are present in relationship to the two issue types, Exxon sources are more likely to also be present (n=310) than when non-Exxon sources are not present (n=57). Additionally, non-Exxon sources are more likely to be present in relationship to the occurrence of the two issue types without Exxon sources (n=612) than with Exxon sources (n=310).

Figure 19 shows that in the absence of Exxon sources, there is quite a large percentage of the 1,906 stories that contain environmental issues and economic issues. When Exxon sources are present, as the right-hand side of the diagram indicates, relatively few stories in the sample contain both of the issue types.

Maximum likelihood analysis of variance controlling for phase interaction

The phases of this study did not interact with any of the issue variables in the predicted direction. Therefore, the theory that the association of issue types and source types can be expected to interact in predictable ways with

the phases of this study is not supported by the data. However, both source types did interact with phase in a three-way interaction in the log-linear model that is significant (X^2=6.76, d.f.=2, p>.0341). Additionally, the frequency of stories in the third phase and the related increase in issue occurrence during the third phase suggests that the phase divisions had the opportunity to be significant in the phase interactive log-linear model. These large frequencies suggest that the phase interactive hypotheses could be significant if control for phase as a variable were possible.

This level of control by phase is accomplished by the construction a log-linear model for each phase of the study. In the context of this current study for example, if the interactions posited in H_2 through H_{12} are true, then they would be significant in the phase in which they are posited to be significant and not significant in the phases in which they are posited to not be significant.

For the series of tests that posit interaction in the first phase, H_2, H_3, H_4, H_8 and H_9 would be true only if they are significant in the first phase maximum-likelihood analysis of variance. H_5, H_6, H_7, and H_{10} through H_{12} would be true if they are significant in the third phase maximum-likelihood analysis of variance. A phase two model will also be constructed for descriptive purposes only.

What follows here is a hypothesis by hypothesis test using the three maximum likelihood analysis of variance models. Tables will be presented for all hypotheses and for all unique interactions found to be significant in the models.

Controlling for phase interaction

Using the same procedures used in the model constructed for the entire time period of the study, three log-linear models were developed, one model for each phase. The first model, displayed in Table XVIII, tests an Exxon source by non-Exxon source by economic issue by environmental issue by legal issue interaction in the context of the first phase of the study. There were 307 total stories in the phase. All of the stories selected for this sample were AP Wire stories.

The second model, displayed in Table XIX, tests the same five-way interaction in the context of the second phase of the study. There were 154 stories in this phase. All of the stories selected for the sample were AP Wire stories.

The Third model, displayed in Table XX, tests an Exxon source by non-Exxon source by economic issue by environmental issue by legal issue by wire service interaction. There were 1,445 stories in this phase. Forty-three of these stories are Business Wire stories.

TABLE XVIII

MAXIMUM LIKELIHOOD ANALYSIS OF VARIANCE FOR PHASE 1

Source	df	Chi-square	Prob.
Exxon source	1	60.98	.0000
Non-Exxon source by legal issue	1	24.61	.0000
Economic issue	1	41.09	.0000
Environmental issue	1	7.26	.0071
Exxon source by environmental issue	1	28.42	.0000
Non-Exxon source by environmental issue	1	49.34	.0000
Legal issue by environmental issue	1	21.91	.0000
Non-Exxon source by legal issue by environmental issue	1	17.04	.0000
Likelihood Ratio	10	12.08	.2800

TABLE XIX

MAXIMUM LIKELIHOOD ANALYSIS OF VARIANCE FOR PHASE 2.

Source	df	Chi-square	Prob.
Economic issue	1	31.00	.0000
Environmental issue	1	42.46	.0000
Legal issue by environmental issue	1	50.61	.0000
Economic issue by Exxon source	1	13.55	.0002
Environmental issue by non-Exxon source	1	60.95	.0000
Likelihood Ratio	10	14.96	.1334

TABLE XX

MAXIMUM LIKELIHOOD ANALYSIS OF VARIANCE FOR PHASE THREE.

Source	df	Chi-square	Prob.
Economic issue	1	412.84	.0000
Legal issue	1	8.64	.0033
Environmental issue	1	194.74	.0000
Economic issue by legal issue	1	95.79	.0000
Legal issue by environmental issue	1	145.13	.0000
Economic issue by legal issue by environmental issue	1	74.80	.0000
Economic issue by Exxon source	1	7.43	.0064
Legal issue by Exxon source	1	56.49	.0000
Economic issue by legal issue by Exxon source	1	5.34	.0208
Legal issue by environmental issue by Exxon source	1	22.32	.0000
Economic issue by legal issue by non-Exxon source	1	81.76	.0000
Environmental issue by non-Exxon source	1	199.72	.0000
Economic issue by legal issue by environmental issue by non-Exxon source	1	65.85	.0000
Legal issue by Exxon source by non-Exxon source	1	7.23	.0072
Economic issue by legal issue by Exxon source by non-Exxon source	1	7.85	.0051
Economic issue by environmental issue by Exxon source by non-Exxon source	1	12.22	.0005

TABLE XX (continued)

Source	df	Chi-square	Prob.
Exxon source by Wire	1	105.87	.0000
Environmental issue by Exxon source by Wire	1	60.51	.0000
Likelihood Ratio	16	15.63	.4792

As before, all three models began as saturated models. Insignificant model parameters were eliminated one by one until the G^2 statistic (reported here as the likelihood ratio) was maximized.

For H_2, H_3, and H_4 to be true, the interaction of Exxon source with economic issue (H_2), with environmental issue (H_3) and then with legal issue (H_4) must each be a positive and significant interaction in the first phase model. Examining the model for phase one in Table XVIII, it is clear that Exxon sources interact only with environmental issues (X^2=28.42, d.f.=1, p>.00001). So by default H_2 (Exxon source and economic issue interaction) and H_4 (Exxon source and legal issue interaction) must be false. However, an examination of the model for phase two in Table XIX shows that Exxon sources enter into a significant interaction with economic issues in the second phase (X^2=13.55, d.f.=1, p>.0002). Additionally, Table XX shows that Exxon sources enter into a number of significant interactions in the third phase. First, Exxon sources are found in a four-way interaction in conjunction with non-Exxon sources, economic and legal issues (X^2=7.85, d.f.=1, p>.0072). Second, they are found in an interaction with Non-Exxon sources, environmental and legal issues (X^2=12.22, d.f.=1, p>.0005). The strength and intensity of these relationships prove that the assumptions made in H_2, H_3, and H_4 must be false.

Tables V, VI, and VII have already displayed the distribution of Exxon sources by issue and phase. The tables demonstrate clearly that a significant interaction of Exxon sources and each of the issue types could be expected in the third phase. This is true because of the large number of stories containing Exxon source citations in that phase. The significant four-way relationships mentioned above will be examined in more detail in the presentation to follow.

Hypotheses five, six and seven imply non-Exxon source interaction with each of the issue types as being significant in the third phase. Beginning with the first phase model in Table XVIII it is clear that non-Exxon sources interact with both legal and environmental issues (X^2=17.04, d.f.=1, p>.00001). Also in phase two (Table XIX) there is a strong non-Exxon source interaction with environmental issues (X^2=60.96, d.f.=1, p>.00001). In all cases the relationship of non-Exxon sources to the issues is a positive one. This fact can easily be determined by a re-examination of Tables VIII, IX, and X which have already presented in detail the distribution of non-Exxon sources with each issue by phase.

Viewing Table XX shows a non-Exxon source interaction with each of the issue types as significant in the third phase (X^2=65.85, d.f.=1, p>.00001). Table XXI and Figure 20 display this unique four-way interaction in the third phase.

TABLE XXI

NON-EXXON SOURCE BY ECONOMIC ISSUE BY ENVIRONMENTAL ISSUE BY LEGAL ISSUE INTERACTION[a]

		No economic issues		Economic issues		
		No non-Exxon Sources	Non-Exxon Sources	No non-Exxon Sources	Non-Exxon Sources	Totals[b]
No Legal Issues	No envi. Issue	57 64.77	19 25.67	193 42.14	11 1.33	280
	Envi. Issue	12 13.64	16 21.62	56 12.23	131 15.88	215
Legal Issues	No envi. Issue	3 3.41	1 1.35	23 5.02	39 4.73	66
	Envi. Issue	16 18.18	38 51.35	186 40.61	644 78.06	950
Totals		88	74	458	825	1,445

[a] $X^2=65.85$, d.f.=1, $p>.00001$.

[b] Cell values expressed as column percents. Marginal values expressed as the frequency of mention of stories containing the variable types.

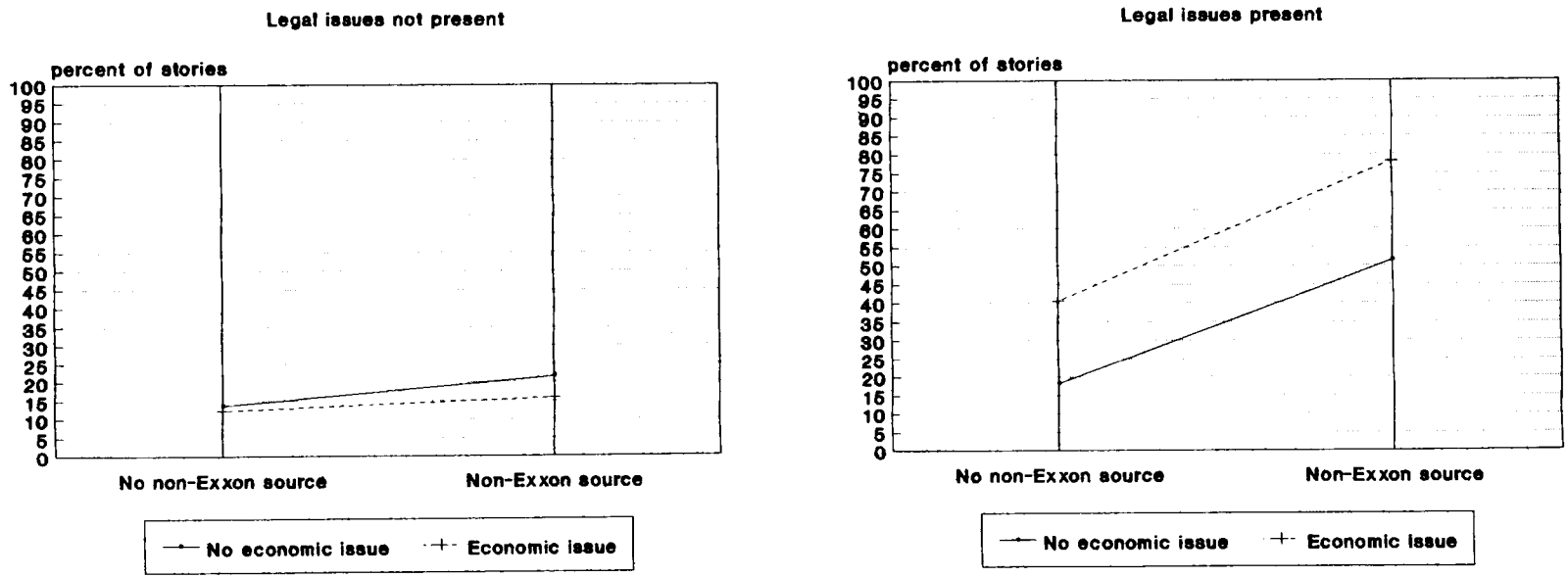


Figure 20. Percent of stories containing or not containing Non-Exxon sources in the presence or absence of economic issues or legal issues in the presence of environmental issues (in phase three).

In examining the table it is clear that all four of the variables are very likely to occur together (n=644). The relationship in the four-way interaction is clearly a positive relationship among the four variables. Figure 20 shows that when environmental issues are present non-Exxon sources are more likely to be present when legal issues are present.

In comparing the results of the phase by phase models, it is clear that the interaction of non-Exxon sources with legal and with environmental issues is stronger in the third phase than in the first (phase 1, X^2=17.04 vs. phase 3, X^2=65.85). This relationship is understandable given the greater incidence of non-Exxon source citations in the third phase than in prior phases. Taking environmental issues separately in the second phase and the third phase it is clear that the interaction is strongest in the third phase (Phase 2 X^2=60.95, p>.00001 vs. Phase 3 X^2=199.72). Therefore, H_5 (non-Exxon source and economic issue interaction in the third phase), H_6 (non-Exxon source and environmental issue interaction in the third phase) and H_8 (non-Exxon source interaction with legal issues in the third phase) are all true when controlling for phase as a variable.

H_8 and H_9 posit Exxon source interaction first with economic and legal issues (H_8) and then with environmental and legal issues (H_9) in the first phase. As has already

been discussed, an examination of the model for the first phase in Table XVIII shows this is not the case. Re-examination of Tables XI-A and XII-A show why this relationship is not possible; the data do not support it.

Table XI-A displayed the expected but not significant interaction of Exxon source by phase by legal issue by economic issue. Table XII-A displays the expected but not significant interaction of Exxon source by phase by legal issue by environmental issue. A close examination of both tables shows where it can most likely be expected that Exxon sources will be found in conjunction with the two issue types; phase three.

Re-Examination of sixth columns of Tables XI-A and XII-A show Exxon sources appear to be in a positive relationship with economic and legal issues (H_8) and with environmental and legal issues (H_9), although the combination of the issues types is more likely to occur in the absence of Exxon sources than in the presence of Exxon sources. It is clear from the columns though that it could be anticipated that Exxon sources would more likely occur with the combination of the issue types in the third phase than in prior phases. Therefore both of these hypotheses could be anticipated to be false since they each specify that the relationship will occur in the first phase of the study with greater intensity than in subsequent phases.

Table XXII and Figure 21 display the Exxon source by Non-Exxon source by legal issue by economic issue interaction found in Table XX.

This is the interaction which proves the significance of H_8 (Exxon source with legal and economic issues) in the third phase and hence the falsity of the hypothesis. In this table, however, more of the real character of the relationship is visible. Exxon sources are three times more likely to not occur (n=971) than to occur (n=312). This issue avoidance in the third phase was anticipated. That is why the hypotheses were worded to test for greater association of Exxon sources with these two issues in the first phase than in phases after the crisis event. The figure shows that the nature of the relationship is interesting. Legal issues are shown to be quite frequent in the absence of economic issues (the left-hand side of the figure). There is, however, a large rise in the co-occurrence of the two issue types in the presence of non-Exxon sources when controlling for the presence of Exxon sources (the right-hand side of the figure).

Hypothesis nine tests for a similar relationship for Exxon sources and the interaction of legal, and in this case, environmental issues. An Exxon source by legal issue by environmental issue interaction is significant in the third phase (X^2=22.32, d.f.=1, p>.00001). This relationship is displayed in Table XXIII and Figure 22.

TABLE XXII

NON-EXXON SOURCE BY EXXON SOURCE BY LEGAL ISSUE BY ECONOMIC ISSUE INTERACTION[a]

		No legal issues		Legal issues		
		No non-Exxon Sources	Non-Exxon Sources	No non-Exxon Sources	Non-Exxon Sources	Totals[b]
No Economic Issues	No Exxon Sources	49 68.86	16 4.55	10 22.39	14 1.46	89
	Exxon Sources	20 8.45	19 21.62	9 17.91	25 14.91	73
Economic Issues	No Exxon Sources	234 3.44	96 6.83	168 15.67	473 2.05	971
	Exxon Sources	15 19.25	46 67.00	41 40.03	210 81.58	312
Totals		318	177	228	722	1,445

[a] χ^2=7.85, d.f.=1, p>.0072.

[b] Cell values expressed as column percents. Marginal values expressed as the frequency of mention of stories containing the variable types.

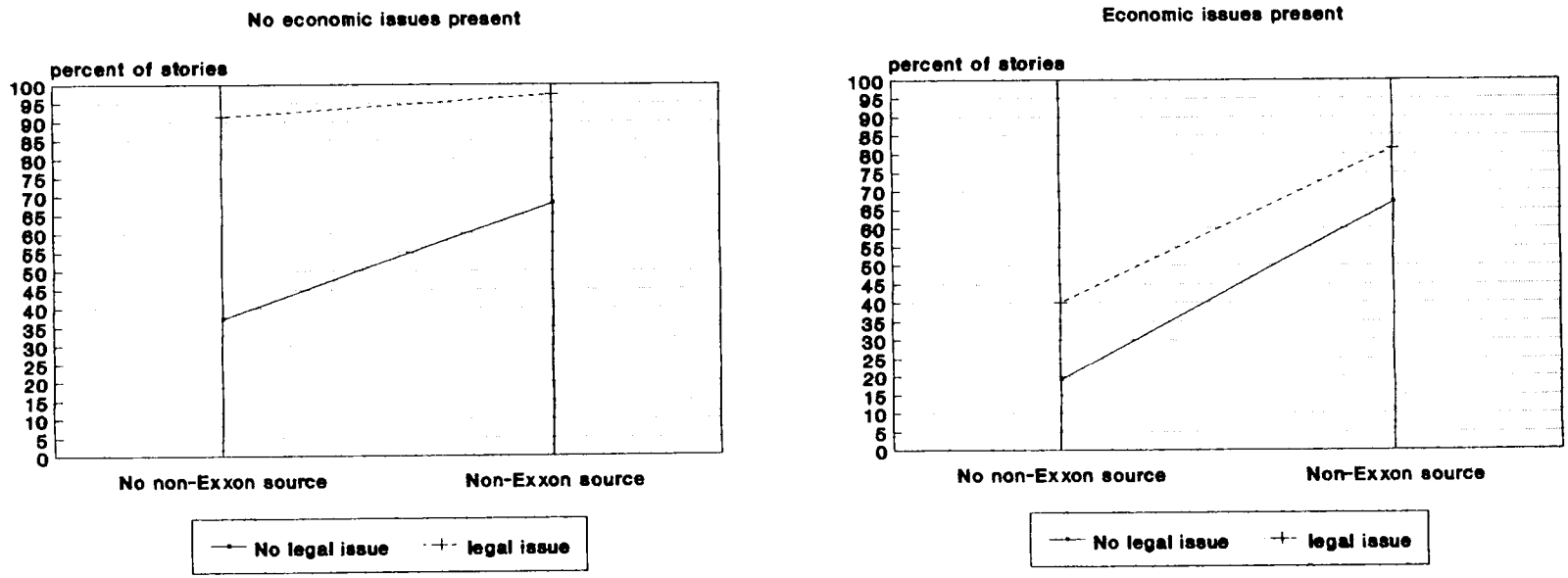


Figure 21. Percent of stories containing or not containing Non-Exxon sources in the presence or absence of legal issues and environmental issues in the presence of Exxon sources (in phase three).

TABLE XXIII

EXXON SOURCE BY LEGAL ISSUE BY ENVIRONMENTAL ISSUE INTERACTION[a]

	No legal issues		Legal issues		
	No Exxon Sources	Exxon Sources	No Exxon Sources	Exxon Sources	Totals[b]
No Envi. issue	62.78	32.00	8.72	2.81	346
Envi. issue	37.22	68.00	91.28	97.19	1,099
Totals	395	100	665	285	1,445

[a] $\chi^2=22.23$, d.f.=1, $p>.00001$.

[b] Cell values expressed as column percents. Marginal values expressed as the frequency of mention of stories containing the variable types.

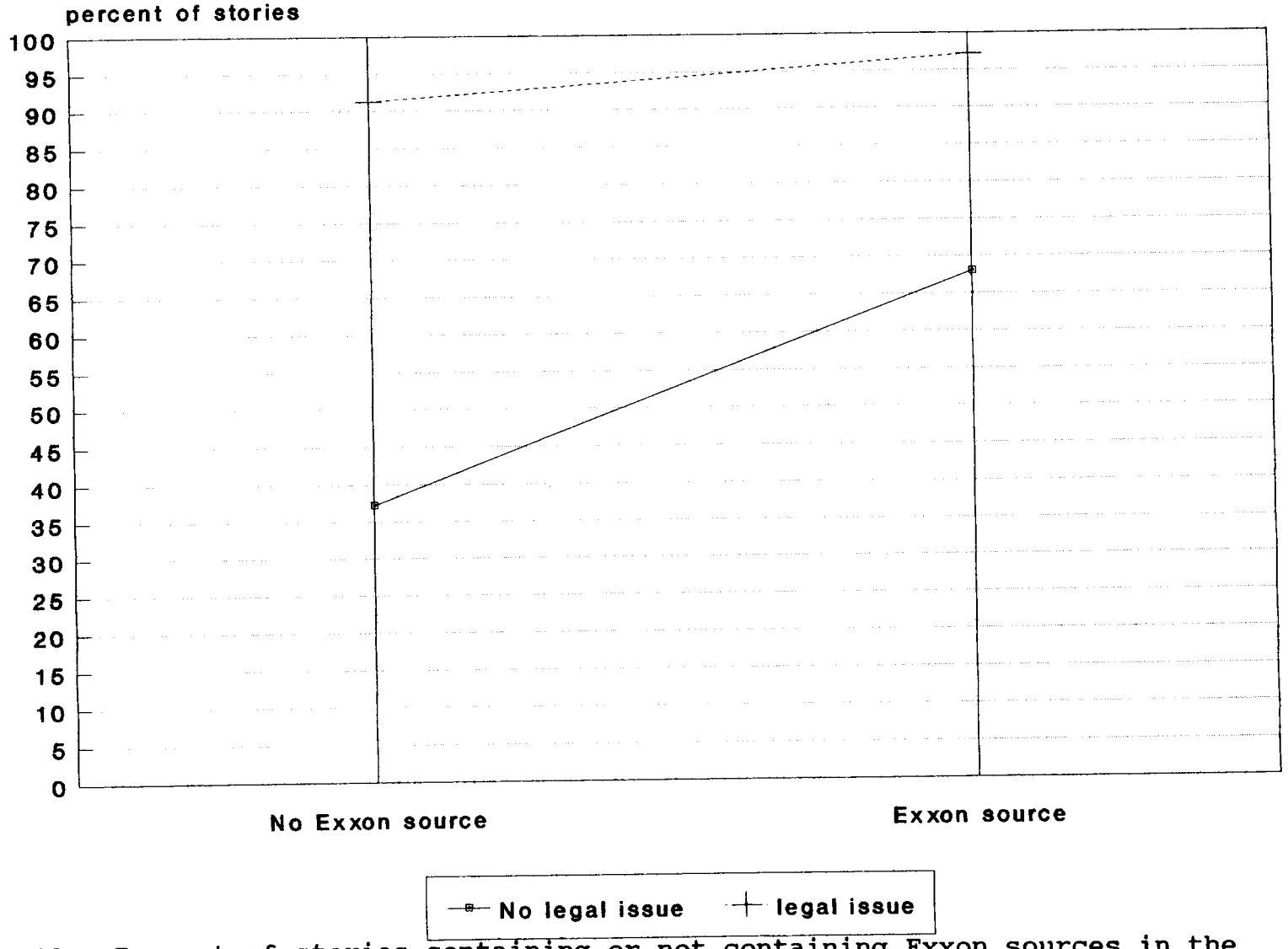


Figure 22. Percent of stories containing or not containing Exxon sources in the presence or absence of legal issue and in the presence of environmental issues (in phase three).

This three-way interaction serves only to further demonstrate that H_9 most certainly is not true for the first phase of the attention cycle. It is more appropriately true for the third phase of the cycle.

However, there are more stories with legal issues and no Exxon sources (n=665) than stories with the two issue types and Exxon sources (n=285). Figure 22 shows a flat line for legal issues in the presence of Exxon sources suggesting the independence of legal issues and Exxon sources. Legal issues are shown in the figure to increase in nonoccurrence in the presence of Exxon sources.

H_{10} (non-Exxon source by legal issue by economic issue interaction) and H_{11} (non-Exxon source by legal issue by environmental issue interaction) posit the same issue relationships for non-Exxon sources as H_8 and H_9 did for Exxon sources. Here the emphasis is on occurrence of the relationship in the third phase. The model for phase three presented in Table XX shows the strong association of Exxon sources with non-Exxon sources, legal issues and economic issues in the third phase (H_{10}: $X^2=7.85$, d.f.=1, $p>.0072$). Examination of the far right-hand columns of Tables XIII-A and XIV, presented earlier, amply demonstrate these relationships.

These tables clearly display a positive relationship in the third phase of non-Exxon sources with economic and legal issues (H_{10}) and with environmental and legal issues (H_{11}).

Furthermore, Table XXI has already demonstrated the significance of this relationship in illustrating the interaction of non-Exxon sources with legal and economic issues (H_{10}) and with legal issues and environmental issues (H_{11}). Therefore, because of the significance tests already discussed and associated with these interactions in the model being presented here, these two hypotheses are true.

H_{12} posits a three-way interaction of the issue types in the third phase. An examination of Tables XVIII, XIX, and XX shows that the desired three-way interaction occurs as is predicted only in the third phase. This relationship has been displayed in Table XXI by reporting the four-way interaction of non-Exxon sources and the three issue types (X^2=65.85, d.f.=1, p>.00001).

Unpredicted relationships

To complete the complete descriptive picture of the relationships revealed by the maximum-likelihood analysis of variance procedures for each phase, two other interactions bear exposition. In Table XX, the three-way interaction of environmental issues, wire service, and Exxon sources is significant in the third phase (X^2=60.51, d.f.=1, p>.00001) Additionally, the four-way interaction of Exxon sources by Non-Exxon sources by economic issue by environmental issue is significant in the third phase (X^2=12.22, d.f.=1,

p>.0005). Neither interaction was anticipated prior to the analysis and both bear description here.

Table XXIV and Figure 23 display the four-way interaction of Exxon source, non-Exxon source, Economic issue and environmental issue. In the table, it is apparent that the interaction of the two issue types with non-Exxon sources (n=525) is twice as likely to occur as the interaction of all four variable types (n=251). Exxon sources are much less likely to occur in association with the two issue types in the absence of non-Exxon sources (n=51). In total there are 1,060 stories in which Exxon sources do not occur out of a total of 1,445 stories during the third phase. Figure 23 shows that when controlling for the occurrence of Exxon sources, there are low levels of the co-occurrence of the two issue types.

In Table XXV and Figure 24, as would be anticipated, Exxon sources are much more likely to be associated with the occurrence of environmental issues in Business Wire (88.89 percent) than in AP Wire (30.92 percent). Figure 24 shows a very large increase in the coverage of environmental issues for Business Wire over AP Wire. Of course, the Figure shows that Business Wire stories are also highly likely to not contain stories with reference to environmental terms.

TABLE XXIV

EXXON SOURCE BY NON-EXXON SOURCE BY ECONOMIC ISSUE BY ENVIRONMENTAL ISSUE INTERACTION[a]

		No Environmental Issues		Environmental Issues		
		No non-Exxon Sources	Non-Exxon Sources	No non-Exxon Sources	Non-Exxon Sources	Totals[b]
No Economic Issues	No Exxon Sources	48 17.39	2 2.86	11 4.07	28 3.37	89
	Exxon Sources	12 4.35	18 25.71	17 6.29	26 3.14	73
Economic Issues	No Exxon Sources	211 76.45	45 64.28	191 70.74	524 63.21	971
	Exxon Sources	5 1.81	5 7.14	51 18.89	251 30.28	312
Totals		276	70	270	829	1,445

[a] Test of H_{13} and H_{15}. $X^2=14.00$, d.f.=1, $p>.0002$.

[b] Cell values expressed as column percents. Marginal values expressed as the frequency of mention of stories containing the variable types.

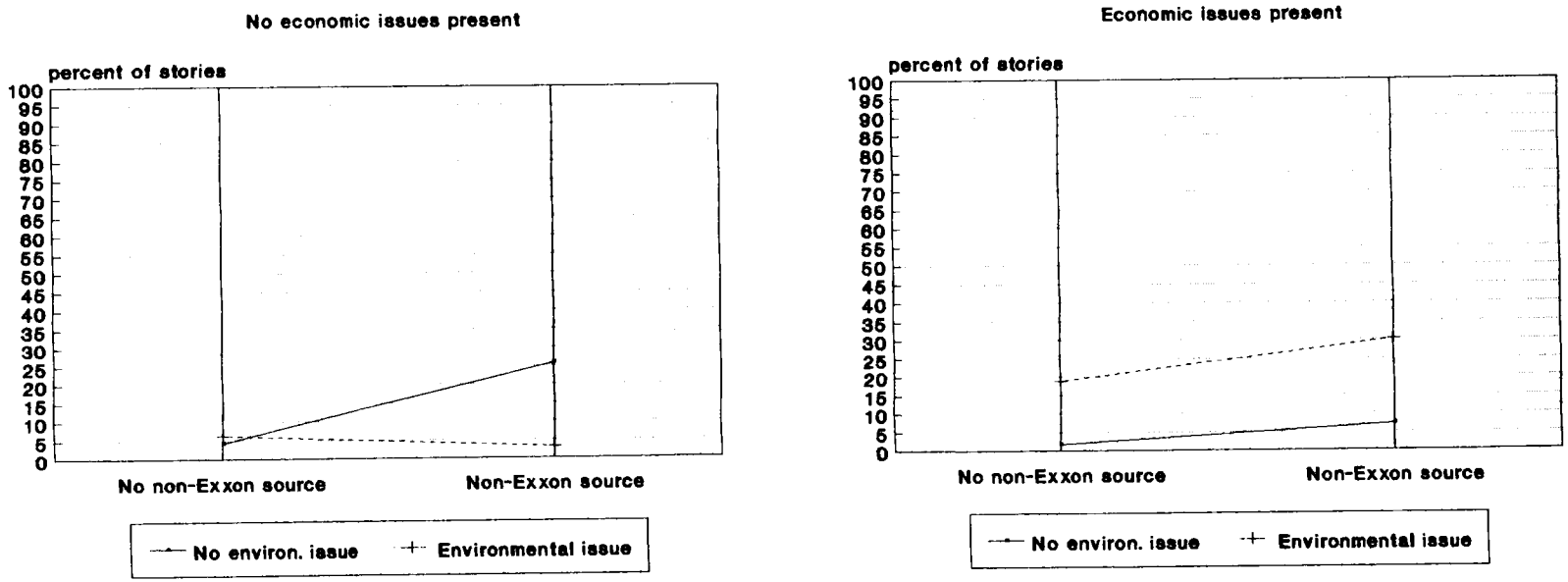


Figure 23. Percent of stories containing or not containing non-Exxon sources in the presence or absence of economic issues or environmental issues in the presence of Exxon sources (in phase three).

TABLE XXV

EXXON SOURCE BY WIRE SERVICE BY ENVIRONMENTAL ISSUE INTERACTION[a]

	No environmental issues		Environmental issues		
	AP Wire	Business Wire	AP Wire	Business Wire	Totals[b]
No Exxon Source	96.79	11.76	69.08	11.11	1,060
Exxon Source	3.21	88.24	30.92	88.89	385
Totals	312	34	1,089	9	1,445

[a] χ^2=5.70, d.f.=1, p>.0170.

[b] Cell values expressed as column percents. Marginal values expressed as the frequency of mention of stories containing the variable types.

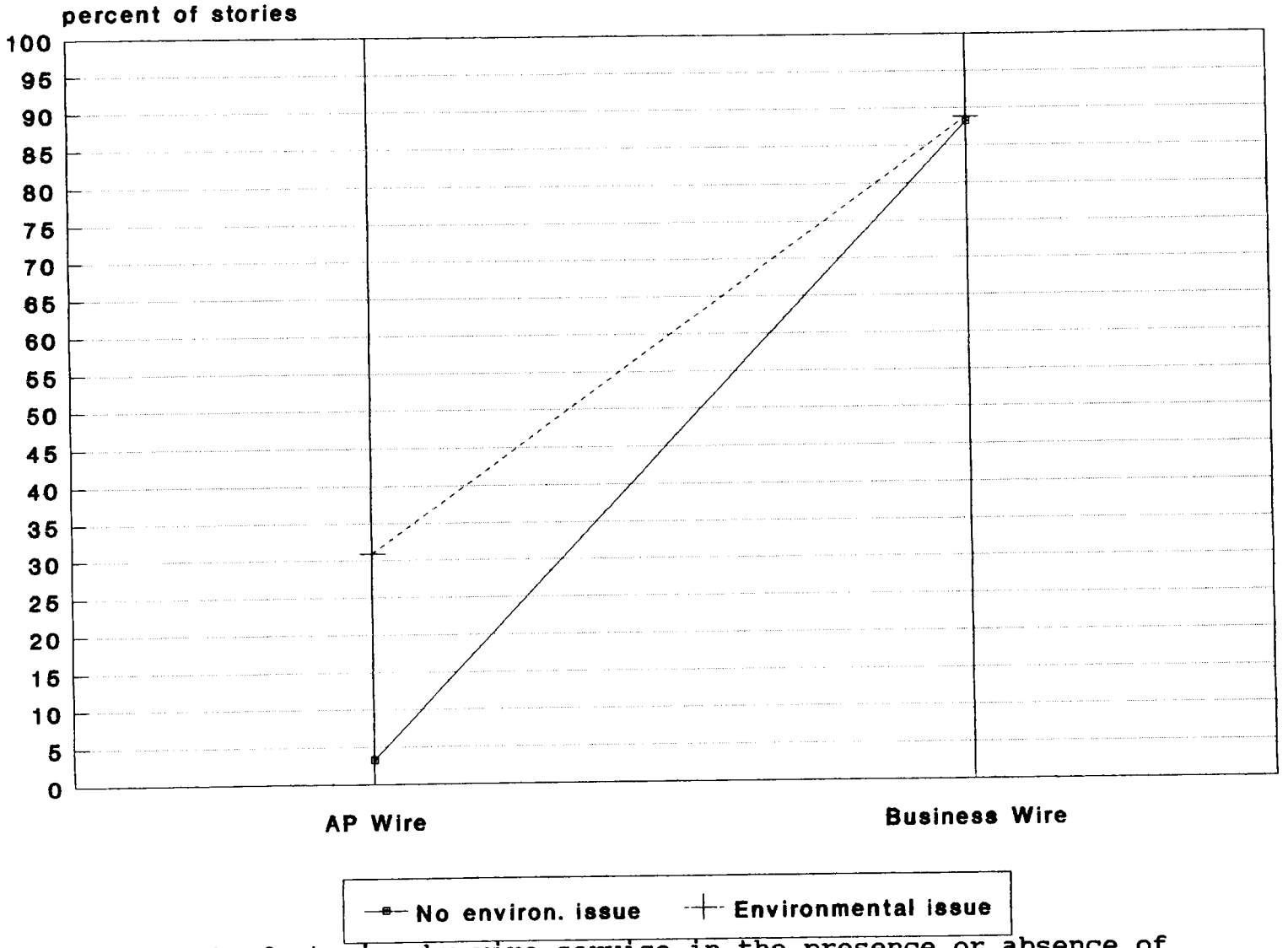


Figure 24. Percent of stories by wire service in the presence or absence of environmental issues in the presence of Exxon sources (in phase three).

TABLE XXVI

SUMMARY OF ALL CATEGORICAL ANALYSIS OF VARIANCE PROCEDURES

Hypothesis	Results of Phase Interactive Test	Results of Phase Control Test
H_2: Exxon source by economic issue by phase	False	False
H_3: Exxon source by environmental issue by phase	False	False
H_4: Exxon source by legal issue by phase	False	False
H_5: Non-Exxon source by economic issue by phase	False	True
H_6: Non-Exxon source by environmental by phase	False	True
H_7: Non-Exxon source by legal issue by phase	False	True
H_8: Exxon source by legal issue by Economic issue by phase	False	False
H_9: Exxon source by legal issue by environmental issue by phase	False	False
H_{10}: Non-Exxon source by legal issue by economic issue by phase	False	True

TABLE XXVI (continued)

Hypothesis	Results of Phase Interactive Test	Results of Phase Control Test
H_{11}: Non-Exxon source by legal issue by environmental issue by phase	False	True
H_{12}: Economic issue by environmental issue by legal issue by phase	False	True

In summary of the categorical analysis of variance procedures conducted here, Table XXVI displays the tests of hypotheses two through twelve for all maximum-likelihood analysis of variance procedures performed with these data for these eleven posited interactions. In Table XXVI it is clear that phase does not interact with any of the anticipated variable relationships. So all of the phase interactive hypotheses are false. In controlling for phase interaction, H_5, H_6, H_7, H_{10}, H_{11} and H_{12} are all true.

Wire service differences

It has been asserted that the adversarial wire and the advocacy wire would be expected to differ in their coverage of issue types. In phase three, the crisis resolution phase, are found the only significant frequencies of occurrence of Business Wire stories in this study sample (n=43). To the extent that coverage of an issue in the crisis is damaging to an organization's economic viability, it would be expected that the organization would place different emphasis on that issue than would the adversarial press. This would be especially true, as has been noted already, for the frequency of mention of legal issues. In summary, any significant variation among the wire services in their coverage of the issue categories would be interesting to the extent that it demonstrates different

stories of how the crisis can be come to be understood in all of its facets. These hypotheses are worded:

H_{13}: The frequency of occurrence of economic issues by AP Wire will be greater than the frequency of portrayal of economic issues by Business Wire in the crisis resolution phase.

H_{14}: The frequency of occurrence of environmental issues by AP Wire will be greater than the frequency of portrayal of environmental issues by Business Wire in the crisis resolution of the attention cycle.

H_{15}: The frequency of occurrence of legal issues by AP Wire will be greater than the frequency of portrayal of legal issues by Business Wire in the crisis resolution phase of the attention cycle.

What each of the three preceding hypotheses tests is a wire service by issue type interaction in the third phase. Chi-square tests were conducted for each of these three hypotheses using the stories from both wire services found in phase three of the study. The results are displayed in Tables XXVII, XXVIII, and XIX.

TABLE XXVII

WIRE BY ECONOMIC ISSUE[a]

	Wire Types		
	AP Wire	Business Wire	Totals
Not economic issues	0.08	97.67	162
Economic issues	99.04	2.33	1,283
Totals	1,402	43	1,445

[a] Test of H_{13} $X^2=332.84$, d.f.=1, $p > .0001$

TABLE XXVIII

WIRE BY ENVIRONMENTAL ISSUE[a]

	Wire Types		
	AP Wire	Business Wire	Totals
Not environ. issues	22.25	79.07	346
Environmental issues	77.75	20.93	1,099
Totals	1,402	43	1,445

[a] Test of H_{14} $X^2=73.952$, d.f.=1, $p > .0001$.

TABLE XXIX

WIRE BY LEGAL ISSUE[a]

	Wire Types		
	AP Wire	Business Wire	Totals
Not legal issues	32.38	95.35	495
Legal issues	67.62	4.65	950
Totals	1,402	177	1,445

[a] Test of H_{15} $X^2=73.447$, d.f.=1, $p > .0001$

All three hypotheses are confirmed. There are significant differences in the coverage afforded issue types by the wire services. AP Wire has much greater coverage of economic issues (H_{13}), environmental issues (H_{14}) and legal issues (H_{15}).

In examining the row percentages in all three tables it is clear that AP Wire has significantly greater frequency of use of all three issues types on a per-story basis. Because of the large differences in sample sizes, t-tests were also conducted to compare the differences in the mean occurrence of issue types by wire service. The means are different by wire service for each issue type. The results of the t-tests are: 1) economic issues, $t=36.48$, $p>.0001$, 2) environmental issues, $t=8.9125$, $p>.0001$, and 3) legal issues, $t=18.0852$, $p>.0001$.

Summary

The results of the hypotheses tests make many interesting implications for the flow of news during this crisis event. Those implications will be discussed in detail in the next and final chapter of this dissertation. The first hypothesis shows that Exxon missed the window of opportunity. Hypotheses 2 through 12 are only partly confirmed by the log-linear analysis in the phase interactive tests. However, the direction of emphasis

placed in the newscopy on source citations is clear; non-corporation sources dominate news copy. Exxon Corp. sources play an important role in developing the story of the crisis event, but for only two brief days do they hold sway in the media.

In controlling for phase interaction and examining a log-linear model for each phase a clearer picture of the crisis event begins to emerge. The complexity of the crisis as demonstrated by the interactions found significant in the three log-linear models helps to demonstrate the descriptive power that can be attributed to a thoroughly operationalized theory of attention cycles.

The final chapter of the dissertation discusses: 1) the implications of these findings based on the hypotheses under discussion and the results of the exploratory analysis, 2) the limitations of the findings, and 3) the implications that these findings have for future research.

CHAPTER V

DISCUSSION AND CONCLUSION

Introduction

The Exxon Valdez disaster is truly an organizational crisis event of iconic proportions. The effects included the confirmed deaths of 33,000 birds, 138 bald eagles, and 980 sea otters (AP Wire, September 1991). Over two years after the oil spill, USA Today would write: "Damage from the 1989 Exxon Valdez oil spill was much worse than originally thought..." (April 10, 1991, p. 1). The disaster entered into the idiomatic expressions of people as in this quote from the debate on national testing for high school students: "...states are so lax and sloppy in organizing test security that it's like letting Exxon monitor water quality in Prince William Sound," (AP Wire, September 9, 1989).

The crisis dragged on and on in the media. The Exxon Valdez, four months after the crisis, had an oil slick 18 miles long flowing out from behind it as it approached San Diego for repairs in July of 1989 (AP Wire, July 10, 1989). The next Spring 1990, after Winter storms had washed the Sound, beaches one year after the disaster would still be declared unclean (AP Wire, March 1, 1990). 11 million gallons of spilled crude oil have left their mark on the

United States ranking as its number one oil spill in history. The spill has left its mark on the Exxon Corp., labeling it as environmentally irresponsible.

But the Exxon Valdez oil spill is not the largest tanker spill. The largest oil spill is attributable to the AMOCO Cadiz which spilled 66 million gallons of crude off the coast of Brittany in France in March 1978 (AP Wire, March 24, 1989).

What characteristics of this crisis event kept it in the media with such intensity for so long a duration of time? This study does not directly answer that question. But it does provide some indications of how to go about assessing some of those informational characteristics of the crisis. It does so by measuring the frequency of terms associated with the crisis event and the sources of information used to substantiate claims about the crisis during phases of an attention cycle. This final chapter of the dissertation proceeds to examine those characteristics, some of the limitations associated with conclusions drawn from this study, and then concludes with implications for future research.

Issue phases in attention cycles

The major thrust of this study is: that in periods of time preceding a crisis event and directly thereafter,

sources associated with the organization in crisis will have greater frequency of coverage than non-organizational sources. Additionally, it is asserted that the crisis will correspond closely to preconceived notions of how an attention cycle is shaped over time in the media. The results of the phase interactive tests of hypotheses 2 through 11 indicate that some of the basic assumptions underlying the distribution of sources in an attention cycle may not be correct. This part of the study discusses why those assumptions may be false.

This analysis proceeds by examining some of the implications of the hypotheses tests for the theory of attention cycles. This analysis is followed by a discussion of some of the implications inherent in the results obtained from the categorical analysis of variance.

Hypothesis Tests

First, based on the operational definition of "opportunity," the window of opportunity phenomenon is closed for Exxon at the outset of the crisis. As Modzelewski (1990) asserted and this study affirms, Exxon missed the opportunity to control or at least greatly influence the flow of information at the outset of the crisis. As measured by the frequency of organizational source citations at the beginning of the crisis, Exxon's

source attributions are not significantly different from other, non-corporation sources.

The first hypothesis states that the source types will be significantly different in frequency from the first week to the second week of the crisis event. As it turns out, the data do not support that assertion. Figure 25 shows Exxon sources rising in prominence on 3-26-89 and again on 3-29-89, two days and four days into the crisis, but they decline in frequency thereafter. Since window by source type interactions are not significant, the hypothesis is not supported.

In the next component of the study a phase interactive analysis and an analysis controlling for phase interaction were conducted. What follows is a discussion of both of these series of tests with hypotheses 2 through 12.

Phase interactive tests

The phase interactive model tested a phase by source types by issue types model. The entire data set for the study was included for this analysis. This analysis included 1,906 stories from June 1st, 1988 to March 3rd, 1990. Hypotheses 2 through 11 were all not confirmed in this analysis.

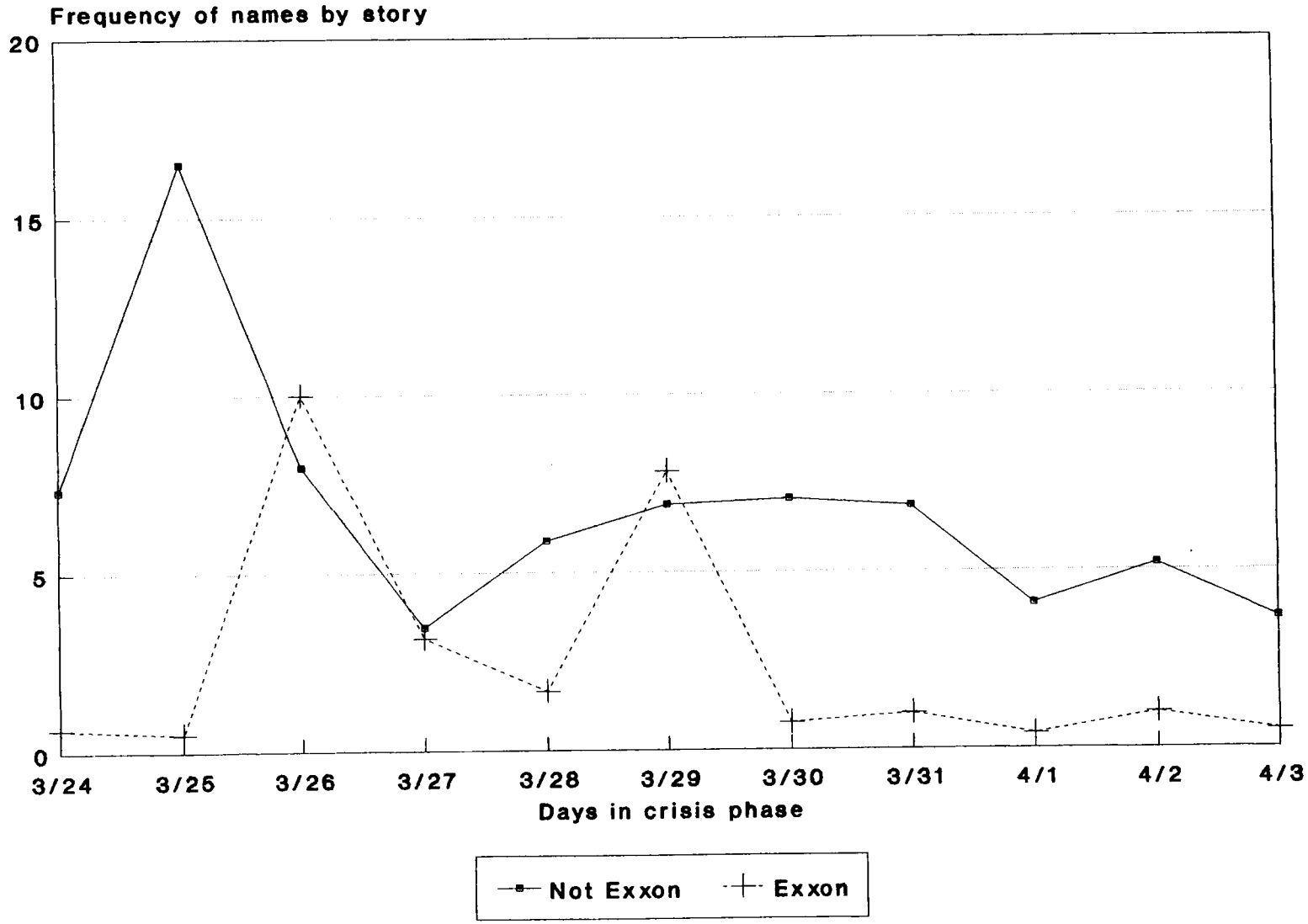


Figure 25. Frequency of sources in phase two.

The first three hypotheses assert that Exxon source types will differ in their mention with environmental issues (H_2), economic issues (H_3) and legal issues (H_4) by phase. The only significant difference according to the log-linear analysis is the treatment by Exxon sources of economic issues by phase (H_2). This interaction was not significant in the anticipated direction.

What is interesting about coverage of Exxon sources by AP Wire with environmental issues (H_3) and with legal issues (H_4) is that the issue types are more likely to occur without Exxon sources than with Exxon sources. This suggests that AP Wire places greater emphasis on coverage of non-Exxon sources in relationship to all three issue types. Although not significant by phase, Non-Exxon sources interact in a positive manner with each of the three issue types further substantiating and confirming this relationship. This suggests that Exxon sources are not competitive in the marketplace of ideas during the entire time period of this attention cycle.

These facts come into greater focus and clarity when combinations of issues are examined in relationship to Exxon sources. None of the relations posited in the hypotheses are significant by phase in the phase interactive analysis. However, three four-way interactions are significant in the phase interactive log-linear model that are directly related to these hypotheses.

First, Exxon and non-Exxon sources interact with legal and economic issues (partial confirmation of H_8 and H_{10}). Second, Exxon and non-Exxon sources interact with legal and environmental issues (partial confirmation of H_9 and H_{11}). Finally, non-Exxon sources interact with economic, environmental, and legal issues (partial confirmation of H_{12}). Based on these finding several factual observations can be made.

First, Exxon sources are not found in a strong relationship with the interaction of economic and legal issues. It appears that when these two issue types are found together, more often than not, Exxon sources are not found.

Second, Exxon sources enter into a mildly positive relationship with environmental issues and legal issues in the presence of non-Exxon sources. This suggests Exxon source responsiveness in this interaction.

Third, Non-Exxon sources have a strongly positive relationship with all three issue types in a four-way interaction. When the three issue types occur together, they occur in the presence of non-Exxon sources.

Fourth, the phase variable interacted in a three-way interaction with the two source types, a two-way interaction with environmental issues, and a two-way interaction with legal issues. As could be anticipated, AP Wire placed much greater emphasis on environmental issues and legal issues in

the third phase. Additionally, greater emphasis is placed on non-Exxon source types after the crisis event (phases two and three) than before the crisis. Although the two-way phase interactions did not occur by source type as hypothesized, they do conform to the anticipated notions of what the information flow during this attention cycle would be. Namely, the social system (phase by legal issue) could be expected to respond to an environmental crisis (phase by environmental issue) after a crisis event.

Many interesting relationships are found in the phase interactive tests, but none of the relationships are in the predicted interactive directions. Why? The fundamental assumption underlying the hypotheses is that public relations practitioners are able to significantly influence the frequency of coverage afforded organizational sources both before and immediately after a crisis event. This assumption may be flawed.

This study clearly demonstrates that at no time prior to or after the crisis event are organizational sources afforded significantly greater coverage than non-organizational sources. In fact the opposite occurs. In each phase of the attention cycle, non-organizational sources are more frequent.

Controlling for phase interaction

Three log-linear models were tested in this unit of the analysis, one for each phase. As could be anticipated from the phase interactive propositions, non-Exxon sources interact with the variable types in all of the hypothesized relationships. Exxon sources, on the other-hand, did not enter into any of the hypothesized relationships when controlling for phase. This further substantiates the argument that organizational sources are at no time in the attention cycle occuring in more significant frequency than non-organizational sources.

There are 307 stories in the precrisis phase. What was expected in the first phase was the strong linkage of Exxon sources with each of the issue types individually and then taken together with legal issues. Instead, the only significant association with Exxon sources in the first phase is for environmental issues (X^2=28.42, p>.00001). Table VI, shows the direction and intensity of this relationship. Exxon source more likely do not occur with or without environmental issues in the first phase (n=263) than do occur with or without environmental issues (n=44). The relationship between the two variables is a negative one. The variables are more likely to not occur together (n=230 stories) than to occur together (n=22 stories).

Therefore, one of the important predictions of the study, issue advocacy by the organizational entity, does not occur. In fact, the opposite occurs; issue dissociation by the organizational entity. Figure 26 shows that in the pre-crisis phase, economic issues are the most frequent issue concern. This issue coverage is most associated with non-Exxon sources. Throughout the time period prior to the crisis non-Exxon sources are most frequent.

In Figure 26 it is clear how Exxon Corp. coverage in AP Wire is best characterized. The coverage is largely concerned with economic issues. Those issues are discussed largely by sources not directly identified as being linked with the organization.

No specific predictions are made about the 154 stories in the second phase of the attention cycle. The categorical analysis of variance shows a very distinctive issue character; legal issues and environmental issues interact. Non-Exxon sources interact with environmental issues. Exxon sources interact with economic issues.

Figure 27 shows the high level of frequency of environmental issues during the first four days of the crisis. In the precrisis phase economic issues are most frequent. After the crisis event, environmental issues become most frequent and non-Exxon sources become associated with them. Legal issues stay a constant concern throughout the phase.

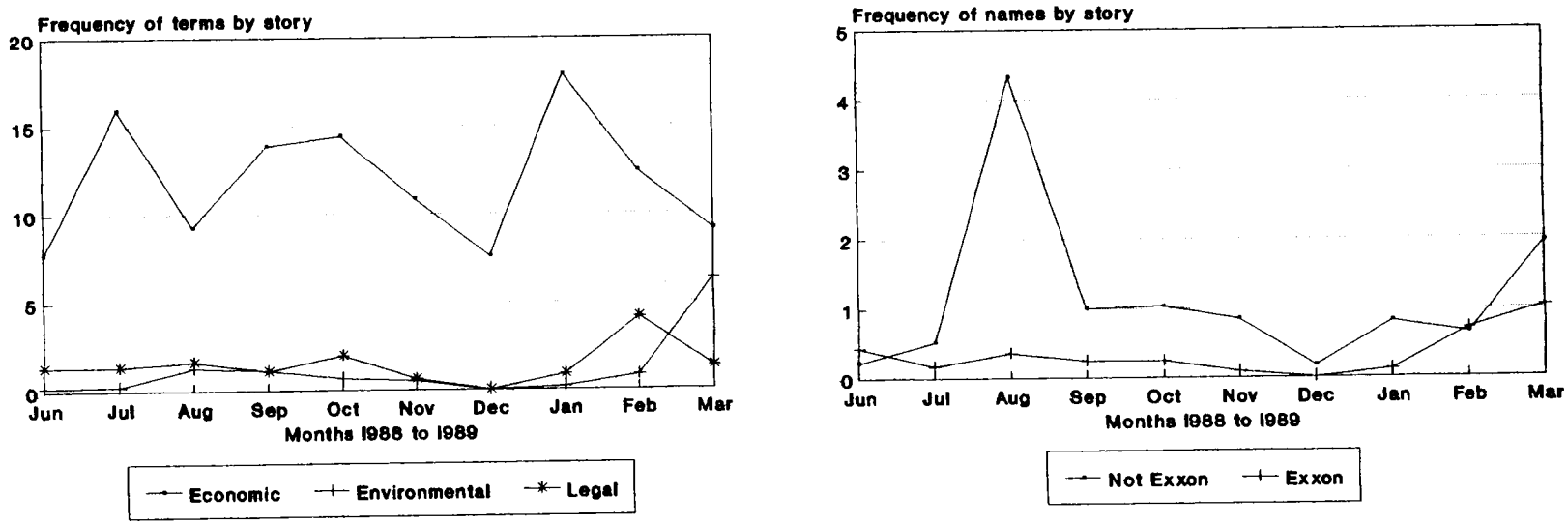


Figure 26. Frequency of issues and sources in phase one.

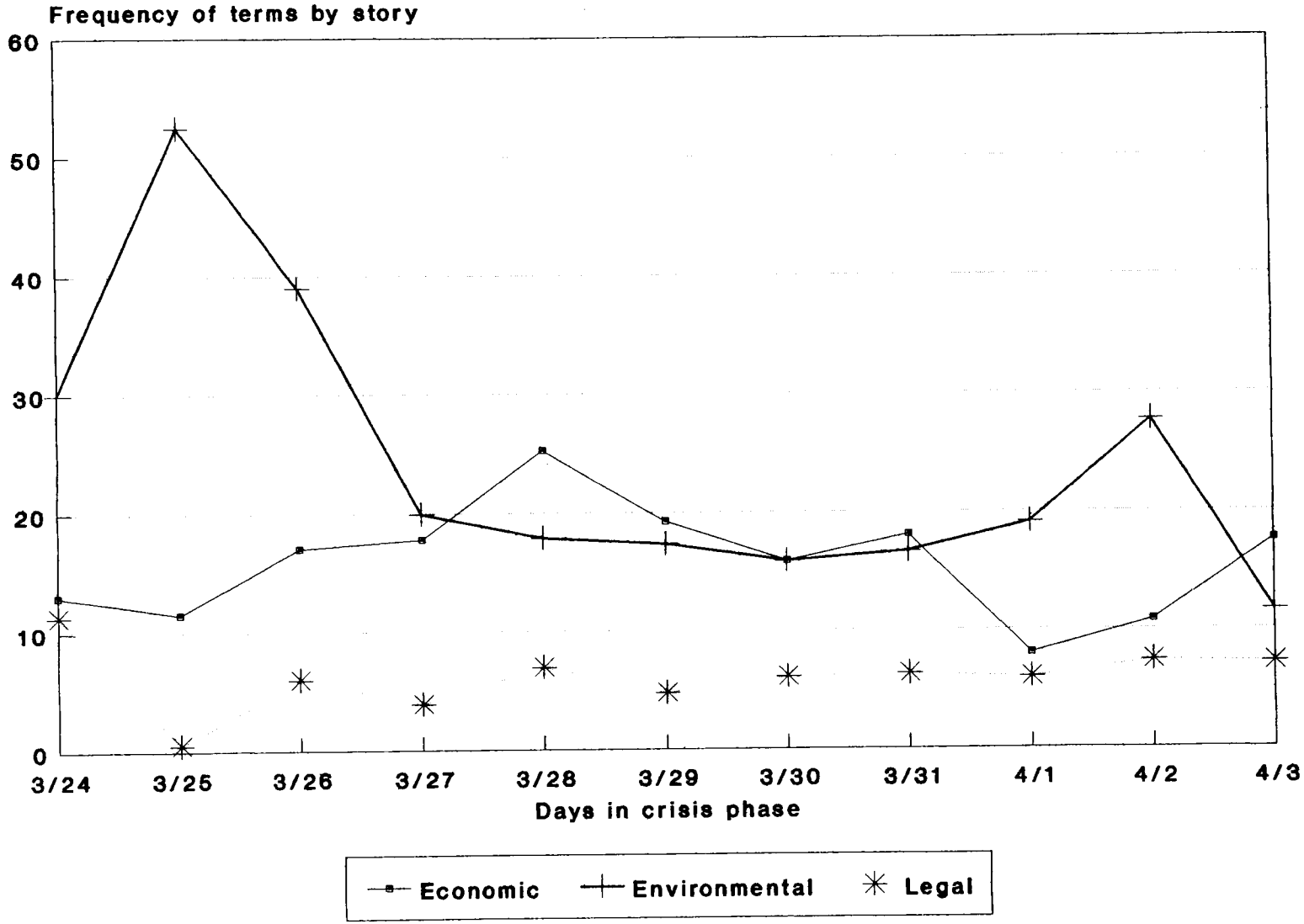
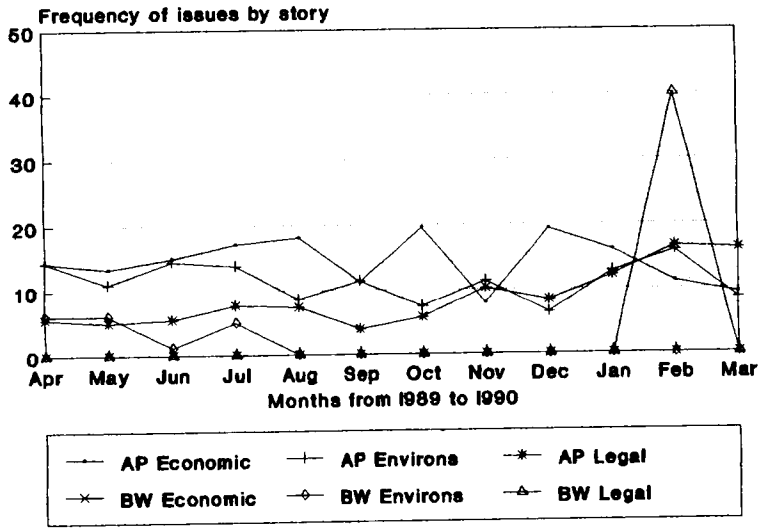


Figure 27. Frequency of issues in phase two.

Exxon sources become predominantly associated with economic issues during this phase, but the relationship is a negative one. As Table V shows, Exxon sources are more likely not to occur with economic issues during the crisis phase (n=107) than to occur with economic issues during the phase (n=47).

In phase three, the crisis resolution phase, there are 1,445 stories. All of the specific predictions made about non-Exxon sources and the issue types are true in this phase. Figure 28 displays the complex relationships between the issue types and the source types during this phase.

What is most interesting from the figure is the emphasis that AP Wire places on non-Exxon sources. Business Wire coverage appears to be more balanced between the two source types. It is clear from the figure that Exxon sources dominate Business Wire copy. Non-Exxon sources dominate AP Wire copy. In both wire services, legal issues gradually increase in significance through the phase. A reading of the stories in this time period shows that this is due to the high incidence of court cases after January 1990. Most notable among these court cases is the Hazelwood trial.



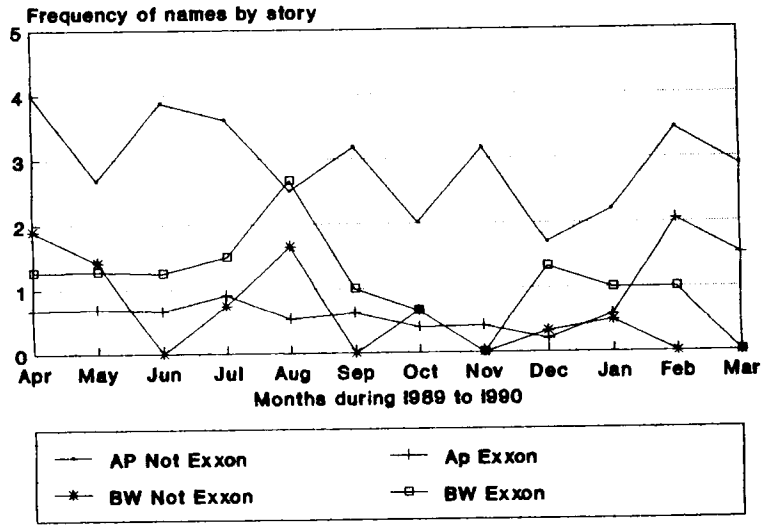


Figure 28. Frequency of issues and sources in phase three.

Wire service differences

The final three hypotheses examine wire differences by each issue type (H_{13}, H_{14}, H_{15}). All three hypotheses show greater emphasis in AP Wire of each of the issue types. For Business Wire, the advocate, coverage of the crisis nearly ceases after July of 1989 reports of cleanup operations in Prince William Sound.

Business Wire coverage of legal issues picks up again in February of 1990, a time corresponding to the Hazelwood trial. From August 1989 to January 1990 it is scant.

What is happening here? The Valdez disaster continues to be an issue in AP Wire long after Business Wire coverage declines. The wire services differ significantly in their coverage of the crisis; the adversary is tenacious, the advocate abates.

In summary, just like the assertions associated with most understandings of issue attention cycles, the frequency of coverage peaks quickly after the crisis event, and in this case ten days after the crisis event. During that ten-day period, defined as the crisis phase, legal and environmental considerations dominate the non-corporation source citations.

Fink (1986) uses medical terminology and calls this phase the "Acute" phase. Here the frequency of stories peaks, much as the temperature of a person stricken with the

flu. But the effectiveness of the analogy ends there. The coverage of this crisis event takes no time at all to incubate; the coverage is massive and appears very complete from the outset.

The particulars of this crisis event and the damage it had done to the environment of the Prince William Sound were complete almost within 24 hours. What is surprizing is the vigor with which the frequency of coverage by AP Wire proceeds into the third phase of the study.

Implications of the study

Implications for communication practitioners

The Exxon Valdez disaster should not be construed as a typical organizational crisis event. This crisis must be considered a unique event. However, there are some important lessons that can be learned from what can be inferred from the organization's response and the media coverage of this event.

The social system in the U.S. is currently very sensitive to environmental issues (Atwater, 1990). This study shows that even before the crisis event, it is clear that AP Wire places great emphasis on the coverage of environmental issues. It is nothing new that large companies can expect to be held accountable for their

actions in the media. What is found in this study is that environmental issues begin to converge with legal and economic issue types after the crisis event into a picture of the crisis that is carried through a long period of time. It is the vitality of these associations that should concern organizational communicators.

What is interesting here is that Exxon source citations appear to be dissociated from these convergences soon after the crisis event. Organizational communicators should plan for these convergences and work much harder, not only to place the organizational position in the media, but to sustain its placement through time. This need is especially apparent in the interaction of Exxon source types and legal issues.

Legal issues are an especially difficult area for organizational communicators. But this study indicates that something needed to be done by Exxon to address legal issues. The foremost reason for this is the power that legal issues demonstrate in this study to join with other issues into a devastating institutional story in the media. This study shows that it is a story in which the primary actor remains largely silent while a plethora of non-institutional actors take the stage.

This study should make journalists more accurately aware of the role that source selection takes in the formation of the disaster story. As will be discussed in

more detail in sections to follow, AP Wire shows a strong non-organizational bias in its selection of sources in the writing of news stories before as well as after this crisis event. Contrary to what some writers (Paletz and Entman, 1981, Schudson, 1983 and Lindbloom, 1985 among others) indicate is the modal way in which the media cover business in the U.S. today, Exxon was found to be held quite accountable for its actions in this crisis. This level of accountability extended to every bird, fish, mollusk and fisherman soiled by the disaster.

This level of accountability has now extended years beyond the crisis event. What this indicates is that when issues converge in phases of time after a crisis event and organizational response declines in relationship to these convergences, then a public relations disaster can be expected to ensue. As the test of hypothesis one indicates, there is no significant difference at the outset of the crisis between the two source types. Is the organizational story about the event unacceptable to AP Wire? Is the organizational story of the crisis not credible to journalists? This study does not answer either question. A possible answer to these questions may be found in a scapegoat: James Hazelwood.

Hazelwood represents the best possibility that Exxon had of severing its corporate image from this crisis event. The Associated Press appears to have fixed the blame for the

accident, in the first week of crisis coverage, on the captain. It seems incredible that Exxon would have sought to discourage this severing.

This study severs "Hazelwood" from the coverage of Exxon as a corporate entity. The results have been discussed: Exxon as a source citationd in AP Wire copy is not very significant when compared to other sources. As has been noted, "Hazelwood" is one of the most frequent terms found in these 1,906 stories.

Assuming that Exxon was attempting to use Hazelwood as a scapegoat, it is clear that the strategy failed to ameliorate the long-term coverage of the crisis. The evidence that coverage of the crisis has extended to a period of time that cannot possibly have been imagined must surely point to the failure of this strategy.

Assuming that Exxon did not attempt to use Hazelwood to sever its corporate image from the Valdez disaster, it seems that AP coverage of the crisis continued to link Hazelwood as a product of the Exxon Corporation. Very soon after the crisis, AP Wire was effective in providing a detailed exposition of the corporate symptoms that led to this crisis. AP told a story that cutbacks in tanker crews, training, and supervision of their ocean transportation operations was a root cause of this crisis.

AP Wire reports indicate that Exxon should be held directly accountable for the drunken captain whose orders,

when not carried out by his inadequate crew, produced the disaster. Lack of institutional responsiveness to these linkages in the third phase of this study, the crisis resolution phase, could be responsible for the length and continued duration of the coverage of this crisis event. As the data in the first two weeks of the crisis indicate, Exxon was not able to establish its story of the crisis as the dominant story at the outset of the attention cycle.

This study shows organizational communicators and journalists alike that the crisis event does indeed change the communication flow in the social system. Schramm (1965) indicates that as the social system responds to the crisis event, the communication patterns come into much sharper focus than is possible in times of communication normalcy. This study shows a pattern that looks like a typical attention cycle with a precipitous crisis event as a stimulus to large coverage levels. What is interesting about this large coverage is that it is documented in AP Wire from a largely non-organizational perspective. That must surely be a recipe for public relations disaster.

AP Wire dependence on non-institutional sources

There is no way to know from this analysis whether the Associated Press approach to the coverage of this crisis was conducted in a mendacious fashion. But the coverage of the

crisis is largely dependent on non-institutional sources. This finding of the study only affirms what is widely asserted in the public relations literature, namely that environmental accidents have severe impacts on the portrayal of an organization in the media.

What is shocking about the lack of emphasis on Exxon sources after the crisis event is the implication that it has for the effectiveness of Exxon public relations and perhaps public relations practitioners in general. Clearly, Exxon corp. was not effective in placing its views with institutionally linked sources in AP Wire news copy. More importantly, in the pre-crisis phase non-Exxon sources are more frequent in AP Wire news copy. Strong institutional advocacy was expected in the period of time prior to the crisis event. What is found instead is AP Wire use of non-Exxon sources in its coverage of Exxon.

Issue interaction

First, the strength of the interaction of each of the issue types with non-Exxon sources in the phase interactive log-linear model is interesting. It should indicate clearly to individuals preparing organizational responses to environmental crisis events that they need to be prepared for the impact of such an interaction effect on corporate image. It is interesting that all of the issues interact

during the attention cycle with non-Exxon source types and that all three issues do not interact with just Exxon source types. As a crisis event unfolds in the media overtime, the implication is that the treatment of an environmental crisis by the media is a volatile formula.

In controlling for phase interaction, it becomes clear that the issue convergence represented by the interaction of the three issue types occurs in the third phase as anticipated. Before the crisis the phase one model shows a legal by environmental issues interaction with non-Exxon sources. This demonstrates that the social system places emphasis on these issue types in reference to Exxon as a corporate entity in times of no crisis.

An economic dimension is not attached to this relationship until the third phase when AP Wire is reporting the many developing costs of the crisis event. Because the interaction occurs with non-Exxon sources to the exclusion of Exxon sources, its clear that Exxon is not considered the primary source for the assessment of the impact of the disaster.

Institutional proactiveness

In the two four-way interactions found in the phase interactive log-linear model, both source types interact first with legal and economic issues and then with

environmental legal issues. What is peculiar to these two four-way interactions is Exxon source dissociation from non-Exxon coverage. When the issue types interact, Exxon source are more likely to not be found. The differential effect of the interaction being that when Exxon sources occur the clustered issue types are less likely to occur. And when Exxon source types do not occur, the clustered issues types are more likely to occur.

This phenomenon could partially be explained by the possibility that the organization is being led by media coverage and is not exerting significant influence over the media coverage. There is only a small amount of information in this study to document this assertion.

Re-examining the peak in organizational source coverage on 3-26-89 displayed in Figure 25 shows organizational response two days after the crisis; two days after large, non-Exxon source coverage. The same can be said for coverage on 3-29-89; it follows large non-Exxon source coverage. Although there is no significance test included in this study to examine the significant of day by day variation in source utilization during the first two weeks of the crisis event, the media appears to be setting the agenda of this crisis event. When look at statistical tests that were conducted for this study, it is non-Exxon sources that are most associated with issues coverage; it is a four-way interaction in the phase interactive model.

This phenomenon, organization reactiveness not proactiveness, was not predicted prior to the analysis. Fundamental to this study at the outset is the opposite notion; the organization would be quite aggressive and deliberate in its efforts to ameliorate the effects of this crisis event on organizational survival. It is, however, a component of the crisis communications literature (Detwiler, 1979) and the issue attention cycle literature (Hainsworth, 1990) that organizations are largely overwhelmed by crisis events. Exxon had this problem in past crises (Birkhead and Butler, 1986). Communications practitioners warn of this pitfall in crisis communications plans; advocate yourself or abdicate control of the crisis event coverage to the media (Lesly, 1983). The issue attention cycle literature shows how components of the social system come into play to address the crisis; governmental entities and the public respond. Exxon corporate communicators must certainly know these basic principles of crisis communications. But this crisis has such a vociferous environmental character, was so devastating in its impact, that a damage control strategy must have been the only option open to Exxon corporate communicators.

Issue attention cycles

There are several implications for issue attention cycles that this study makes. First, Exxon, not unlike most corporations, speaks with only a few voices. That is part of the strategy that the crisis communications literature says that organizations are using to guide their control of their corporate communications (Lukaszewski, 1989, Lesly, 1983, and Pines, 1985). Speaking with a single voice or a controlled number of voices decreases potential ambiguities, inaccuracies, and contradictions in the corporation story (Lesly, 1983). There is no support in these data to suggest that Exxon is practicing communications in any other way.

Clearly this study failed to accurately predict the actual levels of organizational source attributions and issue type interactions. Why did hypotheses two through twelve fail in the phase interactive model to predict relationships in the anticipated directions? Perhaps it is because the distribution of Exxon source citations failed to occur in the predicted phase directions.

The actual coverage afforded Exxon sources prior to and after the crisis event should be of paramount importance to the public relations practitioner. The lack of frequent mention of Exxon sources prior to the crisis event could indicate that the corporation is not effectively influencing the kinds of institutionally linked coverage that it is

getting. It could also indicate that the organization is effectively placing its story, but not having that story attributed to itself but to other sources. Whatever the case may be, it is clear from these data that other, non-organizational sources played an important role in the coverage of Exxon Corp.

The vast majority of these non-organizational sources cannot be construed to be friendly to Exxon as a corporation. However, there are some sources in the news copy that could be construed as friendly and yet still not by definition an organizational source. An example of this phenomenon is the American Petroleum Institute.

The institute, no doubt partially funded by the Exxon Corp. among others, played an important, non-organizational, advocacy role. This study defines such an organization as a non-organizational source. To that extent the measurement of organizational advocacy is necessarily limited. Oil industry advocacy groups like the Petroleum Institute are important non-organizational advocates before and after crisis events. The dichotomy implied by classification of sources into organizational and non-organizational types may be too crude an instrument for measuring the types of sources that are included in the coverage of the crisis event. Therefore, the hypotheses failed to detect issue and source interactions in the desired directions because the source measures are too crude.

What the media is paying attention to in the attention cycle for this study is the environmental disaster created by the oil spill. Measurement of information prior to the crisis event is not, as has been constructed by this particular study methodology, meaningful to any conclusions drawn about the crisis event. But what is interesting about the lack of phase significance in the phase interactive hypothesis tests is the fact that AP Wire places great emphasis on all issue types regardless of phase. This suggests that the press, as represented by AP Wire, places a high degree of emphasis on the complete coverage of issues when reporting the activities of large, multi-national corporations like Exxon.

Limitations of the study

There are three important limitations to this study which will be discussed. First, the small size of the Business Wire sample. Second, the nature of the selection process for the issue terms categories. Third, the nature of the measurement of issues and ideas using the raw frequencies of single words. Each of these limitations will be discussed in turn.

The Business Wire sample

The total number of stories from the Business Wire that were used for the study was 43. As has been noted, only 1 Business Wire story was in the crisis phase of the study so it was eliminated from the analysis. Furthermore, only 2 were in phase one (the precrisis phase) with the balance of the stories being located in phase three (n=43).

The small size of the Business Wire sample was thought at the outset of the study to not be significant. But with no Business Wire stories in the first window of the study, the ability to compare Exxon's view of the crisis with the media view of the crisis was somewhat diminished. The only generalizations that can be made about Exxon's view of the story during the first window of the study is dependent upon characterizations obtained from the source types component of the analysis.

Issue term selection process

The issue term categories are an integral component of the study. The selection process for the terms is a multi-step process consisting of 1) frequency sorting and alphabetizing the entire data-base of the study, 2) applying carefully construed definitions to the resultant list choosing terms to be included in each category only if they

can be unambiguously assigned to those issue categories, and then 3) coding the data-base for the incidence of those terms.

As objective as the selection process for the terms has been made and as objective as the construction of the issues categories themselves has been made, the terms themselves are still chosen by the researcher himself. However, Fan (1988) uses a similar selection procedure.

Using a pool of graduate students, Fan has the students read AP Wire copy and then construct lists that they feel are appropriate to the analysis. No intercoder reliabilities are reported, nor are any asserted. The point of the analysis according to Fan is simply to select a unidimensional list of key terms associated by readers, broadly and generally, with the topic of study.

What is interesting about the accuracy of Fan's work is that he uses his computerized content analysis system to generate frequency data that he then converts to hypothetical public opinion scores. He then compares these scores to extant public opinion polls with greater than 98% accuracy.

The major point here is that the number of terms used and the large size of the data base results in a robust characterization of the issue types. The 100 percent reliability of the computer program in finding all of the chosen terms in the data base results in a very complete

construction of a case by case compilation of frequencies of terms in each category.

Because of the large number of terms, it is clear that a future research using the procedure for terms selection described here will more than likely generate a list of terms that are very similar to the ones generated for this study. Where 441 total issues terms were selected, a future researcher could be expected to generate a number that is relatively similar.

Raw frequencies of single words

Using the raw frequency of terms to measure an issue construct is nothing new to communications research. However, there is no way of knowing if each term for each list is meaningful in context without reading every sentence of the 8.61 megabyte data base. As Pool (1970) has observed, content analysts choose terms for analysis that they consider to be meaningful. The issues categories and the way in which they describe the crisis event under study is the focus of this dissertation. The frequency of the categories themselves is what is meaningful. The individual, single words chosen from the frequency lists for the issues categories are necessarily amorphous concepts. But because of the redundancy built into to human communication and the precise nature of AP Wire and public

relations writing, it is believed that it is possible to measure environmental, economic, and legal concepts with single words categories. In the entire data base there are only slightly more than 23,000 different words, names, and numbers. This is a very small number relative to the hundreds of thousands of words available for discourse in the English language.

The raw frequencies of single words present an additional problem. Because the categories have different terms and different frequencies of occurrence of each term in each time period, many of the categories will have a null value by time period in the study. This is the primary reason for the binary coding strategy for the categorical analysis of variance. Still, the use of single words is not as descriptive as multiple word constructs which would by definition be much more precise and meaningful.

Doubtless, however, there are other issues categories that could have been added to this study. As has been noted, Captain James Hazelwood became an issue into himself. For example, an "Accident" category could have been added to assess the extent to which accident related terms comprised this crisis event and came to label Exxon as irresponsible and negligent in their responsibility for safe transportation of their products. Therefore, generalizations that are made from the data chosen for this

study need to be limited to the categories chosen for the analysis.

Implications for future research

In this section future research with the source type list will be discussed. Additionally, improved approaches to the issue categories will be discussed. Also discussed is the possibility of similar content analytic procedures for related organizations during a crisis striking a sister or parallel organization in an industry. Finally, improvements to the concept of phase divisions will be discussed.

Source list research

The source type list appears to be a very rich source of data. In future research, the list could be divided into a number of communication actor categories other than just the corporation and non-corporation source type categories chosen for this study. Based on a reading of the names generated from the study, potential source type categories could include: 1) federal governmental administration agencies (appointed offices), 2) elected federal representatives, 3) state governmental administrative agencies (appointed offices), 4) state governmental elected

representatives, 5) legal councils, 6) issue activist groups, 7) industry advocate groups, and 8) ordinary citizens.

There are many questions that could be asked concerning these different source types. For example, at what point in a crisis do federal and state, appointed and elected source types occur? Do they occur in great frequency directly after a crisis event? Or do these source types wait until they see the significance attributed to crisis events by the news media? At what points do activist groups and legal councils become involved? Is their involvement significant by time period? Is there any difference in source types frequency of occurrence at all? Answers to questions like these could be very meaningful to people planning crisis event response strategies.

Issue category improvements

To improve the terms selected for issue categories, this study indicates that a number of steps can be taken. First, independent coders using the definitional criteria could be employed. And second, terms could be selected for coding based on a reading of selected instances of news copy as was done in the pilot study. Making the term selection procedure more objectively based may not change the result,

but would instead make the results more readily generalizable to similar crisis events.

The choice of larger meaning units for analysis could also be helpful. This study used single word terms. Future research could be done with multiple-word categories and dictionaries of meaning units that are deemed important to an issue construct.

Parallel industry study

Reading and coding the 2.9 megabyte file of source citation output brought the researcher very close to the news copy being studied. A number of non-organizational source citations included related corporations such as Alyeska, the consortium of companies that operates the Alaskan pipeline, and other major oil companies including but not limited to British Petroleum, Texaco, and AMOCO. The research conducted for this study indicates that AP Wire used these sources extensively in its reportage of the crisis. Additionally, it makes sense that corporations in the same enterprise as the crisis-stricken organization would be interested in the possible impact that coverage of the crisis could have on their own business operations and business image. This process, described by Grunig and Hunt (1984) as "hedging," could be a provocative area of future research. Stories about related organizations could be

compared to portrayals of the crisis-stricken organization to search for influences in related organizational coverage during the crisis event.

Window of opportunity improvements

The concept of the window of opportunity needs to be adjusted. For this study, a one-week time frame for the window was tested. One week appears to be too long a period of time for a sensitive test. Testing source differences on a day-by-day basis during the crisis phase may be a more meaningful way of comparing the frequency of source types.

Because of the advent of electronic newsgathering since 1976, information about crisis events develops very quickly and very completely. The window of opportunity must necessarily be very short. Given this rapid capability for the dissemination of news, the news day could be too large a unit of time. Perhaps studies of crisis events should compare source use on an hour-to-hour basis during the crisis phase of the attention cycle.

Whether the unit of analysis is the day or the hour in the day, corporations are afforded very little opportunity to respond publicly to a crisis event. This study suggests that Exxon had from the March 24th, 1989 to March 29th 1989 to present its views directly and forcefully to AP Wire. On two of those days, the 26th and the 29th, Exxon sources are

most frequent. But for the first two days of the crisis Exxon sources are not most frequent. This implies that Exxon hesitated at the outset of the crisis in its response. But there is no way that this current study shows that this hesitation may have cost Exxon control of the crisis event. Future research must use a unit of analysis that is certainly less than a week to assess these source use differences at the outset of a crisis.

Conclusion

Sources of information, issues composing the crisis, and phases in attention cycles come together in this study to paint a picture of a single organizational crisis event: the Exxon Valdez disaster. The theory of the issue attention cycle states that a precipitous event, such as an oil spill, will trigger media attention and greater sustained scrutiny of the organization by the public in well defined phases. It is observed here that the press, in its role as public information-gatherer and advocate, has a different perspective of the crisis event than does the organizational entity in crisis. Both are influenced and influencing their publics with their communications.

This dissertation set out to assess the accuracy of theoretical predictions concerning the theory of the issue attention cycle and an understanding of the theory of

agenda-setting/building. What the study demonstrates is that analysis of the issues composing a crisis event for an organization can be described using content analytical techniques. Secondly, those issues can be examined in the context of media portrayal and organizational portrayal. And finally, those portrayals can be compared for meaningful description of the crisis event and its implications for organizational survival as they move from phase to phase in evolution. What is developed in this study is a descriptive method for characterizing the coverage of a crisis event in the media.

But more than a content analytical methodology is advanced by this study. This study indicates that the theory of issue phases in attention cycles, whereby issue constructs are treated by different sources in predictable ways in meaningful units of time, still requires refinement and testing.

Non-organizational sources appear in this study to be the most frequent source of media information about an organization whether the organization is in crisis or not in crisis. Serious doubt has been cast on the assumption that public relations practitioners are highly effective in linking organizational sources with media coverage of the organization both in times of no crisis and immediately after a crisis event. This result is surprising, and suggests that further investigation into the nature of media

use of sources during coverage of crisis events is warranted.

The attention cycle, whereby media coverage of subjects increases and then decreases over time, is an established media theory. But the descriptive and predictive power of the theory is limited by the lack of empirical data to substantiate the existence of phases in attention cycles or the composition of issues and communication sources in those phases. This study chooses a crisis event in the media to bring this process into sharp outline and clear focus. What has emerged is a picture of attention cycles that has important implications for both media practitioners and media theorists.

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Appendices

Appendix I. Search Terms for Source Attributions.

Term	Frequency
said	4846
say	368
says	285
spokesman	263
told	214
reported	160
according	155
announced	142
reports	125
declared	65
suggested	64
noted	53
spokeswoman	45
ordered	42
claimed	42
argued	42
described	40
alleged	36
responding	31
quoted	29
announce	29
reporting	28
complained	24
questioned	23
sponsored	23
recommended	23
contends	23
announcing	20
proclaimed	19
spokesmen	18
conceded	17
allegedly	16
revealed	15
arguing	15
alleges	15
noting	14
contended	14
condemned	13
vowed	12
speculated	12
replied	12
mentioned	12
disclosed	12
disagreed	11
discussed	11

Appendix I. Cont.

claiming	11
specified	10
assured	10
blaming	10
requesting	9
argues	9
concluded	9
recommending	8
declare	8
ignored	8
ignoring	8
addressed	7
informed	7
addressing	6
declaimed	6
exclaimed	6
asserted	5
contending	5
reports	5
analyzed	4
apologized	4
applauded	4
concedes	4
concludes	4
confesses	4
confirms	4
declares	4
depicted	4
acknowledging	3
admits	3
admitting	3
confessing	3
denounced	3
documented	3
forewarned	3
publicized	3
quoting	3
asserts	2
attributes	2
decried	2
denounces	2
chastised	1
endorsing	1
espoused	1
proclaims	1
proclaiming	1
recalls	1

Appendix I. Cont.

warns	1

Appendix II. Source Citation Search Names and Qualifications.

Exxon Sources	Source Qualifications
Adams, Kenneth	Exxon Attorney
Alcantara, Leonard F.	Exxon Lawyer
Beathard, Henry	Exxon Spokesman
Bell, Griffen	Special Exxon Corp. Legal Committee Head
Berg, David	Kenneth A. Davis Attorney
Castle, Bob	An San Francisco Based Exxon Consultant
Chalos, Michael	Defense Attorney for Hazelwood
Chassin, Carrie	Exxon Shipping Co. Spokeswoman
Cirigliano, Tom	Exxon Shipping Company Spokesman
Claar, Harry	Seaman Aboard Valdez
Coleman, Rick	Exxon Spokesman
Cool, Jan	Exxon Spokeswoman; Exxon Shipping Co. Spokeswoman
Cornett, Don	Exxon Spokesman
Covell, Ken	Hazelwood Attorney
Curran - Wescott, Sharon	Exxon Spokeswoman
Davis, Fred	Public Information Official of the Company's Cleanup Headquarters in Valdez.
Davis, Jim	Exxon Spokesman
Davis, Kenneth A.	Exxon Computer Operator
Defense Lawyers say	
Deppe, William	Exxon Representative
Dick, Kevin P.	Exxon Captain
Dunphy, Brian	Exxon Spokesman
Exxon Attorneys said	
Exxon Attorneys say	
Exxon Officials announced	
Exxon Officials have conceded	
Exxon Officials said	
Exxon reported	
Exxon Spokesmen said	
Exxon's Report said	
Exxon's Rogers said	
Friedman, Richard	Hazelwood Lawyer
Gillette, Tom	Exxon Shipping Co. Official
Glowacki,	Exxon Valdez Engineer
Gorski, Gary	Exxon Salvage Coordinator

Appendix II. Cont.

Gray, William O.	Exxon
Hanson, Gary	VECO Inc. Foreman Beachworking Crew
Harrison, Otto	General Manager of Exxon's Valdez Operations
Hartley, Bert	VECO's General Manager
Hatler, Olaf	Exxon Damage Consultant
Hill, Tom	Valdez Captain
Hollern, Jack	Exxon Spokesman
Iarossi, Frank J.	Former President Exxon Shipping
Jahns, Hans	Exxon's Scientist; Exxon Arctic Research Scientist
Johnson, Sarah	Exxon Corp. Spokeswoman
Jones, Dan	Exxon Representative
Jung, Louis	Exxon Spokesman
Kagan, Robert	Valdez Helmsman
Kunkel, James	Exxon Valdez Chief Mate
Leathard, Pete	President of VECO Inc.
LeCain, Lloyd	Valdez Second Mate
Lewis, Bob	Exxon Solid Waste Expert
Lynch, Pat	
Madson, Dick	Defense Attorney for Hazelwood
Maki, Alan	Exxon's Sr. Environmental Scientist
Meidinger, Judy	Rural Affairs Specialist for Exxon
Meyers, Paul	Project Manager for Repair of Tanker
Morakis, Jim	Exxon Spokesman
Movil, Luis	Marketing manager for Exxon Operations in Guatemala
Nicholls, John	Exxon Spokesman
Owens, Ed	Exxon Technology Consultant
Plante, Amos	Exxon Spokesman
Rainey, Bill	Exxon's Director of Operations for the Spill
Rawl, Lawrence	Exxon Chairman and Chief Executive
Raymond, Lee	Exxon President
Reidy, John	Exxon Spokesman
Roberson,	Seaman Aboard Valdez
Rodvik, Karsten	Company Spokesman
Rogers, Les	Exxon Spokesman
Rolan, Rob	General Supervisor of VECO's Seward Operations

Appendix II. Cont.

Russo, Thomas	Defense Attorney for Hazelwood
Serdahely, Douglas	Exxon Attorney
Smith, Bill	Exxon Spokesman
Smith, Perry	Exxon Spokesman in Alaska
Spokesmen at Exxon Headquarters say	
Spokesmen at Exxon Headquarters said	
Springer, Ray	Local boss for a Subcontractor Working for Exxon
Stalzer, Michael	Exxon Captain
Stanczuk, Dennis	Exxon Spokesman
Stevens, Christina	Exxon Spokeswoman
Stevens, W.D.	President Exxon Co. U.S.A.
Stillings, Bill	Exxon Spokesman
Stockman, Larry	Exxon Psychologist
Teal, Amy	Exxon's Biologist Coordinating Shoreline Monitoring
Teal, Andy	Part of Exxon's Shoreline Advisory Panel
Tompkins, John	Fleet Services Manager
Tucker, Joe	Exxon Spokesman
Walt, Doug	Exxon Spokesman
Winstead, Warren	VECO Inc. Beachmaster
<u>Non-Exxon Sources</u>	<u>Qualifications</u>
A Top U.S. Coast Guard Official said	
Acampora, Ralph J.	Technical Analyst with Kidder Peabody
Adams, Brock	Sen. D-Wash.
Adams, Ken	Cordova District Fisherman United
Adams, Lauri	Attorney for the Sierra Club Legal Defense Fund
Adkins, Marla	Valdez Resident
Adler, Bob	Spokesman for Washington Based Natural Resources Defense Council
Alabaster, Hal	Spokesman for the NOAA
Alaska Officials said	

Appendix II. Cont.

Andersen, Drucella	A Washington Based Spokeswoman for the National Transportation Safety Board
Anderson, Glenn	Coast Guard
Andresen, Stanley	Sperry Marine Inc.
Angelo, Joseph	Assistant Chief of the Coast Guard's Merchant Vessel Inspection and Documentation Division
Antrim, Jim	Seaworld Vice President
Atlas, Ronald	Microbiologist at the University of Louisville
AuCoin, Les	Sen. D-Wis.
Baily, Douglas	Alaska State Attorney General
Bane, Ray	Park Superintendent
Batten, Bruce	U.S. Fish and Wildlife Service in Anchorage
Battipaglia, Joseph V.	Equities Analyst with Gruntal Investment Research
Baucus, Max	Sen. D-Montana
Bavaria, Joan	President of Franklin Research and Development
Bayliss, Randy	State Department of Environmental Conservation
Beckwith, David	Vice President's Press Secretary
Beevers, Robert	Former Tanker Captain
Bendick, Jr. Robert C.	Director State Department of Environmental Management
Benson, Kristine	Soil Scientist with Alaska Center for the Environment
Bentsen, Lloyd	Sen. D-Texas
Bergman, Pamela	Interior Department Spokeswoman
Berkner, Alice	Rescue Center Director
Bernstein, Norman	Washington Environmental Lawyer
Berridge, Chester	President of Berridge Distributing Company
Beutel, Peter	Elders Futures Inc.
Bird, Nancy	Valdez Resident
Blackett, Joe	Coast Guard Captain
Blandford, Bruce	Civilian Coast Guard Employee
Bolze, Dorene	National Audubon Society

Appendix II. Cont.

Boness, Fred	Attorney for the State of Alaska
Booren, John	Fisherman
Bosshard, John	Superior Court Judge (Valdez)
Bouchard, Luciene	Canada Environment Minister
Brady, James	State Biologist
Braine, Susan	Alaska Public Radio Network
Bramel, Terri	Spokeswoman for the Disaster Aid Center
Brathauer, Eric	EPA
Breaux, John	Sen. D-La
Breiner, Jr., George Kirk	Expert
Brennan, Tom	Alyeska Spokesman
Bridgeman, Joe	DEC Spokesman
Broderson, Phyllis	Court Administrator's Office
Brodie, Robert B.	Kodiak Mayor
Brucklin, Bob Van	Bar Owner (Valdez)
Buccini, Jan	Valdez Cabbie
Buente, David	Chief of the Environmental Enforcement Division at the Justice Department
Burgh, Colleen	Shoreline Cleanup Coordinator for the Alaska Department of Environmental Conservation
Bush said	
Bush, President	
Butler, James M.	Harvard University
Butler, Sid	Vice President for the Wilderness Society
Butterfield, Wayne	National Steel and Shipbuilding Co. Repair Manager
Byrd, Isabel	Theatre Worker from Trenton
Campabello,	Otter Rescue Volunteer
Cancelmi, Lou	Alaska Airlines Spokesman
Carper, Thomas	Rep. D.-Del.
Carr, Alan	Coast Guard Spokesman
Carroll, Geof	North Slope Borough Biologist
Carter, Bill	FBI Spokeman
Casner, Amy	Justice Spokewoman
Castellina, Ann	Kenai fjords National Park
Castellono, Phillip, Jr.	Prosecutor
Cerzo, Vinicio	President of Guatemala

Appendix II. Cont.

Cesarini, Sandra	Co-owner Valdez Fish-Processing Co.
Chafee, John	Sen. R-R.I.
	Chairman of the House Interior Subcommittee
Chappel, Jack	Manager of a Gas Station
Chasis, Sarah	Lawyer for the Natural Resources Defense Council
Cheney, Dick	Defense Secretary
Cheshier, E.J.	Fisherman
Cheske, Jerry	Spokesman for AAA
Chrystal, Lynn	Weather Service Spokesman
	Valdez Major
Ciancaglini, David	Federal On-scene Coordinator for the Cleanup
Clarke, Dave	The Prince William Sound Seiners Association
Claybrook, Joan	President of Public Citizen
Cline, David	National Audubon Society's Vice President for Alaska
Coast Guard Officials said	
Coast Guard Officials say	Coast Guard Petty Officer
Cobb, Michael	Deputy district Attorney
Cole, Brent	Valdez Citizen
Colour O'Toole, Linden	A longtime Ecologist
Commoner, Barry	American Petroleum Institute
Connaughton, Sean	Rep. R-Mass
Conte, Silvio	President of PIRO
Costello, John D.	Implementation Inc.
	Valdez Police Chief
Cottle,	Alaska House Speaker
Cotton, Sam	Rep. R-NJ
Court Officials said	Explorer
Courter, Jim	Alaska Governor
Cousteau, Jacques Yves	Coast Guard Lt.
Cowper, Steve	Service Station Deals of AZ
Crawley, Jeff	Marine Transportation
Crosby, Brent	Associate with the American Petroleum Institute
Cunningham, Sean	Governor of New York
Cuomo, Mario	Superior Court Judge (Palmer)
Cutler, Beverly	Deputy Minister of British Columbia's Ministry of Environment
Dalon, Richard	

Appendix II. Cont.

Davidson, Bill	Fish Culturalist
Davis, Gray	California State Controller
Davis, Mark	U.S. Attorney of Alaska
Davis, Mike	State Representative
Davis, Randall	Director of Otter Rescue Center
Deitrick, Larry	Director of the Department's Division of Environmental Quality in Juneau
Delozier, Janice	Wife of Coast Guard Investigaor
Delozier, Mark	Coast Guard Chief
Denman, Scott	Safe Energy Communication Council
Devens, John	Mayor
Dewel, Dan	Coast Guard Chief
Dexter, Robin	Commercial Salmon Fisherman
Dibona, Charles	President of the American Petroleum Institute
Dickerson, Kenneth R.	ARCO Oil Co. Sr. Vice President
Dickerson, Lee	National Transportation Saftey Board Member
Dies, Dixie	National Park Spokeswoman
Domino, Barbara	Valdez Citizen
Donald, Bob	Director Valdez National Health Center
Donohoe, Chris	Otter Rescue Specialist
Donohoe, Kathleen	Coast Guard Spokeswoman
Donohoe, Mike	Coast Guard Commander
Duncan, Kelly	Fishing Boat Operator
Dyson, Christopher	Author of the Buyers Up Report
Eason, Jim	Director of Alaska Division of Oil and Gas
Eikenberry, Ken	Washington Attorney General
Eklof, Dennis	Cambridge Energy Research Associates
Elgie, Stewart	Attorney for the Sierra Club Legal Defense Fund
Eliason, Dick	Senator
Elmore, John P.	Chief of Corp's Operations and Readiness Division
Elvsaas, Sandy	Health Aid in Seldovia
English, Art	Alaska Public Safety Commission

Appendix II. Cont.

Ensz, R.G.	American Petroleum Institute Spokesman
Environmental Lawyers said	
Environmental Officials said	
Environmentalists said	
Epstein, Louis	Environmental Defense Fund
Erickson, Bruce	A Supervisor with the Department of Environmental Conservation
Erickson, John	Spokesman at Kenai Fuords National Park
Evans, Brock	National Audubon Society
Fahrenkarp, Bettye	Senator Fairbanks
Faiks, Jan	Senator
Falkenstein,	Coast Guard Spokesman
Fazio, Thomas	N.Y. State Police
Felando, Gerald	California Assemblyman
Fiedler, James R.	Energy Analyst at E.D. & F. Man International Futures, Inc.
Fields, Jack	Rep. R-Texas
Fineberg, Richard	State Official
Fitzwater, Marlin	White House Press Secretary
Flensburg, Sue	Director of the Bristol Bay Coastal Resource Service
Florio, James	Governor of New Jersey
Flyntz, Frank	Coast Guard Licensing Office for Alaska
Fox, Michael J.	Alaska Fish and Wildlife Protection Trooper
Fraker, Mark	Sr. Environmental Scientist for British Petroleum
Freed, Linda	Spokeswoman of the Emergency Center in Kodiak
Freeze, Ken	Coast Guard Spokesman
Fried, Neal	State Labor Economist
Frohnmayer, Dave	Oregon Attorney General
Fulton, Dick	EPA Spokesman
Fulton, James	British Columbia House of Commons
Fulton, Rick	New Jersey Department of Environmental Protection
Galt, Jerry	National Oceanic and Atmospheric Administration
Gardner, Harry	Adminstrative Law Judge
Gates, Cris	Seward's Port Manager

Appendix II. Cont.

Georkakis, Celeste	Analyst with Cargill Investor Services, Inc.
Gibbons, Ed.	Coast Guard Lt.
Gibson, Bill	Shell Spokesman
Gideon, Kenneth W.	Assistant Treasury Secretary
Gist, Richard	A community psychologist
Giusti, Doris	Manager State Job Office
Glude, Bill	Executive Director of the Alaska Environmental Lobby
Goldin, Harrison, J.	New York City Comptroller
Goldstein, Steve	Lujan Aide
Golob, Richard	Golob's Oil Production Bulletin
Gorsuch, Lennie	Alaska Oil Commissioner
Gorton, Slade	Sen. R-Wash.
Gov. Steve Cowper's Office Announced	
Gramm, Phil	Sen. R-Texas
Greenstein, Albert	A Spokesman for Atlantic Richfield
Gregoire, Christine	Head of Washington's Department of Ecology
Greiner, Jr., George	33 years in the Coast Guard
Griffin, Doug	Valdez City Manager
Grogan, Bob	Director of the Alask Division of Governmental Coordination
Groh, Cliff	Special Assistant to the State Revenue Commissioner
Grother, Dick	Shipyards' Director of Support Services
Guanel, Dean	Alaska's Assistant Attorney General
Guardner, David	Lobbyist for the Sierra Club
Gundlach, Erich	A Consulting Geologist for the State
Haanpaa, Dennis	Fisheries Biologist with the Department of Fish and Game
Haines, Glen	Coast Guard Spokesman
Hair, Jay	President of the National Wildlife Foundation
Hales, David F.	Director of the Michigan Department of Natural Resources
Hamilton, Tim	Organizer of a Petition Drive

Appendix II. Cont.

Hansen, Arne	Western Canada Wilderness Committee
Haskin, Mary L.	V.P. Drexel Burnham Lambert, Inc.
Hazelwood, Margaret	Hazelwood's Mother
Hennigh, Gary	City Planner (Valdez)
Henry, Dan	School Teacher
Henry, Patrick	District Attorney
Hickel, Walter	Former Interior Secretary
Hite, Katie	A Bartender in Valdez for 13 Years
Hobson, Judy	Vendor (Valdez)
Hoffman, Cecil	Interior Department
Holcomb, Jay	Rescue Coordinator
Holian, Barbara	Spokeswoman for the Alaska Sate Department of Environemntal Conservation
Hopps, Robert	Lawyer Environmentalist
Howitt, William	Alyeska Engineer
Huard, Paul R.	National Association of Manufacturers
Hubbard, Dennis	Coask Guard Spokesman
Hufford, Gary	Weather Service Regional Chief Scientist
Isaacs, Marnle	Spokeswoman for Alyeska Pipeline Co.
Johnson, Gordon	Assistant for the Attorney General of New York
Johnson, Knute	Fisherman
Johnstone, Karl	Superior Court Judge
Jones, Jim	Idoho Attorney General
Jones, Walter	Rep. D-Okla.
Jones, Walter B.	Rep. D-N.C.
Julin, Peg	Alaska State Representative
Jurkowich, George	A Spokesman for Alyeska Pipeline Service Co.
Justice Department Lawyers said	
Justice Department Officials said	
Justice Department Officials say	
Justice Department Spokesmen said	
Justice Officials said	
Justice Officials say	
Kallander, Patty	Cordova Fisherwoman
Kane, Richard	Energy Broker with Merrill Lynch Energy Futures
Kelly, Tim	Alaska Senate President
Kelso, Dennis	Environmental Conservation Commissioner

Appendix II. Cont.

Kendziorek, Marshal	A State Cleanup Coordinator
Kennedy, Mark	Coast Guard Chief
Kerttula, Jay	Alaska State Senator
Khalimonov, Oleg	An Official in the Soviet Merchant Marine
Kiguchi, Stafford	PRI Spokesman
Kilgore, Calvin	Energy Department
Kiml, Ed	The Terminal's Head of Security
Kinnear, James W.	President of Texaco
Klienfeld, Andrew	U.S. District Judge
Klotz, John	Coast Guard Captian
Kloza, Tom	Editor of Oil Price Information Service
Kneuttel, Frank V.	Prudential Bache Securities
Koach, Joseph	Executive Director of the Service Station Dealers of America
Koefoed, Jens Henning	National Pollution Control Authority
Kolstad, James	Acting Head NTSB
Kompkoff, Gary	President Village Council
Kondo, Tina	Assistant Attorney General
Konitsheck, Wayne	Denver Based Dealer Lobbyist
Kosnaci, Steve	Of Somerville
Krupp, Fred	Executive Director of the Environmental Defense Fund
Kubina, Gene	State Representative of Valdez
Laird, Paul A.	A Spokesman for British Petroleum Exploration
Lamb, Jack	Vice President of Cordova District Fisherman United
Lamoreaux, Bill	Alaska Department of Environmental Conservation
Larrabee, Richard	Chief of Coast Guard's Environmental Response Division
Lastelic, Joe	Spokesman for the American Petroleum Institute
Laughton, John	A Biologist with the National Marine Fisheries Service
Lautenberg, Frank	Sen. D-N.J.
Lautenberger, Carl	Environmental Protection Specialist; EPA

Appendix II. Cont.

Lawn, Dan	Alaska Department of Environmental Conservation
Lazier, Bruce	Analyst with Prescott Ball and Turber, Inc.
Leahy, Gloria	Valdez Resident
Leahy, Joe	Valdez Resident
LeBlanc, Dan	Park Spokesman
Lebow, Andrew	Broker at E.D. & F. Man International
Lee, Bill	Bar Owner (Valdez)
Lee, Henry	Director of Harvard's Energy and Environmental Policy Center
Leffler, Keith	The University of Washington
Leland, Marilyn	Executive Director for the Cordova District Fisherman United
Lent, Norman	Rep. R-N.Y.
Leonard, Ken	Transportation Director for the American Petroleum Institute
LeResche, Robert	State Oil Spill Coordinator
Lespinasse, Victor	Dean Witter Reynolds, Inc.
Lethcoe, Nancy	Vice President Prince William Sound Conservation Alliance
Levin, Carl	Sen. D-Mich.
Levitt, Al	Interior Department Spokesman
Lewin, John	State Health Director
Lichtblau, John	Executive Director of the Petroleum Industry Research Foundation
Lieberbach, Dave	Incident Commander for the Bureau of Land Management
Lieberman, Joseph I.	Sen. D-Conn
Linton, Leonard	Assistant District Attorney
Little, Larry	Investigator
Little, Rand	Product Manager for the Prince William Sound Aquaculture Corporation
Livingston, Bob	Rep. R-La.
Local Greenpeace Activists said	
Logsden, Chuck	Petroleum Economist with the Department of Revenue
Lohse, Ralph	A Cordova Fisherman

Appendix II. Cont.

Lopatkiewicz, Ted	National Transportation Safety Board
Lopez, Tim	Harbor Master
Lowrance, Sylvia	Director EPA Solid Waste Disposal Office
Lowry, Cindy	Greenpeace Spokeswoman
Lujan, Manuel	Interior Secretary
Luker, Thomas A.	Rep. D-
Lundberg, Jan	Private Energy Forecaster
Lundberg, Trilby	Industry Analyst
Lusk, Clyde	Coast Guard Vice Admiral
Luther, William	Advisor to the FCC on International Shipping
Lutter, Al	NASSCO Sr. Vice President
Lyman, Jon	Department of Fish and Game Spokesman
Mach, Jeff	A Cleanup Coordinator with Alaska's Environmental Conservation Department
MacKay, D. John	Anchorage Lawyer
MacLeod, Fergus	Analyst at Barclays de Zoete in London
Maddy, Jim	League of Conservation Voters
Maldonado, Fred	Coast Guard Spokesman
Manheim, Bruce	Environmental Defense Fund Lawyer
Manville, Albert M.	Sr. Staff Wildlife Biologist for Defenders of Wildlife
Masson, Mike	Volunteer from Cullowhee, N.C.
Matthews, Tom	FBI Special Agent
Matz, Mike	Chairman of the Alaska Coalition
McAdoo, Sally	Valdez City Councilor
McAlister, Tom	Valdez Fire Marshal
McAlpine, Stephen	Lt. Governor of Alaska
McCabe, Lee	Valdez Resident
McCall, Steven	Coast Guard
McCarty, Heather	Spokeswoman for the Prince William Sound Aquaculture Association
McClosky, Michael	Chairman of the Sierra Club
McConnell, Dwayne	District Attorney
McCunes, Jerry	President Cordova District Fisherman United

Appendix II. Cont.

McDaniel, Gene	Valdez Citizen
McDonough, Kate	Managing Director of the Adams and Rinehart Public Relations Agency
McGee, Pete	A scientist with the State Department of Environmental Conservation
McGillivary, Dave	A U.S. Fish and Wildlife Biologist in Valdez
McInerney, Thomas	Air Force Lt. General
McKenzie, Arthur	Tanker Advisory Center in New York
McLaughlin, Rae	Member of New Jersey Citizen Action
McManus, Roger	Washington D.C. Based Environmental Group
Mehrkens, Joe	Wilderness Society
Meidt, Rick	Coast Guard Spokesman
Mendenhall, Vivian	Marine Bird Coordinator; U.S. Wildlife Service
Mertz, Doug	An Assistant State Attorney General
Mesta, Robert	U.S. Fish and Wildlife Service
Metzenbaum, Howard	Sen. D-Ohio
Mickelson, Belle	Commercial Fishing Instructor
Miller, George	Rep. D-Calif.
Milwee, Jr., William	Expert in Salvaging Grounded Vessels
Mitchel, George	Sen. D-Maine
Monnett, Chuck	Biologist
Monsport, Weldon	Of Boonton
Montoro, Don	Coast Guard Commander
Moody, William	Lead Investigator
Moore, Dan	City Manager
Moore, Henson	Deputy Energy Secretary
Morehead, David	Spokesman for the Petroleum Marketors Association
Moreth, Ed	Coast Guard Spokesman
Morin, Steven G.	Chief of Department of Environmental Management Environmental Response Team
Morrow, Richard W.	Chairman American Petroleum
Motley, Hugh	Vice President of Arco Alaska, Inc.

Appendix II. Cont.

Muller, Eileen	Secretary of the United Cook Inlet Drifters Association
Murkowski, Frank	Sen. R-Alaska
Murphey, William E.	President of the Southwest Alaska Pilot's Association
Murray, Allen E.	Chairman Mobil Corp.
Nadeau, Rick	Greenpeace
Neely, Elizabeth	Coast Guard Petty Officer
Nelson, Edward	Coast Guard's Top Official in Alaska
Nelson, Gaylord	Council to the Wilderness Society
Nelson, Todd	Coast Guard Spokesman
Newsome, Sharon	National Wildlife Federation Vice President for Resources Conservation
Nickerson, Sheila	Alaska Department of Fish and Game Spokeswoman
Nielsen, Ed	Maintenance Man at Village Inn
Nilsson, Glen	Director of the Lone Star Service Station Association
Nizich, Michael	Gov. Cowper Aide
North, Robert	Coast Guard Captain
Notthoff, Ann	Natural Resources Defense Council-San Franciso Office
O'Dell, Jack	Coast Guard Spokesman
O'Donnel, Chuck	Alyeska Spokesman
O'Donnell, Charles	Superintendent of the Marine Terminal at Valdez
O'Leary, Michelle Hahn	Spokeswoman for Cordova District Fisherman United
O'Malley, Terence	Cowper's Spokesman
Oakar, Mary Rose	Rep. D-Ohio
Oil Industry Experts say	
Oil Industry Spokesmen say	
Oliver, Daniel	Chairman of the Federal Trade Commission
Olson, Erik	Attorney for the National Wildlife Foundation
Ortman, David	Northwest Office of Friends of the Earth
Ott, Cary	National Atmospheric and Oceanic Administration
Ott, Riki	Alaska Fisherman's Union Spokesman

Appendix II. Cont.

Page, Robert W.	Assistant Army Secretary for Civil Works
Pallone, Frank	Rep. D-NJ
Palmer, Mark J.	Executive Director of the Whale Center
Panetta, Leon	Rep. D-Calif.
Park Officials said	Park Service
Pascoe, David	Chief of Coast Guard's Environmental Response Branch
Patterman, John	Aleyska Spokesman
Pavia, Robert	National Oceanic and Atmospheric Administration
Peat, Michael A.	Of Sacremento California
Peterson, Earl	Who Harvests Crab
Peterson, Randy	Coast Guard Spokesman
Petrie, Thomas	Partener Denver Based Oil Consulting Firm Petrie Parkman
Picchi, Bernard	Director for Salomon Brothers, Inc.
Pickett, Joe	Historian at Mayport Navel Station
Pike, Nettie	Airplane Scheduler
Pilcher, Bill	State Department of Fish and Game
Piper, Ernie	Press Aid to Gov. Cowper
Polasek, Theo L.	Aleska's Vice President for Operations
Pollard, Sharon	Energy Secretary
Pollock, Alan	National Transportation Safety Board
Pope, Carl	Deputy Conservation Director of the Sierra Club
Porter, Ed	American Petroleum Institute
Pourchot, Pat	Anchorage Senator
Prestegard, Eric	Hatchery Manager
Prezyna, Ann	EPA Attorney
Priore, Frank	Township Mayor
Provant, Steve	State Department of Environmental Conservation; U.S. EPA Official on Loan to the State
Quayle, Dan	Vice President
Quinley, John	Park Department Spokesman

Appendix II. Cont.

Quirke, Kelly	Greenpeace
Rae, Marla	Executive Assistant to Oregon Attorney General Dave Frohmayer
Ramseur, David	Spokesman for Governor Steve Cowper
Randol, William	Analyst First Boston Corp.
Ratterman, John	Alyeska Spokesman
Regula, Ralf	Rep. D-Ohio
Reichman, Alan	Ocean Ecology Coordinator for Greenpeace
Reid, R.C.	Alaska Department of Environmental Conservation
Reilly, William	EPA Administrator
Reis, Lee Keller	National Wildlife Federation Spokesman
Rekin, Sergey P.	Soviet Oil Skimmer Captain
Richards, Bill	Rep. D-N.M.
Rieben, Craig	Spokesman for the Fish and Wildlife Service
Riesel, Dan	Environmental Attorney
Robbins, Clyde	On-site Coordinator of Cleanup Efforts
Robbins, Jane	Press Secretary for Senator Ted Stevens of Alaska
Robertson, Marvin	Bureau of Land Management
Robinson, Greg	Coast Guard Spokesman
Robinson, John	Chief of Hazardous Materials Response Branch of the National Oceanic and Atmospheric Administration
Whitney, John	Science Coordinator for the National Oceanic and Atmospheric Administration
Robinson-Wilson, Everett	U.S. Fish and Wildlife Service
Rohl, Kenneth	Judge
Rothschild, Edwin	Labor Energy Coalition
Ruess, Herman	Airplane Pilot
Runkel, David	Spokesman for Attorney General Dick Thornburgh
Russel, Frank	Dockmaster
Samuels, Paul	Legal Action Center
SanGeorge, Robert	Audubon Spokesman
Saxton, Jim	Rep. R-N.J.

Appendix II. Cont.

Scandling, Laury Roberts	Cowper's Director of Constituent Relations
Scarborough, Jack	U.S. Coast Guard Commander
Schaefermeyer, Darryl	Deputy City Manager
Scheer, Bill	Unemployed Valdez Cannery Worker
Schetter, Max	San Diego Chamber of Commerse
Schier, Lawrence	Alyeska Pipeline Service Company's Marine Manager
Schofield, Ed	Valdez Construction Worker
Schomer, Mike	Copper River Fisherman's Cooperative
Scott, Bob	Owner of Alaska Clacier Tours in Anchorage
Scott, Mary	Volunteer Coordinator
Seidenberg, Peter A.	Newport Beach Attorney
Shannon, John	Assistant Secretary of the Army
Sidenburg, Lois	Goo Co-founder
Siegel, Loren	American Civil Liberties Union
Silva, Edward J.	Sr. Harbor Pilot
Simard, Linda	Energy Broker at Drexel Brunhanm Lambert, Inc.
Skinner, Samuel	U.S. Transportation Secretary
Smith, Allen	Alaska Director of the Wilderness Society
Smith, Brad	Coast Guard Spokesman
Smith, Reed	CA Fish and Game Department
Smith, Rodney	EPA
Smith, Roger	Manager Hardware Store (Valdez)
Smith, Ron	A Spokesman for a Fed-State Cleanup Effort
Smith, Steven	Bear and Stearns and Co.
Solberg, Larry	
Sollosi, Mike	Chief of Vessel Traffic Services for the U.S. Coast Guard in Washington D.C.
Sonnevil, Gary	U.S. Fish and Wildlife Service
Sorlie, Greg	Program Manager for Washington Department of Ecology
Spaar, Michael	U.S. Attorney

Appendix II. Cont.

Spangler, Keith	Coast Guard Spokesman
Sparlin, Drew	Drift Netter
Speer, Lisa	Sr. Scientist Natural Resources Defense Center
Spencer, Hal	AP Regional Reporter Spokesman
Star, Judson W.	Former Head of the Justice Department Environmental Crimes Unit
Stark, Thomas	Suffolk County Criminal Court Justice
State Attorneys concluded	
State Authorities say	
State Environmental Officials said	
State Officials said	
State Officials say	
Steiglitz, Walt	U.S. Fish and Wildlife Service
Stephenson, Mark	Lujan Aide
Stevens, Ted	Sen. R-Alaska
Stewart, Dick	Assistant Attorney General
Stewart, Marion	Energy Analyst at the National Economic Research Associates, Inc.
Stroud, Fred	Sr. On-site Coordinator for the EPA
Stuart, Richard B.	Assistant Attorney General in the Land and Natural Resources Division
Studds, Gerry	Rep. D-Mass.
Sulnick, Bob	Head of American Oceans Campaign
Sununu, John	White House Chief of Staff
Sussman, Steven D.	A Lawyer Representing Fishermen
Szymanski, Mike	Alaska State Senator
Tass said	
Taylor, Bill	American Petroleum Institute
Taylor, Patrick	President of New Orleans Based Taylor Energy Company
Tennyson, Deborah	Executive Director of the Bristol Bay Native Assoc.
The Alaska Department of Environmental Conservation said	
The Boston Globe	

Appendix II. Cont.

The Country's Major Environmental Organizations said	
The Los Angeles Times	
The New York Times	
The San Diego Union	
The State's Suit Alleges	
The Suit Alleges	
The Wall Street Journal	
Thomson, Tom	Spokesman for British Petroleum
Thornburg, Lacy	North Carolina Attorney General
Thornburgh, Dick	Attorney General
Ting, Paul	Analyst with Oppenheimer and Co.
Tivnan, Frank	Massachusetts Petroleum Council
Toledo, Brenda	Coast Guard Spokeswoman
Torbol, Debbie	NASSCO Spokeswoman
Torricelli, Robert	Rep. D-NJ
Trumble, Bob	Biologist International Pacific Halibut Commission
U.S.A. Today	
Underhill, R. Michael	Federal Attorney
Valentinetti, Richard	EPA
Van Cleve, George	Deputy Assistant Attorney General; Justice Department
Vandenmeuler, John H.	Bedford Institute of Oceanography
Veno, William	Director of Oil Market analysis for Data Resources Inc.
Vickery, Dave	BLM Spokesman
Vortman, Richard	President of the National Steel and Shipbuilding Co.
Vorus, William	Professor of Navel Archetecture
Waite, Carol	Defenders of Wildlife
Waldron, Darryle	Coast Guard Commander
Walker, Bob	Interior Department
Wallace, Dave	Coast Guard's Casualty Review Board
Walsh, Thomas	Nikko Securities Int'l.
Washington Post	
Watkins, James D.	Energy Secretary
Weeks, Larry	Chief Prosecutor

Appendix II. Cont.

Wehn, Dick	Coast Guard Chief Petty Officer
Weiner, Art	Alaska Department of Conservation
Weiner, Randal	Executive Director of the Environmental Group Trustees
Wells, Jason	Executive Director of the Valdez Fisheries Development Association
Wetzel, Frank	The Seattle Times
Whitman, Marine	General Motors Corp. V.P.
Wieliczkiewicz, Ed	Coast Guard Lt.
Williams, John	A Spokesman for Suffolk District Attnorney Patrick Henry
Williamson, Barry A.	Director of Minerals Management for the Interior Department
Wilson, Rick	British Columbia's Ministry of Environment
Winchester, James	A Local Environmentalist
Wirth, Timothy	Sen. D-Colo.
Wise, Louis	EPA
Wodden, Rebecka	Wilderness Society
Wolf, Lynn	Publisher of the Valdez Vanguard
Wolfe, Robert	State Division of Subsistence
Woodle, James	Retired Coast Guard
Woody, William	National Transportation Safety Board
Wrich, James	United Airlines Pilot's Rehabilitation Program
Yates, Sidney	Rep. D-Ill.
Yosie, Terry F.	Vice President for Health and Environment for the American Petroleum Institute
Yost, Paul	Coast Guard Commandant
Young, Carolyn	Oregon Department of Environmental Quality
Young, Don	Rep. R-Alaska
Young, Mike	Smith Barney, Hass Upham, and Company
Zawadzki, David	Coast Guard Captain
Zharoff, Fred	Senator of Kodiak
Zimmerman, Silvaine	Greenpeace

Appendix II. Cont.

Zimmerman, Steve	National Marine Fisheries Service
Zschiesche, Peter	Machinist Union

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VITA

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