

The Effects of Causal Reasoning on Understanding Media Presentations of the News *

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Abstract

This study is concerned with the ordinary person's ability to understand news about public affairs. Empirical research on this issue suggests that citizens' knowledge of public affairs is rather superficial, and that people make mistakes in judgement because of their "shallow" understanding of events around them. The low level of political knowledge and the lack of ideological reasoning have lent support to the belief that popular control of government in a democracy is an illusion. However, the acquisition of knowledge and the application of ideological precepts are not the only means of making sense of the political world. In this paper I argue that causal beliefs are important components of political knowledge, that citizens are quite capable of explaining complex political issues and that they do so spontaneously, and that individual's causal accounts of public issues are significantly influenced by the manner in which these issues are presented in the mass media.

Background

For decades, communication researchers and political scientists have been preoccupied with the ordinary person's ability to understand the course of public affairs (for a comprehensive analysis, see Ferejohn, 1987). Empirical research on this issue suggests that public opinion is far from enlightened. Citizens are only superficially familiar with current events and very few utilize ideological concepts to organize their political beliefs (c.f. Kinder and Sears, 1985). The low level of political knowledge and the absence of ideological reasoning have lent support to the belief that popular control of government is illusory (Schumpeter, 1950; Toqueville, 1954). The acquisition of information and the application of ideological precepts, however, are not the only means for making sense of the political world. I will argue that causal beliefs are important components of political knowledge; that citizens are quite capable of explaining complex political issues and that they do so spontaneously; that individual's causal accounts of public issues are significantly influenced by the manner in which these issues are presented in the mass media.

Causal Inference as Knowledge

Causal inference is an essential ingredient of human knowledge. To explain events or outcomes is to make inference about the causal links that led to these events; to transform the "blooming, buzzing confusion" of today's world into orderly and meaningful patterns. Psychological research has demonstrated that causal relationships occupy a prominent place in individuals' perceptions of social phenomena (Nisbett and Ross, 1980; Weiner 1985). In fact, causal thinking is so central to our thinking that we see causality where none exists, as in purely random or chance events (Wortman, 1975).

"Causal" knowledge is important to political thinking for two reasons. First, answers to causal questions are abundant in popular culture, making the task of explanation relatively inexpensive (Iyengar, 1987). One does not need to study macroeconomics or read the Wall Street Journal to "know" why there is chronic unemployment. Second, and more importantly, causal knowledge is connotative knowledge. To "know" that unemployment occurs because of motivational deficiencies on the part of the unemployed is pertinent to our attitudes toward the unemployed and our policy preference regarding unemployment. Put differently, causal knowledge is usable knowledge. Simple factual knowledge, on the other hand (e.g. the current rate of unemployment), does not so easily imply political attitudes and preferences. One is not surprised, then, that opinions, attitudes, feelings, and behaviors in

multiple domains are organized around beliefs about causation (for illustrative research, see Schneider, Hastorf, and Ellsworth 1979). In fact, causal attributions exert such a powerful influence on behavior that "misattribution" techniques have proven effective in treating behavior disorders (Fiske and Taylor, 1984), in inducing "prosocial" behaviors (Schneider et al., 1979), and even in strengthening the general sense of psychological well-being (Langer and Roden, 1976).

Cuing Effects in Political Explanation

When individuals are involved in causal reasoning, their thinking processes are hardly systematic or exhaustive (Kelly, 1973). Practically all forms of human judgement are bound by error, with outcomes resting on a variety of circumstantial and contextual cues. Kahneman, Slovic, and Tversky (1982) use the term "framing effects" to refer to changes in judgement elicited by subtle alterations in the definition of judgement or choice problems. These researchers, in a number of experimental studies, have shown that choices between risky prospects can be profoundly altered merely by altering the description of the alternatives. Framing the prospects in terms of possible losses, for example, induces risk-seeking behavior while describing the identical prospects in terms of potential gains make people avoid risk (Kahneman and Tversky, 1982, 1984; for illustrations of framing effects in consumer behavior, see Thaler, 1980). In short, the invoking of different reference points triggers completely different strategies of choice or judgement.

Political explanation would seem to be a "real world" domain particularly suited for the occurrence of framing effects. Political stimuli are generally remote from every day life, and ordinary citizens are unlikely to have developed strong commitments to particular explanations. Accordingly, one would expect individuals to be highly susceptible to political framing effects.

A particular piece of "information" could elicit different consequences depending on the way it is "framed." Framing information one way or another means making certain features more or less salient, concrete, or direct. The varying degrees of saliency, concreteness or directness have implications for the "availability" and "accessibility" of certain types of knowledge which in turn influences the overall impact of a given message. In the context of news media use, the particular features of a news item partly determine what kind of "stored knowledge" the individual draws on, which in turn constrains the types of inferences he or she makes about the events in the news story.

To illustrate the notion of political framing effects, a dramatic example can be found in William Greider's 1981 Atlantic magazine article on David

Stockman cited in Robinson and Levy (1986). Reflecting on his story, Greider (1983) notes that even though there was little new information in his article, it nevertheless effectively embarrassed Stockman, budget director at the time, as well as the Reagan administration. Most of his allegations, says Greider, and many of his quotes had already appeared in the Washington Post, the New York Times, and other news media as well. Greider (1983:2) admits he "assumed incorrectly...that most people would not be surprised by his fundamental points, since these points had already been made in public print."

In retrospect, Greider's "surprise" over the special power of his "old" news story could have been anticipated by considering the "framing" factor. What his article did was integrate earlier fragmented information about administration policies into a single message (the administration is "faking" its economic policy); it personalized the story around a single individual (Stockman) whose earlier newspaper comments were "off the record" or unattributed; it highlighted the conflict within the Reagan administration; and it told the story in direct and human terms. How the story was told made all the difference between a dry account understandable to a small elite who could "read between the lines" and front page news that ended in Stockman's "trip to the woodshed" and crippled his power in Washington.

This anecdotal example highlights the notion that media news presentations constitute the ideal place to study the effects of political framing. This is due in large part to the fact that individuals depend mostly on media for information about the political world. The working hypothesis which guides this investigation is that, according to the manner in which the news media frames national issues, individuals' explanations of these issues are altered. This hypothesis implies processes of two kinds; communicator processes and receiver processes.

Communicator Processes and Constraints

When we talk about communicators, we are referring to professional journalists involved in producing the news. More specifically, we want to focus our attention on the constraints which accompany their professional status as journalists. Of particular interest are the constraints on news production and "packaging". At least four processes are involved in the presentation of any news item:

- 1) Journalists use certain angles or "spins" as vantage points from which to present a story. A broad framework that is commonly used is the who, what, why, where and when structure (Woodall, 1986).



- 2) News stories vary in their use of these elements depending on their structure and content. For example, accident accounts place more emphasis on "who" and "where", while news about diplomatic negotiations and public affairs may require special emphasis on "why" and "what" elements (Woodall, 1986).
- 3) It has been shown that the "why" or causal elements in a news story have the most influence on viewer comprehension (thus processing) because they allow other elements to be cognitively integrated into an overall story theme (Findahl and Hoijer, 1981). Furthermore, it is unlikely that other story elements alone could result in much viewer integration of news information.
- 4) Casual elements vary in terms of whether they signify individuals, groups, or social systems. That is, an event could be seen as caused by or influencing a particular person, a class or category of persons, or a social system. For instance, unemployment may be presented as caused by changing interest rates (system), as affecting an urban minority (group), or as devastating the life of John Doe (particular person).

Receiver Process and Constraints

News audiences have several constraints as well. First, individuals have a limited capacity to process information. The amount of information an individual can hold in working memory is quite limited.

Second, for that reason as well as others (e.g. interest, fatigue....etc.) individuals often rely on certain heuristics to reduce inferential tasks. Heuristics are cognitive principles individuals use deliberately and purposefully to guide inferential processes (Markus and Zajonc, 1985). These principles specify operations individuals perform on complex data to reach certain conclusions. Heuristics are to be distinguished from biases. Bias usually occurs either during data selection (input bias) or response preference (output bias) while heuristics are usually invoked during the inference-making process (sometimes they are known as operational biases). In the case of input bias, individuals rely on data selectively such that some classes of data are given more weight than others. As a result, an individual may activate an inappropriate schema to deal with the information at hand. In the case of output bias, however, the individual does not evaluate data, instead he or she provides guesses in the absence of data or when data are insufficient.

Cognitive heuristics are activated at the time when information is being

processed. Heuristics do not necessarily guide attention or perception, rather they determine the way data is linked to inference, act to actor, and cause to effect. It should be pointed out that although inferential heuristics are purposeful, they are not necessarily free of error. Individuals do not use heuristics for their accuracy, but for their efficiency.

This paper will attempt to establish the concept of story causal structure as an attribute which people rely on in making causal inference. In the following section I will present the theory underlying this global concept and an explication of its major components. Specifically, I will attempt to offer an analysis of the major concepts in this study by examining the question of how individuals make sense of events in the news. This is accomplished by considering the various ways in which people make causal inference and the strategies they employ to relate causes and effects.

1. The Nature of Causality and Causal Explanation

One of the most basic problems in the study of human judgement and reasoning is how to combine knowledge of the real world with logical rules of inference. Traditionally, cognitive and social psychology have taken normative procedures of making a correct inference as descriptive models of human reasoning, only to discover that our judgements are full of biases and shortcomings (Nisbett and Ross, 1980). We do not make use of sufficient information; we neglect base rate information; we are not particularly good at detecting covariation; we confuse opposite conditional probabilities; in short we seem to be rather poor information-processors.

Various researchers have protested against this view of man as a poor scientist. Some have suggested that we are not illogical beings, rather we use a natural logic, which differs from normal logic scientists use but is equally valid. The most popular views of individuals' inferential capacity, however, is that lay people do not think like scientists at all but use simple rules of thumb or cognitive heuristics (Kahneman and Tversky, 1982).

A major question upon which this controversy centers is whether the social perceiver in every day life situations engages in detailed causal analysis, or whether causal analysis is, in fact, a rapid and partial process that utilizes few cues (cf. Hansen, 1980). There is some evidence that causal processing becomes more detailed and thoughtful as the issues themselves become more consequential (Fiske and Taylor, 1984). On the whole, however, psychological opinion is shifting away from those models that posit a quasi-scientific account of the causal inference process toward those that emphasize the rapid use of shortcuts to make inferences. Preference for these latter kinds of theoretical models stems in large

part from research in cognitive psychology that emphasizes the limited capacity of the perceiver. It is simply very difficult and time consuming for the individual to go through a lot of information to make an inference, particularly as the world continues its "blooming, buzzing confusion" while one is trying to think. Accordingly, it is often more functional to make inferences quickly, so that we can continue to monitor what is going on in the world around us.

What is causality? The rules of inductive or causal inference as suggested by Kelly (1973) are quite clear. A cause is a condition which is present when the effect is present and absent when the effect is absent. What is not clear, however, is how that condition is to be selected and encoded by the observer. A distinction made by Kruglanski (1977) may help shed some light on this point. He states that we must distinguish between causal explanations (which account for what caused that act to happen) and teleological explanations (why this action was accomplished, i.e. to what end). Kelly's work has been heavily concerned with "what" questions sometimes to the exclusion of "why" questions. Although one can sometimes infer why something happened from the context in which it occurs, attribution theory does not provide explicit formal statements about teleological explanations (See Locke and Pennington, 1982).

Casual Schema

One strategy individuals may use to infer causality for events involves the application of causal schemas. "A causal schema is a general conception the person has about how certain kinds of causes interact to produce specific kinds of effect" (Kelly, 1972, p. 151). Each person, through continuous experience with cause-effect relations in the world, develops certain abstract conceptions about how causes work together to produce effects. These schemas are then used when a need arises to explain effects for which causal information is ambiguous and unclear. Kelly's conceptualization focuses on two kinds of causal schemas in particular: the multiple necessary causes schema and the multiple sufficient causes schema. We may know, for example, that when a particularly large or extreme effect is involved (stock market crash), multiple causes will be needed to produce the outcome (inflation, budget deficit, illegal trading, etc.). This is called the multiple necessary causes schema. For such an event not to happen would be uninformative (i.e. persons are unlikely to generate numerous hypotheses to explain why it is business as usual at the stock market) because a number of things could go wrong in the economy without it leading to a crash in the stock market. It would take an unusual convergence of factors for such an event to happen. News about such a convergence is considered informative.

On the other hand, a multiple sufficient causes schema accounts for less extreme outcomes and assumes that any one of several causes could be sufficient to create the effect. If one reads in the newspaper an article with the following headline: "NATION'S SCHOOLS SHOW POOR TEST RESULTS", one can attribute it to lack of spending on education, local management of schools, student motivation, rising standards of examinations, or lack of parental involvement. Any one of the causes will do equally well, and to the extent that any one is present, the social perceiver will employ the discounting principle of downplay the significance of any of the others (Cunningham and Kelly, 1975). The discounting principle maintains that a social perceiver discounts any one candidate as the potential cause for an event to the extent that other potential causal candidates are available.

The presence or absence of potential causes is not the only information people can use to judge causal relations. Perceivers can also use information about the relative strength of causes to judge cause-effect relationships. If one reads the headline "The U.S. invades Panama" one may infer that the invasion was decisive and was accomplished in little time. Strength of effects also provides information about cause-effect information. For example if one finds out that the U.S. forces invasion of Panama took an unexpectedly long time and involved a large number of casualties, one may infer that the Panamanian forces presented fierce resistance, the U.S. offensive was lacking in planning, third party forces interfered in the conflict, or any number of reasons.

According to Fiske and Taylor (1984), causal schemas are thought to be important aspects of causal inference for several reasons. First, causal schemas help people to make causal inferences when information is incomplete, sketchy, or derived from only one incident or observation. Second, they represent general conceptions about patterns of cause-effect relationships that may apply across a wide range of specific content areas. Causal schemas, in essence, give the social perceiver a causal shorthand for accomplishing complex inferential tasks quickly and easily.

On the basis of our knowledge of causal schemas, we are able to utilize information about presence, absence, or strength of causes to infer effects when information is complex or is less than complete. And we are also able to use presence, absence, or strength of effects to infer causes and their relative strength.

Judgemental Heuristics

Judgemental heuristics are inferential strategies or rules of thumb which reduce complex inferential tasks to simple judgemental operations (Nisbitt and

Ross, 1980). Heuristics are distinguished from computational or judgemental "algorithms" (such as the method for finding square roots or deciding whether one's bridge hand merits an opening bid), which are generally explicit and invariant both in the criteria for their use and the manner of their application. Knowledge of judgemental heuristics by the social perceiver is tacit and their utilization is usually automatic and non-reflective and free of any conscious consideration of appropriateness.

2. Properties of News Information

Contextual Cues

Contextual Cues are terms present in a news story that signify a particular causal agent such as a person or a group of people. They are contextual because they define the context of a news event on at least three levels. A causal agent can be characterized as a person, a social group, or a social system. Contextual cues give meaning to a news story by limiting the possible range of explanations to a specified set of causal agents usually at the same level for each story.

To understand the various issues behind a particular news story, individuals would have to engage in the kind of deep processing that is characteristic of more involved types of reading (e.g. books, academic manuscripts). Because most people do not usually process the daily news at that level, they rely on contextual cues to guide their understanding. These cues are embedded in the news story and they serve to prime readers or viewers to set their processing behavior at one level or another. However, unlike the usual experimental priming techniques in which subjects are primed before they are assigned to one condition or another, contextual cues are resident primes. That is, they are part of the stimulus condition itself. This distinction makes contextual cues bear a much closer resemblance to media use in real life situations.

Why Three Levels?

The decision to set the concept of contextual cues as well as causal frames at the systemic, group, and individual levels is related to the nature of social information in general and the nature of news in particular. Social information by its nature involves people; people in context. When we observe a person engaging in social behaviour we tend to make attributions in an attempt to explain this behavior (Kelly, 1973). Attributes of the target person can range

from those related to personal qualities to those related to social class, or social role. Based on the attributes which appear more salient or distinct at the time, a causal inference is made reflecting the dominance of these attributes.

This attribution process extends to mediated social information also. That is, persons make causal inferences about events presented in the mass media. The major difference between real life situations and mediated events is that in the latter case the context is constrained by the nature of the medium itself. That is, in real life situations person causal attributions are made within "natural" constraints (e.g. limitations on the senses, physical location in relation to the perceived event). In mediated situations, however, individuals attributions are constrained by the way news is presented (among other things). As I have mentioned earlier, news stories about political issues are usually presented using the "why" frame. Because actors in political events are usually individuals, groups, and/or social systems, the choice of these three levels seems to be the logical step. Figure 1 provides an example of a nine fold typology where causes and effects are conceptualized at three different levels.

Like properties of new stories, contextual cues vary in terms of their vividness and their directness. The following section will offer conceptual definitions of these two properties along with examples illustrating their relevance to communication phenomena.

Vividness of Information

Vividness is a property of information which renders it more likely to be stored and remembered than pallid information is. Information may be described as vivid, that is, as likely to attract and hold our attention and to excite our imagination to the extent that it is (a) emotionally interesting, (b) concrete and imagery-provoking, and (c) proximate in a sensory, temporal, or spatial way (Nisbitt and Ross, 1980). In practice, these factors are not usually independent, but they are at least conceptually distinct. I will offer a brief description of each of these components, and argue that each will make an independent contribution to the greater inferential impact of more vivid information in news stories.

a) Emotional Interest: A given event may have greater or lesser emotional interest, depending on several factors. One important class of factors is the nature of one's acquaintance with the participants in the event. Normally events that happen to us are more interesting than those happening to others. Furthermore, events happening to others we know are more interesting than those happening to others we do not know. And perhaps more relevant to mass communication, events that happen to those similar to us or those we identify

with (socially, politically, etc.) are more interesting than events that happen to those we have little in common with. So, for example, if I read the headline "WITH EXAMS COMING UP CITY UNIVERSITY PROFESSORS GO ON STRIKE" it would make a great difference on my causal inference whether I am a college professor or a car salesman.

b) **Concreteness:** Concreteness refers to the degree of detail and specificity about actors, actions, and situational context. These factors contribute to the "imaginability" of information, that is, its tendency to prompt sensory imagery (Nisbitt and Ross, 1980).

The information that "Nine slain in raid on village in the West Bank: Israelis blamed" has much less impact than the information that "Nine Palestinians including women and children killed during a bloody pre-dawn raid by Israeli armed forces on a West Bank village." This is true quite independently of one's familiarity with, or attitude toward, the Israelis or the Palestinians. The concreteness of the second statement and the resulting involuntary imagery contribute substantially to its emotional impact, and because of that impact, there is an effect on inferences as well. When armed soldiers kill villagers, including women and children, it is time to take action-whether to stage local protests, write to political leaders to push for peace, etc. In contrast, when nine nameless characters are slain during some raid, it seems to be one of those unfortunate things that sometimes happen during international conflict.

c) **Temporal, Spatial, and Sensory Proximity of Information:**

Information seems vivid in proportion to one's temporal, spatial, and sensory proximity to it. The news that a bank in one's neighborhood has been robbed just an hour ago is more vivid than the news that a bank on the other side of town was robbed last week. The former bank robbery, accordingly, is likely to have a greater impact on one's views of the seriousness of the crime problem in one's city or the need for a stiffer prison sentence for bank robbers. Such effects may be mediated partially by other factors such as emotional involvement, familiarity, sensory intensity, or informational concreteness. Proximity of information, however, is hypothesized to increase vividness and impact even when these other factors are held constant (Nisbett and Ross, 1980).

Directness of Information

The directness criterion holds that the power of information to influence attributions is a function of the number of inferential steps necessary to make use of it (McArthur, 1978). Consider, for instance, the following news item "subway vigilante Goetz opens fire on 5 black youth after they had asked him

for money." Now the first question that may come to the reader's mind is why did he do it? Let us assume that the article included these three pieces of information:

- 1) Goetz was robbed a week earlier by black youth in the subway train.
- 2) New Yorkers frequently encounter those who ask them for money whether on the train or in the street.
- 3) Being asked for money may be annoying or threatening to most people depending on the time of day and the location.

The first piece of information will probably figure more prominently in a spontaneous causal analysis of Goetz's behavior. The reason is that it is directly related to the actor, which will reduce the number of inferential steps required to reach a conclusion. Learning anything about the actor from the remaining pieces of information will require an inference of a rather round about manner - from knowledge of the behavior of other people to inference about the x-evoking properties of the stimulus to inferences about the effects of the x-evoking properties on the particular actor (namely that being asked for money late at night in a subway train provoked Goetz into shooting). Therefore, it is likely that when the reader stumbles into the first piece of information, he or she may discount the rest as having little relevance.

2. Causal Structure of News Stories

Iyengar (1987) argues that television news stories use particular frames (i.e. individual vs. systemic) in their depiction of national issues. These frames in turn guide audience "explanations" of these issues in terms of whether they are caused by individual variables or systemic variables. This argument is partly based on the assumption that individuals rely on television news for their information. The evidence he gathered in support of the framing effects is based on the use of video taped television news.

Although Iyengar provides empirical evidence substantiating the notion that certain news frames bring about corresponding explanations, we do not know what it is about a particular frame in a given news item that elicits such explanations. The "framing" Iyengar cites is based on the work of Kahneman and Tversky (1982). However, there seems to be very little correspondence between his concept of framing and what they talk about. Kahneman and Tversky's concept is based on individuals either making probability estimates or exercising some kind of choice. The crucial factor in their concept of "framing" is whether something is put in terms of potential risk or potential gain. The connection between framing in this sense and causal explanation according to

lyengar is unclear.

The second difficulty with Iyengar's work is that he presents news stories as providing either a systemic or an individual frame. While this is not unusual in television news, it can hardly be considered the norm. News stories on complex public issues, whether on television or in the newspapers, usually contain a mixture of individual, group and systemic cues. Granted, a given story may contain an overabundance of one of these cues. Still, it is unrealistic to assume that only one type of contextual cues is present in a news story. For one thing, one could easily predict that a news story with an exclusively societal level cause and effect focus will lead a lot of readers to provide societal level explanations of the phenomenon in question. But what happens when the information is mixed, both on the cause and effect side? Suppose a story had individual, group, and systemic frames? What would one get then? And more importantly, why would one get certain explanations and not others? These are some of the questions that need to be answered if we are to enhance our understanding of the "framing" effect.

My goal here is to attempt to clarify the relationship between "framing" and causal explanation using the concepts of "causal location" and "connectivity" (Trabasso et. al., 1984). The explication of these concepts will be restricted to written text. Given this restriction, I will argue that in making causal explanations, individuals do not rely on the presence or absence of "contextual cues" per se, rather they depend on the location of these cues in the story. The location of contextual cues in the causal structure of a news story determines which cues are central and which are tangential to the main point of the story and thus influences the types of inferences made.

In the next few pages I will attempt to clarify the concept of causality in the context of news stories, and establish how the causal structure can be empirically demonstrated and measured.

A. Causality

Causal statements relating two events, A and B, are made in some context against a background that includes a construction by the comprehender of a "causal field" (Mackie, 1980). Causes and effects are seen as differences or changes within the field. Anything that is presupposed and often is unstated is part of the circumstances. The causal field or combination of causal fields is generated by the reader mainly from setting statements that introduce the actors, give background information, and provide information on location and time. However, any statement in the story can contribute information that results in changes in the causal field. These statements which produce

changes in the causal field are referred to by the phrase "in the circumstances" (Trabasso et al., 1984). The circumstances of a story form a possible world in the mind of reader.

When the comprehender hears or reads a story, we suppose that he or she assumes one or more causal fields whose nexus serves as a possible world in which the story events can occur (Trabasso et al., 1984). These causal fields, as indicated earlier, are mainly inferred from content contained in setting statements, although each event may alter the causal field by bringing in new relevant factors not previously anticipated (e.g. another protagonist does something to the main protagonist). When more than one causal field is established (e.g. Congress, family planning clinics, teenage mother), their intersection is found and establishes the background conditions or circumstances in which the story events (changes in the states and actions) occur. The comprehender's task is now, like that of a historian, is to establish the facts and order them into a causal chain (Fischer, 1970). The comprehender sets up general expectations because he or she most often lacks knowledge about all the necessary and sufficient conditions to predict events. On some occasions, the necessary and sufficient conditions are known, and specific predictions are made. However, the comprehender is generally uncertain and waits for each event to be told before making causal inferences. Given a new focal event, the comprehender initiates an expectation by a backward inference from the focal event to those events that are causally prior to it. The processes of expectation, prediction, and instantiation are achieved by the comprehender's use of naive theories of psychological and physical causality (Wilks, 1977). In Trabasso's (1989) view, this knowledge is sufficient to generate causal fields, that is, to specify the relevant factors and generate expectations. In the absence of such knowledge, the comprehender may use contiguity of events in space and time as a basis for making a causal inference (Makie, 1980).

Once we determine a possible world, to say that A causes B means that A and B are changes that occurred such that A was necessary in the circumstances for B. When B occurs, A is necessary in the circumstances for B. When B occurs, A is necessary in the circumstances for B, because if A did not occur, then B would not have occurred (Mackie, 1980). In Mackie's view, the distinguishing feature of a causal sequence is the combination of necessity-in-the-circumstances with causal priority. The core of the concept of causal priority is that the cause has prior existence to its potential effects. Causal priority is also related to both necessity and sufficiency. Put formally:

1. A is sufficient for B in the circumstances and causally prior to B provided that if A is put into the world in the circumstances and the world runs on from there, B will occur.

2. A is necessary in the circumstances for B and causally prior to B provided that if A were kept out of the world (in the circumstances referred to) and the world was allowed to run there, B would not occur.

B. Causal Statements in Stories

When events are intersected as causal fields or have been instantiated by inferences, they become linked together into a causal network. This network serves as a representation of the story. Other representations can be derived from it, such as a causal chain (c.f. Black and Bower's critical path, 1980; Omanson's causal-purposeful chain, 1982).

According to Trabasso et al. (1984), the comprehender determines which events enter into the causal chain by: (1) selecting statements that open the causal field; (2) tracing links between the causal field statements and subsequent events as long as links to other nodes exist (i.e. expectations continue and are instantiated) ; (3) closing the field when there are no more new expectations, and prior expectations have been either instantiated or disconfirmed. This idea is analogous to the notion of story schema (Rumelhart, 1975; Mandler and Johnson, 1977). In story schema, setting statements allow episodes to occur. Similarly, in causal analysis, setting statements establish causal fields and expectations. That is, they are used by the comprehender to establish the circumstances (assumed but unstated conditions) or possible world in which the story occurs.

The causal chain, then, is opened by setting statements that are causally linked to other statements. Then, once the nexus of these causal field statements is found, differences or changes in the causal field that occur can be explained causally in the circumstances. In any given story, there are usually initiating events such as actions on the part of others or nature against the protagonist, changes in state or in the perceptions by the protagonist. These events are more obviously causal than are setting statements and entail a cause versus condition contrast. Once events occur, however, they in turn establish expectations (or predictions) and set the background for other events. Goals which express a desire to change one's state, are frequent in episodes where the protagonist's actions are under his or her control, and may often be the first event following causal field statements (Stein and Policastro, 1984). Because the pathways resulting from an event occur often in parallel through the network, some paths may terminate while others continue. Those pathways that do not continue and that do not lead to goal satisfaction are regarded as "dead-end" chains (Schank, 1975).

Causal chain events essentially focus on a series of explicit or overt goal-directed states, actions, and goal attainment state changes; dead-end events are typically reasons for actions that are expressed as cognitions or goals, emotional reactions, or actions that have no further consequences. The identification of causal chain and dead-end events is a procedure by which the comprehender edits or revises the original causal network. This editing, though not necessarily conscious, deletes dead-end events and includes causal chain events as a network representation for purposes of recall.

The importance of causal statements in story structure has been investigated in a number of studies (Graesser, 1981; Schank, 1980; Trabasso et al., 1984). Schank (1980) dichotomized statements into those that are in the "causal chain" and that are not in the causal chain (dead-ends). Causal-chain events lead from the beginning of the story to the end. Dead-end statements branch off from the causal chain. Schank argued that causal chain events are more important than dead-end statements. Omanson (1982a) used a similar approach and described story-statements as central or non-central; that is, as part of causal purposeful sequence or not. Omanson (1982b) empirically demonstrated that central statements received higher importance ratings, were more often recalled, and more often included in summaries than non-central statements. In addition, he showed that the importance of statements in the story-grammar categories of "internal responses" and "reactions," which normally are unimportant, increased substantially when they were made central.

The process of inferring causality on the part of the reader relies on the criteria for necessity and sufficiency stated above. According to Trabasso et al. (1984), the reader first infers a context or set of circumstances from the initial statements. Using naive theories of psychological and physical causation (causal schema), subsequent statements are connected by causal inferences, constrained by the inferred circumstances.

In order to identify whether or not an event depicted by a statement is in the causal chain, Trabasso et al. (1984) established criteria for opening, continuing, and closing the chain of events. They define the opening of a causal chain as consisting of those events that introduce the protagonist(s), set the time and locale, and initiate the story action. The closing of the story is defined in terms of what happens to the protagonist's goal. If the goal is attained, the causal chain ends with statements that include goal attainment; if the attempt fails, the causal chain ends with the direct consequences of the failure. Once the opening and closing of statements of the causal chain are found, one traces the network from the opening to the closing events. Events that have antecedents traceable to opening and consequences that lead to the ending are, by definition, in the

causal chain.

Trabasso et al. (1986) applied this technique to stories from Mandler and Johnson (1977), using university students as subjects. They found that a statement's "causal chain status" and "connectivity" were strong predictors of judgement of statement importance. Importance, in turn, was found to increase the likelihood of summarization. Similar findings were made by Rumelhart (1977), Black and Bower (1980), and Omanson (1982).

Thus, it is a well-established empirical fact that elements judged to be important by various criteria are more likely to be recalled and summarized. However, these findings in themselves do not explain in any theoretical sense what determines the judgement of importance.

In his classic work, Thorndike (1917) suggested that the importance of a statement depends directly on its relational role to other statements in the text. If that is the case, some argue, then the structure constructed from the text by the comprehender would also depend on these relations (Trabasso and Sperry, 1985). Thus, it is a widely shared assumption among cognitive psychologists that the primary relations are logical and causal in nature (Black and Bower, 1980; Graesser, 1981; Mandler and Johnson, 1977; Omanson, 1982; Stein and Glenn, 1979; Warren et al., 1979).

When a person judges the importance of a statement, he or she apprehends the conceptual dependencies that the statement has to other parts of the text. Judging importance thus would take into account the antecedents, consequences, and implications of a statement. Importance, therefore, is largely a function of the number of operative and direct connections a statement has to other statements.

The relations that a statement has to other statements are established in two ways, either of which may serve as a basis for judging its importance. The first relational property is a qualitative assessment of how statements in a text are linked to each other. Statements that are linked by successive causes and consequences through the story from its opening to its closing have been assumed and variously identified as important by being in a causal chain (Schanck, 1975; Trabasso et al., 1984; Warren et al., 1979). This property has been also called "centrality" (Omanson, 1982a) and "critical path" position (Black and Bower, 1980). Such events are found to be better recalled (Black and Bower, 1980; Trabasso, 1984), more frequently summarized and given higher ratings of importance (Omansons, 1982b) than events which are not in the casual chain.

The second relational property is a measure of how many direct operative links a statement has to other statements. The number of connections has been referred to as either "structural centrality" or 'relational density"

(Graesser, 1981) and as simply the "number of causal connections" or "connectivity" (Trabasso et al., 1984). Both sets of investigators have shown that this variable predicts recall, and Trabasso and Sperry (1985) have also found it to be a good predictor of judgements of importance of story events.

One difficulty with a relational approach of this kind is that the identification of the causal and logical relations between statements must be made reliably. Toward that end Trabasso et al. (1984) analyzed four stories studied by Stein and Glenn (1979). Using logical criteria of "necessity in the circumstances" and counterfactual reasoning, they were able to identify the direct causes and consequences of the statements and depicted the story as a causal network of events and event relations.

The criterion of necessity in the circumstances which was developed originally by Mackie (1980) is used to judge whether a causal relationship exists between two events. Necessity is tested by use of a counterfactual argument of the form: If not A then not B. That is, an event A is said to be necessary to event B if is the case that had A not occurred then, in the circumstances, B would not have occurred (see below for an illustrative example of this approach).

Trabasso and his colleagues point out that the advantages of this procedure lie in its ability to provide a logical, analytic, and a priori basis for identifying causes and consequences in narrative text, while, at the same time, allowing for the derivation of both the causal chain and number of connections. Trabasso and his team showed that the causal variables predicted recall, judgements of importance, and more importantly, the kinds of answers subjects gave to why questions.

In the following section I will attempt to provide an illustration of Trabasso's approach using a recent news magazine article as an example. This article appeared in the weekly news magazine U.S. News and World Report on October, 17, 1988 and it discusses the challenges unwed teenage fathers face in raising their children (See Appendix 2). I will begin the discussion with a comment on the concept of causation in the context of written text then go on to the illustration.

C. Causal Structure of Stories

The concept of causation with respect to the events in narratives assumes that certain properties are linguistically encoded in the description of the events, resulting in causal coherence at the sentence level (Trabasso and Sperry, 1985). These linguistic features occur within or across a set of statements portraying a causal event. In the set of circumstances there is a patient (either a person or an object) who undergoes state changes as a result of actions or

processes enacted by an agent. Agents may be either persons or physical mechanisms. Agents that are persons are assumed to cause actions and may be motivated either by some goal or caused to act by unidentifiable psychological mechanisms. Agents that are physical mechanisms are assumed to cause processes. Temporal and spatial contiguity is assumed to exist between the agent and patient in order for a given action or process to effect a particular change.

Consider, now as an example, statements 1 through 3 in the U.S. news article (See figure 2). In those statements we learn that the patient, the welfare system, is undergoing a state change, namely modification of its provisions. This state change is a result of an action, passing, by one collective actor, the Congress, and the action is motivated by a goal, to improve the conditions of impoverished single mothers. One will immediately note that a large number of supporting inferences is required for these statements to be understood in this way. One may presuppose that Congress has the power to reform bills, that a majority of members of the Congress were in favour of the reforms, that the reforms are aimed at improving quality of life for unemployed single mothers, and so on. Although these inferences create part of the circumstances and aid in connecting events, they are assumed but not identified in the present model. Graesser (1981) has identified such inferences for narrative texts in a network representational system by using why and how questions on the events in the surface representation of the story. The current analysis, following Trabasso's model, identifies relations between the surface events but assumes that what is being related are the conceptualizations underlying the surface events. The relations themselves entail unspecified inferences.

D. Criteria for Judging Causal Connections

To judge whether a causal relationship exists between two events, the criterion of necessity in the circumstances is used (Mackie, 1989). Necessity is tested by the use of counterfactual argument of the form: If not A then not B. That is, an event A is said to be necessary to event B if it is the case that had A not occurred, then, in the circumstances, B would not have occurred. In the above example, event (1) is said to have caused event (6) since if there were no reform bill, single mothers would not be eligible for subsidized benefits. Likewise, event (9) caused event (13) since if experimental initiatives had not been made then social services would not have the chance to become user-friendly for men. Note that each of these judgements assumes a context in which the events, states, and actions occur.

In analyzing pairs of events, we usually answer affirmative to the

counterfactual assertion with high confidence in order to accept an initial judgement of a causal relation. In some cases the judgement may be less than certain and a relationship may be accepted as the best available option in spite of lower degree of confidence. The criterion of necessity in the circumstances implies that the consequence is dependent in some manner on the cause or that the cause determines the consequence. Finally, following the logic of Trabasso et al. (1984), it should be stressed that a relation is said to exist only if the cause was believed to be operative at the time of the effect. As a result, only direct causes are identified. However, direct causes may operate over a distance in the text. For example, event (1) enables event (3) which in turn leads to event (7) which causes event (9). Namely, the reform bill provided little jobs and training, which, in turn, led to a feeling of imbalance leading to the initiation of experimental programs.

From the set of direct, proximal causes, indirect or distal causes may be inferred by transitivity. This is achieved by joining together successive causes and effects, that is A and B would be joined to B and C forming the chain A-B-C. Thus, if A is necessary in the circumstances for B and B is necessary in the circumstances for C, then A is necessary in the circumstances for C, assuming that the set of circumstances has not changed (Lewis, 1973).

For direct, operative causes one may employ various criteria of sufficiency in the circumstances (Mackie, 1980). Trabasso et al. (1984) used a "weak" definition of sufficiency. They postulate that event A is sufficient in the circumstances for event B in the sense that if A is put into the inferred context and the events are allowed to go on from there, event B will occur. They reason that since the identification of causes is context dependent, a strong definition, such as if event B did not occur then one would infer that event A had not occurred either, is not justified. The latter definition would be used if one wished to identify general sufficient causal relations that hold independent of the context. In narrative analysis, the identification of relations is between particular causes and consequences since these are embedded in the context of a story.

E. Method for Derivation of Causal Network Representation

The method for deriving a causal network is based on the work of Trabasso and Sperry (1985). The story used for this initial run is taken from the weekly magazine U.S. News & World Report (10/17/88). The article was chosen for several reasons: 1) it addressed an important social issue, 2) the issue is complex in the sense that it has many causes and consequences operating at both the individual as well as the social level, and 3) the article itself is divided into segments each representing a different level (see appendix for complete

article).

The first step in the analysis involves the finding of direct operative causal relations between pairs of statements. A pair of statements is judged to be related causally (or not) by intuition, followed immediately by a counterfactual test. After an initial pass through the whole story, the causal pairs are retested by counterfactual reasoning. Then the pairs are assembled by means of common statements into a causal network. Once in a network, relations are tested for a third time using counterfactual reasoning. During the process of counterfactual testing, pairs of statements may be eliminated or added to the set of causal relations.

This type of analysis was applied to the middle part of the news story as illustrated in figure 2. Note that this section depicts patients and agents primarily at the social system level (Congress, single mothers, family planning clinics, and so on).

Referring to figure 2 we note that the welfare reform bill in event (1) is made possible by event (2), the Congress. Event (1), in turn, causes event (3). That is, the welfare-reform bill is responsible for the low level of training and job availability for fathers on public assistance. Event (3) is a direct cause of two subsequent events. It leads to young men being viewed as "forgotten partners" (E5). It also leads to a corrective action to counter the imbalance (E7). Furthermore, event (3) has several indirect events. It causes event (9) via event (7). In other words, if the bill did provide jobs and training for single fathers, a tendency to "right the imbalance" would not have been felt (E7) and the "experimental initiatives" would have not been started (E9). Thus, event (3) meets the "weak" sufficiency requirement specified earlier. For event (7) it is a direct causal relation and for event (9) it is an indirect one.

Levels of Analysis of The Main Concepts

In this section I will address the issue of levels of analysis for each of the variables involved in this study. The purpose of this discussion is to clarify the logical structure of the theoretical statements to facilitate empirical testing. I will begin by an explication of the concept of "importance," then go on to discuss the concepts of "connectivity", "causal structure" and "explanation."

1. Statement Importance

In the theoretical model, importance is considered an intervening variable in terms of the causal order. However, I will begin the discussion with it because logically it is the most complex concept in the theoretical model. Each event is judged individually as to whether or not it is important to an understanding of a

news story. However, judgement of importance of each event is not made in isolation, but in relation to other events in the news story. The assumption is that each event contributes differentially to an understanding of the whole story. This idea becomes clear when we use Eulau's (1986) distinction between objects of analysis and subjects of analysis:

"By object unit, I mean the unit whose behavior is to be explained. The unit whose behavior is to be explained is given by the research problem. If we want to explain how voters make up their minds in an election, individual persons are the object units, or simply objects, of analysis. If the Supreme Court's pattern of decisions in a set of cases is to be explained, the court is the object unit of analysis."

"By subject unit is meant the unit whose behavior is observed to explain the behavior of an object unit...[the subject unit]...is best understood in the sense the experimental psychologist uses the word 'subject.' His subject is a person he brings into the laboratory in order to observe his behavior. But the notion of the person as subject can be extended to collectives. A group, a committee, a party, a state, and so on can be treated as subject units if their behavior is observed." (p.83)

In this sense, then, the news story is the "object" unit of analysis and the individual event is the "subject" unit of analysis. This is the case because when we ask respondents to provide ratings of importance (i.e. at the level of observation) we ask them to rate the individual events and not the article as a whole. However, one will also note that when we ask respondents to rate the contribution of each event to understanding the news story, we are essentially interested in the news story and its influence on subsequent behavior (i.e. causal explanation). In that sense, the news story is our "object" unit of analysis. In charting a news story causal structure, what we are essentially doing is reducing the article to smaller components based on theoretical grounds. Reduction here is discussed as a procedure of analysis and not as a philosophical issue. My position agrees with Eulau's (1986) in that I see no inherent virtue in trying to explain larger units in terms of their smaller components. However, the application of reduction procedures as an analytic tool is acceptable, and sometimes desirable when theoretical precepts warrant it.

Importance is also considered to be a "distributive property" of the news article (Eulau, 1986). Because a news article is a collective unit (i.e. a collection of events or sentences), the properties of members can be conceived of as distributive properties. Because a group can be decomposed or reduced to its

individual members with respect to members own properties, these properties of the members can be transformed into properties of the unit. Put differently, because members' own integral properties are attributes of all group members, they constitute distributive properties of the group. They are "spread" throughout the group or distributed among the group. So in a news story, each event has the property of "importance", which varies from one event to another. The property of "importance" is spread throughout the news story. Hence, each news story has the potential of having a different distribution of "event importance." This distribution is considered a property of the news article.

2. Causal Location and Connectivity

Causal location and connectivity are both considered to be "structural properties" (Eulau, 1986). Structural properties are present when the relationships existing in a collective unit "assume forms or patterns in which the positions of members vis-a-vis each other can be ascertained." (Eulau, 1986: p.101). For example, when we identify the causal chain position of events in the sequence of a news story, the resulting relationship is a structural property of the news story. Similarly, when we chart the number of connections each event has (subject unit), the resulting diagram is a representation of a structural property of the news story (object unit).

By structural properties, then, we refer to specifiable linkages and organizational patterns among the members of a collective unit, so that we can speak of a story's causal structure. We may also observe patterned relationships between sub-units and the collective as a whole. For instance, there may be a large number of connections for certain events in a news story but not others. So in a given news story we may notice that individual level events are highly connected while system level events are loosely connected. In this case a structural property is said to exist, and the story as a whole may be identified as having "high-individual connectivity," or to use a more familiar term, as having an individual "frame."

3. Causal Explanation

Causal explanation is a measure of an individual's thought process as it is influenced by the structure of a news story and the ensuing judgements of importance for the individual events. The explanation is a global assessment for the problem presented in the article. The idea is that those events on the causal chain and those that are highly connected will be judged as more "important"; important events, in turn, are more likely to be retained and included in a subsequent explanation than less important events. If the events judged to be

important are of the same kind (i.e. individual or systemic), then the explanation that follows will reflect the same bias. In other words, in providing a global explanation of the problem as a whole, "important" events are more likely to be mentioned than less "important" events. When the important events are of the same kind, we may say that an individual or a systemic "frame" is being activated. What follows is a more detailed discussion of this process.

4. Causal Explanation as a Process

In the area of reading psychology there are two dominant views on the study of text comprehension. The first of these views maintains that comprehension is a problem solving process in which the reader must find a series of causal connections that links a text's opening to its final outcome (Black and Bower, 1980; Schank, 1975; Trabasso, 1989; Trabasso and Sperry, 1985). The second holds that a strategic process focuses a reader's attention on a subset of the information in his or her short-term memory after each sentence is read, and that comprehension is facilitated if an appropriate connection exists between this information and the sentence that follows (van Dijk and Kintsch, 1983; Fletcher, 1981; Miller and Kintsch, 1980). There is also a third view that attempts to synthesize the previous two (Fletcher, 1989; Fletcher and Bloom, 1988). According to this view, the previous accounts can be correct only if: (a) the attention focusing strategy is sensitive to the causal structure of a text, (b) it maximizes the probability that the information at the focus of a reader's attention is causally related to the following sentence, and when the information needed to create a causal connection between a new sentence and the earlier text is not available in short-term memory it is retrieved from long-term memory. Fletcher (1989) proposed a process model that satisfies these conditions. In addition, his model offers a possibility of understanding how readers discover the causal structure of a complicated text and how they make causal explanations within the known limits of human information processing system (Miller, 1956).

5. Model for the Process of Causal Explanation

Fletcher's (1989) model rests on the assumption that a reader's short-term memory can only hold one or two sentences at a time (see also, Glanzer et al., 1981; Kintsch and van Dijk, 1978). Because of this, each text must be processed in cycles-one sentence at a time. During each cycle, the assumption is made that short-term memory contains one clause from earlier in the text and that processing proceeds as follows:

1. The sentence is read and parsed into individual clauses.

2. Using necessity in the circumstances (Mackie, 1980; Trabasso and Sperry, 1985) as the major criteria, causal links are created among the clauses in short-term memory. Thus, a causal connection is formed from Clause A to Clause B if B would have not occurred, in the circumstances described by the text, without the prior occurrence of A.
3. If no connection is found between the new sentence and the earlier clause still held in short-term memory (Fletcher, 1989; refers to this as a coherence break), long-term memory is searched until a clause is found that provides a causal link between the new sentence and the preceding text.
4. The network of causally related clauses is stored in long-term memory.
5. Attention is focused on the most recent clause in short-term memory that has causal antecedents, but no consequences, among the other clauses in short-term memory.
6. All non-focal clauses are purged from short-term memory.
7. If there are any sentences left in the text, we return to step 1.

Figure 3 presents a graphic illustration of how this model works. This model is adapted from a separate research by Fletcher (1989) and Trabasso (1989).

As an example of how the model works, consider the text in figure 2. When the first sentence is processed (clauses 1 through 3) a causal link is detected from clause 2 to clause 1—had it not been for the Congress, the welfare-reform bill would have not been passed. Because clause 1 has an antecedent but no consequence, it remains active in short-term memory while the next clause is read. This is a fortunate choice since clause 1 is a causal antecedent to clause 3. That is, in the context of the article, the lack of jobs and training for fathers on public assistance would have not been an issue had it not been for the welfare-reform bill. As a result, processing of the first sentence proceeds smoothly as causal links are detected from clause 2 to clause 1 and from clause 1 to clause 3.

If we assume a reader who never searches long-term memory, the remainder of the text would be processed as shown by figure 1. It is important to note, however, that in the absence of reinstatement searches (i.e. LTM search) many causal links will be overlooked. Our reader will detect only a portion of all possible causal connections in the text. For instance, a more careful reader would find one additional link not shown in figure 1. A coherence break occurs during the sentence which includes clauses 14 and 15. In order to connect this sentence to the preceding text, the model predicts that clause 1 will be reinstated and a causal link formed between it and clause 14. That is, in the

context of the article the welfare system is sexually lopsided due in part to the welfare-reform bill.

Conclusion

The purpose of this study was to find out the extent to which a news story's causal structure influenced reader's subsequent explanations of events in the story. Relying on the concepts of Causal Chain Location and Connectivity, this study focused on how these two attributes of written text might affect the relative importance readers ascribe to different parts of a news story. The differential distribution of importance was hypothesized to influence two kinds of causal explanations readers make, an individual based explanation, and a system based explanation.

The overall concern of this effort was to explore the ways in which people understand enduring social problems through the use of mass mediated information. Many social problems are short-lived. News about crime waves, for example become the focus of attention during the time of onset and quickly fade away after journalists cover all possible angles. This is a common pattern. At any given moment, there is a great number of "news worthy" events taking place. The media can only cover a few of these stories at a time, so there is a tendency to pick up a topic, give it intense coverage, then drop it once it becomes familiar "old news". But a few issues remain in the spotlight; they become the focus of more or less continuous attention. Homelessness is an example. While the press may have been initially slow to recognize the significance of this problem, the plight of the homeless soon came to be defined as a major social problem, and we can expect it to remain in this position for sometime.

We have already seen that journalists use certain themes or angles to characterize their stories (Gans, 1979; Woodall, 1986). As Fishman (1978) noted, themes give the news "a presentational order" necessary for organizing stories and relating them to each other (p.534). Those themes, once established, provide a way to see and think about subsequent events of a related nature. If the events are relatively short-lived, there is no need to sustain reader interest in the theme. Such themes have their own natural histories (Albert, 1989). For example, stories about a town ravaged by a flood evolve into the coverage of help from public-spirited citizens, and there the story comes to an end. But homelessness continues to plague new victims, forcing the media to find new approaches and angles on what would otherwise become old news. This constant search for a fresh approach is what produces a series of presentational orders that become each in turn, the homeless story.

There are other differences between sudden and evolving social problems. Rogers and Sood (1980) note that the major difficulties associated with slow-onset problems are how to make the problem "newsworthy", how to get ample view of the situation before reporting on it, and how to redefine it so that it is perceived to be "serious" by the audience.

Enduring issues also influence the quality of coverage. Slow-onset problems are, by definition less urgent and immediate in nature, thereby encouraging journalists to adopt an in-depth or analytic style of reporting. This type of coverage is likely to include exploration of conditions, causes and effects on several levels ranging from the individual to the societal.

The news stories used in the present study exemplify two such enduring social problems. Empirically, a possible experimental manipulation may use alternative "presentational orders" journalists may choose to employ. My main interest was to, first transform these so called presentational orders into an explication of the formal properties of news stories, and secondly, to discern how these properties in turn influence what people understand from the news story.

Causal structure was presented as a formal property of news stories. This structure was hypothesized to influence the degree of importance an individual assigns to different parts of the story which subsequently determines the kinds of causal explanations made.

Beliefs about causality are viewed as cognitive devices individuals utilize to organize political knowledge. Previous conceptualizations of citizens' understanding of the political world focused on ideological concepts as the only sense making tool available to the ordinary person. However, I argued that causal beliefs are important elements of political knowledge; that citizens do not need to have a deep understanding of issues to produce causal accounts of those issues; that individuals causal explanations are heavily influenced by the way in which these issues are presented in the mass media.

Causal beliefs are important to political reasoning for two reasons. First, popular culture is replete with answers to causal questions, making the task of explanation somewhat inexpensive (Iyengar, 1987). Second, and more importantly, causal knowledge is connotative knowledge. The way we causally define an issue not only shapes our understanding of it, but it also implies how the problem should be resolved and our policy preference regarding solutions be formed.

Figure 1: Examples of multiple-level conceptualization of causes and effects in news stories.

		CAUSE		
		Person	Group	System
EFFECT	G	Intensive use of drugs leads to brain damage.	Because he is a Moslem, he does not drink alcohol	Because of high interest rates, he cannot make loan payments.
		A statement made by an X Association member reflects negatively on the Association	A statement issued by X Association helped ease tension on campus.	Inadequate housing funding prompted civil groups protest.
	S	"Racist" remarks by a politician prompts wide-spread protests.	Spread of crime lead to drop in real estate value in east part of city.	National deficit leads to high interest rates.

Figure 2
Causal Structure of a News Story

1. The welfare-reform bill,
2. just passed by Congress, for instance,
3. provides few jobs and virtually no training for the fathers of children on public assistance.
4. All too often, says a Children's Defence Fund report,
5. young men end up as the "forgotten partners."
6. By contrast, the impoverished single mother is typically eligible for subsidized child care, job training, education and medicaid.
7. To right the imbalance,
8. some federal, state and local officials have..
9. begun experimental initiative that encourage young men to be responsible for birth control and for their children.
10. These "where the boys are" programs range widely, from a public-health-department program in Seattle that hands out ziplock condom "six packs" to a family planning clinic in Charlotte, N.C., that video tapes young men squaring off in rap contests about the evils of teen pregnancy.
11. In some instances, the program aims to the spread of AIDS.
12. All of the new initiatives.
13. try to make social services more user-friendly for men.
14. The sexually lopsided nature of the system is perhaps best demonstrated in...
15. the nation's 4,000 federally assisted family-planning clinics, where fewer than 1 percent of 4.3 clients are male.
16. In part, men are absent from the clinics..
17. because the pill (available only by prescription) replaced the over-the-condom as the principal means of birth control after 1965.
18. But there is also a more subtle explanation.
19. Most clinic waiting rooms have a "heavy estrogen" atmosphere,
20. with posters of pregnant women on the walls and copies of "Cosmopolitan" on the coffee tables.
21. Many of the clinics don't even offer toilet facilities for men.

CODING SCHEME FOR OPEN-ENDED CAUSES

I. Teen Parenthood article:

1. Knowledge about sex (I).
2. Parental guidance/influence/supervision (I).
3. Lack of concern or help from government (S).
4. Irresponsibility on the part of the teenager (I).
5. Self-fulfilling prophecy/self-esteem (I).
6. Peer pressure (I).
7. Unavailability of resources/money/funds (S).
8. Congress passing reform bill (S).
9. Problems with clinics/facilities for males (S).
10. Lack of values (I).
11. Welfare system (S).
12. Economy/unemployment.
88. Other.
99. DK.

II. Homeless article:

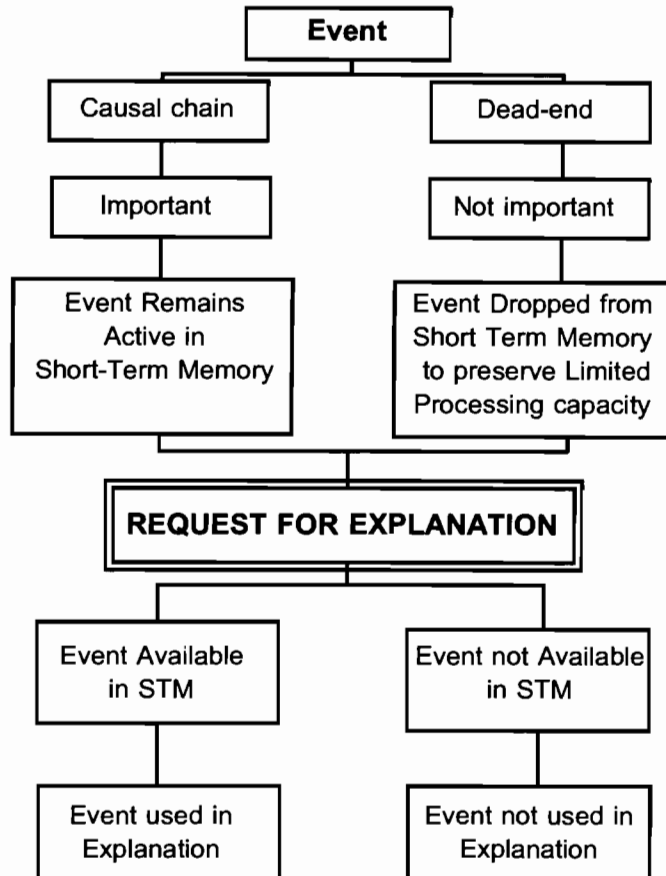
1. Unemployment levels (social system) (S).
2. Can't find a job (individual) (I).
3. Economy (S).

4. Domestic violence/problems (I).
5. Lack of affordable housing (S).
6. Problems with shelters (S).
7. Insufficient help from government (S).
8. Mental illness (I).
9. Unavailability of money/resources (S).
10. Drug abuse/alcoholism (I).
11. Poor education and lack of job skills (I).
12. Lack of motivation on the part of the homeless (I).
13. Public policy lacking (S).
88. Other.
99. DK.

(I)-Individual level

(S)-System level

Figure 3: Flow Chart of Causal Explanation Process



APPENDIX

TEXT OF ORIGINAL NEWS STORY

A FATHER'S PLACE IN THE WELFARE STATE

Men need not be the forgotten partners in bringing up baby

Not long ago, Timothy McSeed was the reviled symbol of much that was awry in black America. In Bill Moyer's acclaimed 1986 television special on the vanishing black family, McSeed boasted that he fathered six different children by four different women. Comments such as "If a girl is carrying a baby, that's on her," and "I'm not going to stop my pleasures because of another woman" horrified millions of television viewers. For both blacks and whites, McSeed's cavaliers comments bring to mind thoughts about the consequences of a malfunctioning welfare system.

For a large number of adolescent males the absence of paternal guidance often leads to learning about sex and sexual behavior from less-reliable sources, such as peers. More often than not, this information tends to be distorted or vulgarized, thus increasing the likelihood of irresponsible sexual behavior.

Another side to this problem is what is known as "the brotherhood phenomenon." This phenomenon suggests that teenage fatherhood is more common in families in which the father or another son had been a teenage father.

For teenage boys, the lack of a parental figure fosters a tendency toward irresponsibility. In many cases, it becomes a self-fulfilling prophecy where the teenage boy believes that he will end up like his father, an irresponsible parent.

The tendency toward irresponsible behavior among teenage boys has a counterpart among teenage girls, which heightens the problem even further. Many teenage girls, particularly those with little or no parental supervision, feel that they have little to lose and much to gain by becoming mothers on their own. In these instances, according to the author of one study, "Sex education and the availability of contraceptives won't alter their calculus of costs and benefits within their world."

Another study conducted by the Rand Corporation found that teenagers coming from female-headed or non-traditional families displayed higher rates of "problem behavior" at school than those who do not. Problem behavior, in turn,

was found to be strongly associated with teenage pregnancy. Childbearing is evidently one of many forms of "risk taking" in which these young women engage.

Yet McSeed's story, like that of scores of other young men is not that simple. Surprisingly, few men fit the hard-bitten love-and-leave-stereotype. Even though McSeed has had only sporadic menial jobs since the Moyers broadcast, he has helped raise the three children he conceived with his last girlfriend, Alice Jackson. He visits his kids once a week, irons their clothes and gives them baths. After the children's mother died in an accident in 1986, McSeed lived part time in the basement of Alice's parents, who care for the children. "Whenever something goes wrong," says grandmother Nora Jackson, "Timothy cries on my shoulders." "And, he is crazy about those kids."

The important role that McSeed and men like him play in their children's lives is virtually unacknowledged by policy makers. The welfare reform bill, just passed by congress, for instance, provides few jobs and virtually no training for fathers of children on public assistance. By contrast, the impoverished single mother is typically eligible for subsidized child care, job training, education and medicaid.

The sexually lopsided nature of the system is perhaps best demonstrated in the nation's 4,000 federally assisted family-planning clinics, where fewer than 1 percent of 4.3 clients are male. Male absence from these clinics can be traced to the heavily "feminine" atmosphere, with posters of pregnant women on the walls and copies of "Cosmopolitan" on the coffee tables. Many of the clinics don't even offer toilet facilities for men.

The new welfare reform legislation will essentially require noncustodial fathers in the future to pay more child support, while empowering state officials to boost attempts to establish paternity. Some feel that Congress's preoccupation with stiff arm collection will encourage men to think of themselves more as walking wallets than as committed fathers. This is particularly true among teenage fathers, since many have little money to contribute to their children.

Attempts to collect money may lead teenage fathers to resort to illegal means of getting it such as stealing or dealing in drugs, thus compounding the problem. Ignoring the father's role in the teen pregnancy problem may also foster a sense of irresponsibility and detachment among adolescent males. Such an attitude may lead to an acceptance among teenage fathers of the notion that pregnancy is the mother's problem, thus perpetuating the cycle.

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