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Cognitive Processes Underlying Context Effects in Attitude Measurement

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We begin this article with the assumption that attitudes are best understood as structures in long-term memory, and we look at the implications of this view for the response process in attitude surveys. More specifically, we assert that an answer to an attitude question is the product of a four-stage process. Respondents first interpret the attitude question, determining what attitude the question is about. They then retrieve relevant beliefs and feelings. Next, they apply these beliefs and feelings in rendering the appropriate judgment. Finally, they use this judgment to select a response. All four of the component processes can be affected by prior items. The prior items can provide a framework for interpreting later questions and can also make some responses appear to be redundant with earlier answers. The prior items can prime some beliefs, making them more accessible to the retrieval process. The prior items can suggest a norm or standard of comparison for making the judgment. Finally, the prior items can create consistency pressures or pressures to appear moderate. Because of the multiple processes involved, context effects are difficult to predict and sometimes difficult to replicate. We attempt to sort out when context is likely to affect later responses and include a list of the variables that affect the size and direction of the effects of context.

Within social psychology, there is an emerging consensus that attitudes are best understood as structures that reside in long-term memory (Fazio, Sanbonmatsu, Powell, & Kardes, 1986; Fazio & Williams, 1986; Tourangeau, 1984, 1986, 1987; Tourangeau & Rasinski, 1986; Wyer & Hartwick, 1984) and are activated when the issue or object of the attitude is encountered (Fazio et al., 1986; Fazio & Williams, 1986). The conventions that have been found useful for representing other information in long-term memory ought to be useful for representing attitudes as well. In our own work, we have found it useful to represent attitudes as networks of interrelated beliefs. Although we refer to the constituents of attitudes as *beliefs,* we use this term loosely to encompass memories of specific experiences, general propositions, images, and feelings.

J. Anderson (1983) and Bower (1981) have shown how the associative-network formalism can also be used to represent such nonpropositional material as images or feelings. Along these lines, Sears, Huddy, and Schaffer (1986) proposed a structural model of political attitudes that stresses the importance of such feelings in response to political issues. They argued that responses to certain issues reflect deep-seated affect linked to political symbols. Responses to an attitude item, thus, depend on the symbols it evokes and the affect attached to these symbols.

Other researchers have argued that attitudes are organized into schemata (Fiske & Dyer, 1985; Fiske & Kinder, 1981; Hastie, 1981) or stereotypes (Hamilton, 1981; Linville, 1982; Linville & Jones, 1980; see also Cantor & Mischel, 1977). But whether attitudes form network structures, schemata, stereotypes, or some combination of these, it is clear that the dimensional representation of attitude structure implicit in classical scaling techniques, such as Likert, Guttman, and Thurstone scaling, does not fully capture the important structural properties of attitudes. As we argue in this article, the structural assumptions prevalent in current cognitive psychology help account for important phenomena involving the measurement of attitudes, especially in survey settings.

Building on the work concerning the structure of attitudes, we propose a model of the process by which attitude questions are answered. We describe this model of the response process in the next section of the article. Then, in the following four sections, we describe how the context of a question—generally, earlier items in the questionnaire—can affect each stage of the response process and offer hypotheses about when different types of context effects are likely to arise. Our review of the context-effects literature in these sections aims less for comprehensiveness than for theoretical relevance; we stress studies that seem to illustrate the different processes that give rise to context effects. In the final section of the article, we focus on the variables that influence the size and direction of context effects.

Process of Answering Attitude Questions

A recent study by Luker (1984) provides some indication of the contents of attitudes on abortion. These attitudes appear to have a complex structure, and they resemble other long-term

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Table 1
Summary of Pro-Life and Pro-Choice Views

Topic	Pro-life way	Pro-choice view
Sex roles	Men and women are different.	Men and women are equal and similar.
Meaning of sex	The purpose of sex is reproduction.	The purpose of sex is to foster intimacy.
Motherhood	Parenthood is a natural function, not a social role.	Parenthood means giving the child one's best resources.
Premarital sex	Sex outside of marriage is wrong.	Teenage parenthood is the problem, not teenage sex.
Abortion	Abortion breaks divine law.	Abortion is a matter of individual choice.

memory structures, such as scripts or schemata. Luker interviewed activists on both sides of the abortion issue, people who devoted substantial amounts of time each week to working for their cause. She argued that partisans on different sides of the abortion question tend to disagree on a number of related issues. Table 1 contains a brief summary of the major points of contention. Although Luker no doubt sharpened the differences between the two sides in her presentation and although her sample of activists probably had clearer, more coherent views on the issue than a cross section of the general population would, her results are consistent with our own findings with a sample of nonactivists (Tourangeau, Rasinski, & D'Andrade, 1987): Abortion beliefs are not unidimensional; they are probably not even multidimensional in any useful sense; instead, they seem to fall into a small set of related topical, or thematic, clusters.

If attitudes are structures in long-term memory, then answering an attitude question is likely to involve such processes as activating the relevant attitude, retrieving its contents, synthesizing an answer from what has been retrieved, and so on. We have presented a detailed analysis of the process of answering attitude questions (Tourangeau, 1984, 1986, 1987; Tourangeau & Rasinski, 1986). According to the model, respondents first interpret the question. A key component of this comprehension process is locating the relevant attitude structure. With well-formed, highly accessible attitudes, merely encountering the issue may be sufficient to activate the relevant structure; Fazio et al. (1986) and Fazio and Williams (1986) have argued that when the attitude is highly accessible, this initial step in the response process may be automatic. Sometimes, however, the process of locating the relevant attitude may not be so easy. With unfamiliar issues, no specific attitude is readily activated by the question, and respondents must search for the relevant attitude.

The second step in the response process is retrieval. What is retrieved in a particular case depends on the respondent's beliefs and on the demands of the question. An item on the use of abortion as a means of birth control may activate one set of beliefs; an item about abortion in the case of a threat to the mother's life may activate a different set. Respondents with well-formed attitudes may in some cases retrieve a general evaluation that serves as an overall summary of their beliefs about the issue rather than retrieve the underlying beliefs themselves (N. Anderson & Hubert, 1963; Lingle, Geva, Ostrom, Lieppe, & Baumgartner, 1979; Lingle & Ostrom, 1979). At the other extreme, respondents who know and care little about an issue may construct an attitude from superficial cues present in the situation; in persuasion settings, for example, such uninvolved and uninformed respondents may base their opinions on the attractiveness or credibility of the source of a persuasive message (Chaiken, 1980; Petty & Cacioppo, 1984). Because respondents are unlikely to retrieve all their beliefs about an issue, the retrieval stage can be seen as a kind of sampling process that overrepresents the most accessible beliefs or situational cues.

In the next stage, respondents must use the information they have retrieved to render a judgment. Sometimes this step is trivial. Respondents who retrieve the belief that abortion is murder do not need to make a complicated judgment in deciding to disagree with an item that says, "Abortion is not taking a life." Similarly, respondents who retrieve a negative summary evaluation should have little difficulty in endorsing an item that says, "Personally, I'm against abortion." In such cases, an answer is not so much formulated as it is directly retrieved. In most cases, however, the question will not map so directly onto an existing belief or a summary evaluation, and a more complicated process will be needed to generate a judgment from the set of retrieved beliefs. N. Anderson's (1974, 1981) information integration theory gives some insight into the nature of this more complicated process. According to N. Anderson (1974, 1981), the judgment process involves the scaling of beliefs (i.e., placing them on some underlying dimension of judgment, such as favorability); attaching a weight to each one (i.e., assessing their relative credibility and importance); and combining them into an overall judgment, using an integration rule, such as averaging or adding. The scaling of the beliefs depends on the dimension of judgment selected and on the standard of comparison used to anchor the dimension. The weight attached to a particular belief also depends on the dimension of judgment: A belief that is central to one dimension (e.g., evaluation) may be peripheral to another (e.g., likelihood). If a number of beliefs or feelings about an issue have been retrieved, they may have to be combined into an overall judgment, perhaps through a process such as averaging their implications for the judgment (N. Anderson, 1974, 1981). Sears et al. (1986) argued that this integration step is crucial with issues that evoke several political symbols.

In the final stage, respondents must report their answers. At least two processes play an important role in the reporting stage. The format of most attitude items requires respondents to select a response from among a preestablished set of answer categories. Thus, respondents must map their judgments onto one of the response options. In addition to the mapping process, answers may undergo an editing process in which the answer is checked for consistency with prior answers or for social desirability. The final response given may be a compromise between the respondent's judgment and the dictates of consistency or social pressure.

In the context of survey interviews, in which interest on the part of the respondents is relatively low and time pressures are great, the response process is likely to be carried out superficially. Respondents are unlikely to retrieve all their beliefs on an issue; instead, the retrieval process is likely to yield a sample

of pertinent beliefs that overrepresents the most accessible ones. In fact, a number of persuasion studies (Chaiken, 1980; Petty & Cacioppo, 1984) suggest that uninvolved respondents may retrieve virtually no issue-relevant beliefs, basing their responses instead on cues in the immediate situation. Similarly, the judgment stage is unlikely to include complex comparisons involving a number of dimensions of judgment; instead, salient dimensions are likely to receive undue weight, and salient standards of comparison are likely to serve as anchors for the judgment.

Putting these processes into the foreground helps emphasize two key points that might otherwise remain obscure. First, although attitudes have a static component—the component that resides in long-term memory and serves as the basis for answers to specific attitude questions—they have a dynamic component as well. Answering any question requires generating a response. Although this process may be based on existing structures, it takes place on-line in real time. (See Hastie & Park's, 1986, article on memory-based judgments.) This suggests a second point: Even when the underlying attitude structure is stable, the response process need not be very reliable. To cite just one source of unreliability, we note that the retrieval process may yield what is most accessible on a topic rather than what is most important. The accessibility of a belief (or what Tversky & Kahneman, 1973, called its availability) has a number of determinants. Higgins and King (1981) cited six determinants of the accessibility of a concept—expectations, goal relevance, recency of use, frequency of use, situational salience, and relation to other concepts—and most of these do not necessarily relate to its long-term strength. The unreliability of the retrieval process (and the degree to which the results of retrieval reflect short-term differences in accessibility rather than long-term properties such as strength) is likely to be heightened in attitude measurement settings, in which few respondents have either the motive or the opportunity to reflect carefully on their answers. As Tversky and Kahneman demonstrated, what is most readily retrieved from memory does not necessarily reflect either reality or the contents of memory.

Fischoff, Slovic, and Lichtenstein (1980) made a similar point about procedures for eliciting preferences in decision-making settings. They argued that respondents do not always have well-formed, coherent opinions and that, lacking such opinions, their expressed preferences can be affected by subtle differences in how the decision problem is posed. Like answers to attitude questions, decisions are often the product of an unreliable process, a process that can be influenced by apparently minor changes in wording or context.

Recent reviews of the survey literature (Bradburn, 1982; Schuman & Presser, 1981) provide ample evidence that the process of answering attitude questions in surveys can be affected by such weak and momentary influences as the order in which the items are presented. These reviews indicate that relatively minor changes in item wording and item context can have dramatic effects on the distribution of the responses. *Item context* refers to earlier material in the questionnaire. Generally, the context of an item is defined narrowly, in terms of the preceding items in the questionnaire, but other kinds of prior material, such as item introductions or prior tasks that the respondents have completed, can have a similar impact on responses to later questions. In our examination of item-context effects, we focus primarily on the effects of earlier questions but consider other forms of context when they are relevant to the hypothesized processes under consideration. Relative to authors of earlier reviews of item-context effects (e.g., Schuman & Presser, 1981), we seek to impose a theoretical structure on the range of empirical findings. Accordingly, we focus on studies that appear to illustrate different processes responsible for context effects.

One particularly well-researched example of an item-context effect involves two items on abortion. One item reads, "Please tell me whether or not you think it should be possible for a pregnant woman to obtain a legal abortion if there is a strong chance of serious defect in the baby." The other item asks about a different situation; it concerns legal abortions when "the woman is married and does not want any more children." When these two items are presented, it matters which one comes first. The basic finding (Schuman & Presser, 1981) is that when the birth-defect item comes first, it reduces the number of pro-choice responses to the item about married women. Answering the one question somehow affects answers to the other.

The main purpose of this article is to account for some of these well-documented context effects, by showing how the context of an item can affect each step in the response process. These context effects are generally regarded as measurement artifacts. Consistent with this view, the mechanisms that we describe primarily involve the measurement process rather than the underlying attitude structures that the questions were designed to tap. But, although we sympathize with the characterization of context effects as artifacts, we argue that the processes that result in context effects are interesting substantive phenomena in their own right. We also note that, although context effects sometimes produce pseudo-changes in attitude, they also sometimes produce real (i.e., long-lasting) changes—as when the context induces one to apply a norm the relevance of which had not been apparent before. As Schuman (1982) put it, "Artifacts are in the mind of the beholder." In this article, we try to find the substantive meat in what others may well regard as methodological poison.

Part of the reason that context effects are viewed with such frustration by survey researchers is that they sometimes appear to be unreliable. For example, Schuman and Presser (1981) reported a number of context effects and also a number of failures to replicate them. (Bishop, Oldendick, & Tuchfarber, 1985, reported a particularly puzzling set of inconsistent results.) It is not only the magnitude of the effects that can vary but their direction as well. Prior items sometimes influence respondents to give consistent answers later on, but prior items sometimes appear to produce inconsistencies. Because the term *consistency* carries with it a specific theoretical connotation, we prefer to use the terms *carryover* and *backfire effects* in describing context effects. Thus, in the following sections of this article, we use our model of the response process to explain how both types of effects can arise at each stage of the response process.

Context and the Interpretation Stage

Context can affect the interpretation of an attitude item in at least two ways. Prior items can provide an interpretive framework for the later items, influencing the respondent's view of

what issue the later item is supposed to be about. Prior items can also determine what is seen by the respondent as worth saying and what is seen as redundant. Both effects can influence responses to the later items.[1]

Context as Interpretive Framework

In studies of comprehension and memory, it has been repeatedly demonstrated that people extract an interpretation from text, transfer this interpretation (usually the gist of the passage) to memory, and subsequently remember this gist rather than the verbatim text (see, e.g., Bransford & Johnson, 1972). The gist frequently takes the form of some overall framework or schema with distinguishing particulars (Bower, Black, & Turner, 1979; Graesser, Gordon, & Sawyer, 1979; Reiser, Black, & Abelson, 1985). The overall framework is likely to consist of a mental model of the situation—that is, a script (Abelson, 1981; Schank & Abelson, 1977) or a schema (Rumelhart, 1975; Rumelhart & Ortony, 1977)—and the context is important because it helps identify the relevant model.

Context can influence interpretation of attitude items in a survey questionnaire in a similar way. In the survey setting, an attitude structure is likely to serve as the framework for interpreting an item, and prior items may trigger the use of a particular attitude. For example, Schuman and Presser (1981) measured attitudes on an unfamiliar issue, the Monetary Control Bill (an obscure bill before Congress). Most people gave "don't know" responses to a question about their support for this bill, but among those who gave a "favor" or "oppose" response, there was a relation between responses to this item and responses to an item in the questionnaire on inflation. People who were the most concerned about inflation tended to favor the Monetary Control Bill. Schuman and Presser argued that this relation reflects the interpretation some respondents gave to the Monetary Control Bill item; the respondents thought that the Monetary Control Bill was an anti-inflation measure and answered the item accordingly.

A recent study by Tourangeau and Rasinski (1986) provides more direct evidence supporting Schuman and Presser's (1981) account. In our study, we thought we could encourage respondents to interpret the Monetary Control Bill as an anti-inflation measure by placing a series of inflation items immediately before it in one version of a questionnaire. The second version of the questionnaire included the same inflation items placed before the Monetary Control Bill question, but the items were scattered throughout the questionnaire. In the third version, neutral items with no bearing on the bill preceded the Monetary Control Bill question. As can be seen from Table 2, the inflation-context items increased support for the Monetary Control Bill and decreased the "don't know" rate but only when the inflation items were presented in a block immediately preceding the Monetary Control Bill item. Evidence from a replication using a different unfamiliar issue indicates that when the wording of the item clarifies the issue, the effect of the prior context items presented in a block is eliminated. This finding suggests that this context effect arises during the interpretation process and can, therefore, be eliminated by providing respondents with a more definite basis for comprehending the item than that provided by the context.

Table 2
Impact of Context on Interpretation of Unfamiliar Issues

Context	Favor	Oppose	Don't know
Item: Do you favor or oppose passage of the Monetary Control Bill?			
Block of inflation items	27.5%	17.5%	55.0%
Scattered inflation items	8.8%	20.0%	71.2%
Neutral context	12.5%	25.0%	62.5%

Herr, Sherman, and Fazio (1984) also reported a study in which judgments of an unfamiliar stimulus were assimilated to earlier judgments of more familiar stimuli. They argued that the effect occurred because the target was seen as belonging to the same category as the earlier items. In similar results from two studies of the attribution process, Trope (1986) showed that situational cues affect the interpretation of behaviors, especially ambiguous ones. Trope argued that situational cues disambiguate otherwise uninterpretable behaviors. Finally, Martin (1986) reported three additional studies that suggest that context affects the encoding of ambiguous stimuli. In our terms, all these findings illustrate carryover effects that arise when respondents interpret the target stimulus.

Backfire at the Interpretation Stage

In some ways, survey interviews are like conversations. Two people—the interviewer and the respondent—take part, and the interview consists of conversational units involving connected questions and answers on a given topic. Although the interview situation is clearly a very specialized form of conversation, it may still follow many of the principles that guide more ordinary and less structured conversations. Grice (1975), for example, argued that conversations are guided by such principles or maxims as the maxim of quality (which demands that one should say only things that are true). Another Gricean maxim—that one should be informative and avoid redundancy (Haviland & Clark, 1974)—may be especially relevant to context effects in attitude measurement. This principle may lead respondents to give apparently inconsistent answers when in fact the respondents are merely interpreting later questions as calling for new, nonredundant information.

Bradburn (1982) cited an example that may illustrate this process. He reported that an item asking respondents to evaluate their overall happiness yielded fewer "very happy" responses when this general question followed a more specific one on marital happiness than when the general item came first. Bradburn (1982; see also Turner & Martin, 1984, pp. 293–294,

[1] Context can, of course, have other effects on the interpretation of attitude items. Earlier items can, for example, make later items appear more extreme (e.g., Higgins & Lurie, 1983). We consider some of these other effects later, in connection with the judgment process. In this section, we focus on context effects that influence what attitude or concept is seen as relevant to the question or that influence the perceived scope of the question.

on interpretive contrast) interpreted this result as reflecting the tendency for the respondents to exclude their marital happiness when the general item came second because they felt that they had already covered their marriage in their earlier answers. It was as if respondents interpreted the general question to mean, "Aside from your marriage, how happy are you?" when the general item followed the marital item. The results do not rule out other explanations for this context effect, but the exclusion hypothesis remains a viable account for this context effect and related ones (Kalton, Collins, & Brook, 1978).[2]

Backfire effects arise during the interpretation stage when respondents interpret related items as calling for new or different responses (cf. Martin, 1986). The overall direction of the context effect depends on the marginal distribution of responses to the prior items. If respondents had discounted, or subtracted out, mostly unhappy marriages, for example, their overall happiness would, according to the exclusion hypothesis, have been greater on the average when the general item came later.

Carryover Versus Backfire in Interpretation

Our discussion of the processes leading to carryover and backfire effects at the interpretation stage implies several hypotheses about when each type of effect is likely to occur. Carryover effects reflect uncertainty about what attitude is relevant to the item; they are likely to arise when the attitude issue is new or unfamiliar to many respondents (as with the Monetary Control Bill), when the item wording does not make the relevant issue clear, and when the context items can be seen as relating to the same general issue (e.g., inflation). Placing the context items in a block immediately before the question on the unfamiliar issue may encourage the inference that the items are all about the same topic. Backfire effects at the interpretation stage appear to reflect uncertainty of a more specific kind; these effects arise when respondents are unsure about the scope of an item, especially an item intended as a summary item. They are likely to involve familiar issues (such as one's overall happiness) and to occur when a general item follows one or more items on particulars that are included in the general item. If the list of particulars is long enough, however, it may encourage respondents to interpret the general item as a summary of the particulars rather than as a residual category.

Context and Retrieval

Context can also affect what gets retrieved or considered as respondents answer a particular question. In the memory literature, the influence of context on retrieval is widely recognized and is embedded in some of the key distinctions in the field, such as those among free recall, cued recall, and recognition. In free-recall tasks, the only cue or context guiding the retrieval process is the fact that there is something (such as items on a list) to be recalled that was learned in a particular time and place. In a cued recall task, a more specific context is provided for the memory search, such as a topic heading or category label. And, in a recognition task, the best possible cue or retrieval context is provided—the item itself.

According to many theories of long-term memory, memory search is a process in which items are retrieved through the spread of activation from one item to related, or linked, items in an associative network (J. Anderson, 1978, 1983; Collins & Loftus, 1975). In deliberate retrieval situations, a node is activated, and the activation spreads automatically from this node to other nodes. For example, in a free-recall situation, the initial node might represent the list learned in the course of the experiment or specific situational features. Once the activation process is initiated, it goes on automatically (i.e., outside of awareness and beyond conscious control; Posner, 1978). Activation can spread to related ideas that happen to be irrelevant to the memory task immediately at hand. The spread of activation to the related ideas makes these ideas more accessible to the retrieval process later. For example, if subjects are asked whether *fruit* was on a memory list, they are quicker later to determine whether *apple* was on the list. This facilitation effect is often referred to as *priming*, and the earlier item or cue that produces the facilitation effect is referred to as a *prime* (Posner, 1978).

Retrieval and Attitude Questions

A number of studies in the social judgment literature have used priming as a means of influencing judgment processes. Wyer, Bodenhausen, and Gorman (1985), for example, showed that judgments regarding rape cases were influenced by apparently unrelated judgments of slides that depicted scenes of violence, sexy women, and so on. Wyer et al. argued that the prior rating task involving the slides activated stereotypes and norms that were then more likely to be applied to the judgments of the rape cases. (See also Higgins & King, 1981, and Higgins, Rholes, & Jones, 1977.)

Prior questions in an attitude survey can have this same priming effect. Respondents who are asked a series of questions on women's rights, for example, may be more likely to retrieve beliefs consistent with the idea that abortion is, say, a matter of the woman's free choice when they are asked about abortion later. Figure 1 contains a more detailed depiction of the hypothesized process. The women's rights items trigger a conscious retrieval process, in which respondents recall their views on women's rights. Activation can then spread from these beliefs to related pro-abortion beliefs, making them more accessible to subsequent retrieval efforts. The primed pro-abortion beliefs affect respondents' answers to the target abortion item (Tourangeau, 1987; Tourangeau & Rasinski, 1986).

This prediction rests on several assumptions regarding the structure of beliefs about abortion. One key assumption, of course, is that at least some respondents see abortion as related

[2] As Schuman and Presser (1981, pp. 42–44) observed, the context effect involving the happiness items does not always replicate, for reasons that are not yet clear. One possibility is that when the overall happiness item comes after a series of specific items, respondents correctly infer that the general item is intended to summarize rather than exclude the specific domains in the earlier questions. In any case, Kalton, Collins, and Brook (1978) reported a context effect consistent with the original finding on marital and overall happiness: Respondents asked to evaluate driving standards in general became less negative when they had first evaluated the driving standards of young people. Kalton, Collins, and Brook interpreted this context effect as reflecting the exclusion or subtraction of the (primarily negative) reactions to young drivers.

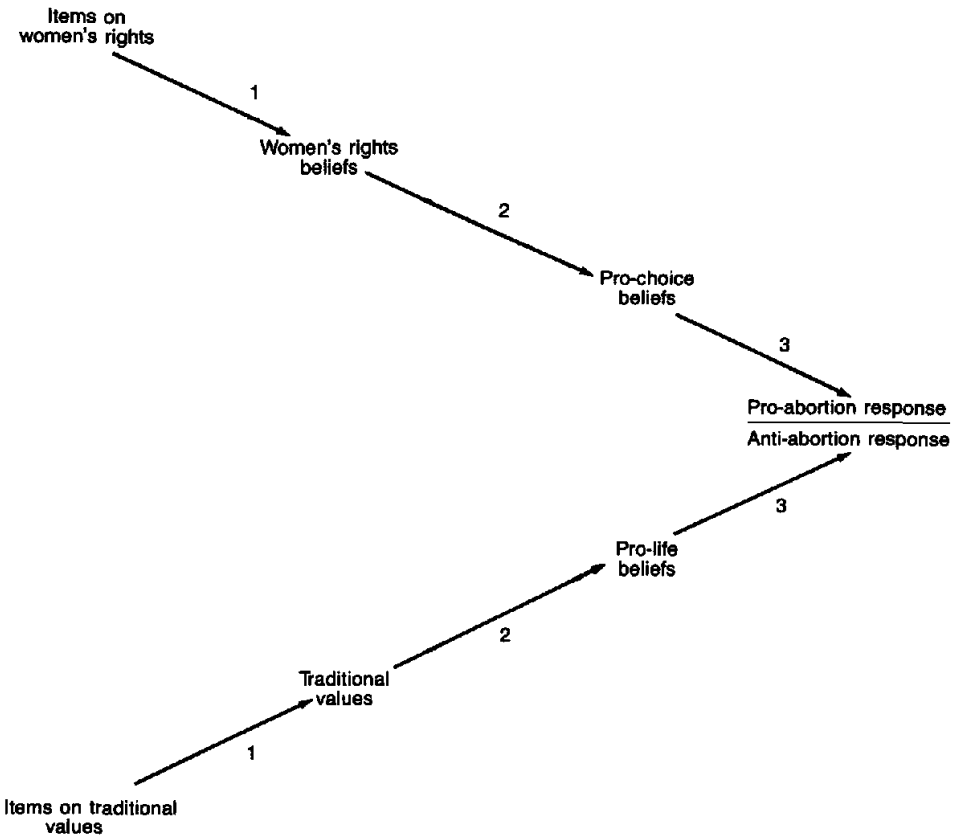

Figure 1. Hypothesized carryover effect during the retrieval stage. The first process (1 in the figure) is retrieval of beliefs related to the context items; activation then spreads to related beliefs about the target issue (2), rendering a response on one side of the issue more likely (3).

to women's rights. The spread of activation from one idea to another depends on the connection between the ideas. With attitude issues, beliefs on one side of an issue tend to be more closely connected than beliefs on opposite sides. For this reason, we assumed that items on women's rights would make pro-abortion beliefs more accessible, without necessarily affecting the accessibility of anti-abortion beliefs. Our analysis of the structure of abortion beliefs (Tourangeau et al., 1987) indicates that this assumption can be met, because people on different sides of an issue tend to see the issue as related to different things. People who support legalized abortion see it as related to women's rights, whereas opponents do not make this connection (at least, not so directly). Another assumption is that a large number of respondents could go either way on the target item. Partisans on the pro-abortion side are likely to retrieve pro-abortion beliefs even in the absence of any priming. Partisans on the other side have no pro-abortion beliefs to be primed. The context effect should, therefore, occur only with respondents with mixed views—those who can see abortion in pro-choice terms but who would not necessarily do so without the prompting of the context items. Finally, our prediction assumes that in answering the target question, many respondents retrieve specific beliefs rather than some overall evaluation.

We recently conducted a study (Tourangeau & Rasinski, 1986) that provided support for the line of reasoning depicted in Figure 1. Respondents who answered four items on women's rights showed greater support for legalized abortion than did respondents who answered four questions concerned with traditional values. A group that received neutral context items exhibited intermediate levels of support. (In all these groups, we scattered the context items among unrelated items to deemphasize their relations to the target item on abortion.) We obtained similar results in a parallel study with welfare spending as the target issue. The context items seemed to prime material that affected responses to the target items.

There are a couple of reasons to attribute these context effects to the retrieval rather than the interpretation stage. First, the issues involved were highly familiar ones, and the items themselves were relatively straightforward. There is no reason to suppose that respondents had any difficulty in comprehending the items or in identifying the relevant attitudes. Second, the context effects for abortion and welfare were most apparent when the context items were scattered; the context effects thought to involve the interpretation of the item appear to be more marked when the context items are presented in a block that is placed immediately before the target item. Thus, different processes seem to be implicated.

A number of other studies indicate that other contextual variables can activate concepts or feelings that are then carried over to a target item. Schwarz, Strack, Kommer, and Wagner (in

press) showed that mood, when salient, may be used as a basis for judging overall life satisfaction and that mood can be affected by such transient contextual variables as the weather or finding a dime. According to Schwarz et al., the context variables affect mood and increase its accessibility; mood is then used as a basis for inferring life satisfaction. Such mood carryover effects may account for at least one well-known survey context effect, in which a series of items designed to measure anomie appeared to affect responses to subsequent items assessing the level of confidence in public institutions (Turner & Krauss, 1978; see also Johnson & Tversky, 1983).

Discounting Accessible Concepts

Just because a piece of information or a belief has been primed does not guarantee that respondents will use it in forming a judgment or answering a question. A number of studies indicate that respondents will discount or actively suppress information that they regard as suspect or irrelevant. For example, Martin (1986) showed that respondents sometimes suppress trait categories primed by a prior task when forming impressions of a target person later, apparently because they feel that the later judgment should be distinct from the earlier task. In a similar vein, Schwarz and Clore (1983) argued that respondents use mood as a basis for inferring their life satisfaction when mood is accessible but that respondents discount mood when its connection to the weather is made salient. In one study, interviewers called the respondents' attention to the weather by asking about it; respondents in this group apparently discounted mood in judging life satisfaction. According to Schwarz and Clore, these respondents realized that mood was a poor indicator of overall life satisfaction because of its relation to such transient factors as the weather and, therefore, excluded mood in rating their life satisfaction.

In some cases, respondents appear to set aside the accessible concepts so that these concepts have no effect on the later judgment (Schwarz & Clore, 1983); in others, the exclusion of material that supports one response leads respondents to make the opposite response, and a backfire effect results (Martin, 1986). Several other studies (Higgins & King, 1981, Studies 1 and 5; Wyer et al., 1985) illustrate similar backfire effects. For example, in one study, Higgins and King (1981, Study 1) attempted to increase the accessibility of sex role stereotypes; in a subsequent recall task, male respondents displayed a backfire effect: They incorrectly recalled a male target person as having more "female" than "male" characteristics. One explanation for this effect is that the respondents consciously rejected the traditional male sex stereotype for a more contemporary one.

Discounting or rejecting accessible material may also occur in attitude surveys, in which the accessible material has been primed by earlier questions in the interview. In our own research (Tourangeau & Rasinski, 1986), we have sometimes observed backfire effects with familiar issues. For example, respondents who were asked a series of questions about the government's responsibility to provide certain services, such as hospitals and roads, subsequently showed reduced support for welfare spending. The backfire effect was evident only when the context items were presented in a block that was placed immediately before the target item on welfare.

Carryover Versus Backfire in Retrieval

Several variables may determine whether material rendered accessible by prior items is used in formulating a response or excluded from consideration. The priming process responsible for carryover effects at the retrieval stage is thought to be automatic (Posner, 1978) and, therefore, operates outside of conscious awareness. The discounting of accessible material appears to be a more controlled process; it involves recognizing that certain information can be used in answering a question and then deciding not to use that information. This suggests two variables that may determine whether a carryover or backfire effect occurs—how much thought respondents give to their answers and how obvious the context items are. Thoughtful respondents are more likely to assess the relevance or validity of material primed by prior items; obvious contexts are more likely to arouse respondents' suspicions and, thus, trigger a conscious evaluation of the primed material.

Thus, in Schwarz and Clore's (1983) study, calling attention to context (i.e., the weather) eliminated its effect. Similarly, in our own work, when the context items were presented in a block placed immediately before the target item, the carryover effect sometimes disappeared or was reversed. Material made accessible by such blatant contexts may be more likely to be rejected or discounted.

Context Effects on Judgments

Answering an attitude question generally involves rendering a judgment. In attitude surveys, judgmental carryover effects can occur when the standards or dimensions used in answering one question are applied to later questions. This is similar to findings in studies of problem solving that show that one sticks with a solution strategy even when it stops being efficient (e.g., Luchins, 1946). These studies demonstrate a kind of strategic carryover effect, in which problem-solving techniques induced in solving earlier problems are inappropriately applied to later ones.

Many attitude judgments are reasonably delimited (e.g., judgments of approval of a proposed course of action; Wyer & Hartwick, 1984), but often the relevant dimensions are unclear or unspecified, the criteria are ill-defined, and the standards of comparison are vague. Context can affect how the judgment is made, what dimensions are judged, and what criteria or standards of comparison are used. In the terms of information integration theory (N. Anderson, 1974, 1981), context can affect which dimension is used in rendering the judgment, what anchors are used in the scaling of individual beliefs, and what integration rule is applied.

In principle, then, context effects on judgment refer to the impact of context on how beliefs are used in the judgment process; context effects on the retrieval process refer to the impact of context on what beliefs figure into the judgment. In practice, however, it can be difficult to distinguish the two types of effects. Context can, for example, suggest a standard to which subsequent items are then compared. In such cases, context has affected not only what has been retrieved (i.e., the standard) but also how other material, which would have been retrieved anyway, is evaluated.

Judgmental Carryover

A series of studies by Iyengar, Kinder, Peters, and Krosnick (1984) illustrates this ambiguity. In these studies, Iyengar et al. explored how news coverage can affect political attitudes. In one study, subjects watched about 40 min of taped news stories with varying levels of coverage of the energy crisis. The subjects then rated President Carter's handling of energy policy and his overall performance. These two ratings were more highly correlated when the subjects had seen more stories on energy. This heightened correlation may represent a retrieval effect (in which respondents were more likely to consider Carter's energy policies after they had watched the news stories), a judgment effect (in which the respondents simply gave greater weight to energy-related beliefs about Carter), or both.

In other cases, the context may trigger the application of a norm, which then provides the basis for a judgment. Once again, context probably affects both what respondents consider in making their judgments and how they make the judgment. Schuman and Presser (1981; see also Schuman & Ludwig, 1983) reported a context effect involving parallel items about newspaper reporters from Communist countries ("Do you think the United States should let Communist newspaper reporters from other countries come in here and send back to their papers the news as they see it?") and from the United States ("Do you think a Communist country like Russia should let American newspaper reporters come in and send back to America the news as they see it?"). Roughly half of the respondents endorsed the item about Communist reporters when it came first; the proportion rose to nearly three fourths when the Communist-reporter item came after the item about American reporters. According to Schuman and Presser, when the American-reporter item is presented first, the item on Communist reporters triggers the norm of fairness or evenhandedness, a norm that is not so likely to be seen as relevant when the Communist item is presented first. By contrast, when the item on Communist reporters comes first, responses to it are likely to be based on attitudes toward communism or the Soviet Union. Several other well-documented context effects (such as one involving items on trade restrictions on U.S. exports to Japan and on imports to the United States from Japan) also appear to reflect the triggering of a norm of evenhandedness. Schuman and Ludwig gave a fuller discussion of these and related examples.

Judgmental Anchors

Context items can also suggest reference points that may serve as anchors, or standards of comparison, for later judgments. Judgmental contrast effects are a familiar idea in social psychology, dating back to Hovland, Harvey, and Sherif's (1957) classic study. A number of related effects have been observed, many of them involving judgments of the position of an attitude item or persuasive message. Generally, contrast, or backfire, effects are found (but see Schwarz & Wyer, 1985). For example, people opposed to a message tend to see the message as more extreme than do those who agree with the message (Hovland et al., 1957; Judd & Harackiewicz, 1980). This is generally seen as a contrast effect, because people are thought to use their own position as an anchor in judging other positions and to contrast opposing opinions with their own. The anchor for a judgment need not be one's own opinion but may be earlier items (Higgins & Lurie, 1983; Schwarz & Wyer, 1985) or even the midpoint of the response scale (Schwarz & Hippler, 1987). According to some accounts (Ostrom, 1970; Upshaw, 1969), these contrast effects are not, strictly speaking, judgmental but involve the process by which the judgment is mapped onto a response scale. Some studies (Judd & Harackiewicz, 1980), however, indicate that the judgment itself is affected by the standard of comparison.

A study by Strack, Schwarz, and Gschneidinger (1985) illustrates how context can affect the standard of comparison used in making later judgments. They had respondents generate positive or negative personal experiences from the past and then rate their current life satisfaction. Respondents who had recalled positive events rated themselves less happy than did those who had recalled negative events. The past events apparently served as an extreme standard of comparison for rating current well-being and, thus, produced judgmental contrast effects. In a follow-up experiment, Strack et al. showed that when the past events were recalled vividly and in detail, they no longer functioned as judgmental anchors; instead, they apparently affected the respondents' moods and, thus, had a carryover effect on judgments of life satisfaction (as in Schwarz & Clore, 1983, which we discussed in the Retrieval and Attitude Questions section).

Strack et al. (1985) argued that the backfire effect obtained when pallid events are used as standards of comparison is judgmental rather than reflecting the mapping of the judgment onto the response categories. Given the simple categorical response format that they used, this interpretation seems quite reasonable. A study by Higgins and Lurie (1983) indicates that a judgment based on a standard affects how the stimulus is remembered, again suggesting that the contrast effect involves more than the mapping process (cf. Herr et al., 1984; see also Dillehay & Jernigan, 1970, and Turner & Martin, 1984, p. 294, on perceptual contrast).

Carryover Versus Backfire in Judgment

Carryover effects at the judgment stage for the most part reflect changes in the dimension of judgment (as in the agenda-setting research) or changes in the rule used to arrive at the judgment (as in the evenhandedness findings). When the object or issue being judged is highly familiar and multifaceted, such as the President's performance in office, respondents may not know where to begin; they may, therefore, be guided by context in selecting a dimension for the evaluation. Carryover effects resulting from the application of the norm of evenhandedness are likely to occur only under fairly circumscribed conditions; as Schuman and Ludwig (1983) put it,

> Context effects will occur whenever two questions deal with differently evaluated competing parties. . . . When the comparability of the parties' positions is made salient, the norm is evoked and prescribes comparability of treatment. (p. 112)

Backfire effects at this stage reflect the use of extreme standards of comparison, or judgmental anchors. Generally, backfire effects predominate when the prior items are extreme in

some way or are seen as dissimilar (though still comparable) to the subsequent item. Carryover effects appear to be the rule when the anchor is seen as representing an average or midpoint.

It is not always clear when context items will be used as standards of comparison for later items. One obvious prerequisite would be that the items can all be positioned on a single salient dimension. If the question does not specify any single standard and many standards are reasonable (as with judgments of life satisfaction, in which some respondents may compare their current with their past lives, whereas others compare themselves with similar others or with the average person), then the question may be susceptible to judgmental contrast effects. Tourangeau and Rasinski (1986) presented results suggesting another hypothesis. They found that highly partisan respondents appear to answer a series of items on abortion by using an absolute standard but that respondents with mixed views about abortion appear to respond more flexibly, perhaps making comparisons among the individual items.

Context and Response Selection

The final step in answering an attitude question is to select a response. In both surveys and attitude-change studies, the response options are almost always prespecified. Thus, one component of the response-selection stage is the mapping of the judgment onto one of the response categories. A second component involves editing the chosen response. The editing process may reflect such considerations as avoiding inconsistent or undesirable responses.

We have already noted that prior items can affect the mapping process by changing the anchor for the response scale (Ostrom, 1970; Upshaw, 1969). The later responses are generally moved in the direction of contrast (or backfire) away from extreme anchors but not always. In an apparent exception to the general rule, Schwarz and Wyer (1985) reported an assimilation (or carryover) effect, in which later stimuli are seen as more extreme when an extreme anchor has been made salient by a prior ranking task. The assimilation to extreme anchors appears to involve the judgment-to-response mapping process; the effect of the prior ranking task disappears when each point on the rating scale is labeled (Schwarz & Wyer, 1985, Experiment 5). Sometimes the average of a group of related items or the middle alternative among the response categories can serve as an anchor point for the mapping process (Higgins & Lurie, 1983; Schwarz & Hippler, 1987); with such moderate anchors, assimilation of the response to the anchor appears to be the rule.

Carryover and backfire effects can also arise in the editing process. Prior items can produce consistency pressures that affect answers to later questions; prior items can also heighten pressures to present oneself as moderate by giving seemingly inconsistent responses to related items.

Editing for Consistency

Social psychologists have assumed for 3 decades now that people want to be or at least appear to be consistent in their beliefs (Abelson et al., 1968; Heider, 1958; Tedeschi, 1981). Some of the early work done under the heading of cognitive consistency is quite similar to the methodological studies carried out in exploring item-context effects. For example, McGuire's (1960) "Socratic effect" research demonstrated that asking related questions on a topic can produce changes in the answers. According to McGuire, asking questions about related beliefs can make the relation among them more salient; once the relation is made salient, people try to reduce the inconsistencies among their beliefs. Although McGuire originally hypothesized that consistency would be achieved only gradually, over days or weeks, subsequent results (e.g., Wyer & Rosen, 1972) suggest that much of the inconsistency reduction occurs during the initial session, when the related beliefs are first assessed.

McGuire's (1960) Socratic effect may be relevant to attitude measurement in surveys (see, e.g., Dillehay & Jernigan, 1970, on response consistency), because it is typical in surveys to ask related questions in a topical block, and often the introduction to the items reinforces the connections among them. The changes that result from the juxtaposition of previously inconsistent beliefs are not necessarily artifactual or short-lived. In one particularly dramatic demonstration, Rokeach (1975) showed that long-term changes in attitudes and behavior can be produced by confronting people with discrepancies among their values.

Consistency effects at the editing stage can be distinguished from carryover effects at earlier stages in several ways. Interpretive carryover effects typically involve unfamiliar or obscure issues, whereas consistency pressures are likely to involve familiar issues. At the retrieval stage, carryover effects are sometimes increased by scattering the context items (Tourangeau & Rasinski, 1986), whereas consistency pressures should be heightened when the related items are blocked. In addition, the carryover effect at the retrieval stage results from a priming process that is at least partially independent of responses to the context items; the consistency effect is, of course, necessarily dependent on responses to the prior items.

Editing for Purposes of Self-Presentation

Respondents may report an answer that systematically distorts their underlying judgment. No one wants to embarrass him- or herself or to create an uncomfortable situation. The interview is a social interaction, and respondents may select answers to present themselves in a favorable light. This desire to present oneself favorably can take some nonobvious forms. McGuire and Millman (1965) observed that people warned of an impending attack on their beliefs sometimes show anticipatory belief changes. McGuire and Millman attributed this effect to the receivers' expecting to be persuaded and to their desire to save face by appearing to have agreed with the message all along. A number of subsequent findings support this self-presentation account: Respondents snap back to their original position when the anticipated message is cancelled (Cialdini & Petty, 1981); when the position of the impending message is unclear, the anticipatory change is in the direction of moderation (Cialdini, Levy, Herman, & Evenback, 1973).

The anticipatory-attitude-change findings suggest that people do not want to appear gullible and that the middle ground appears safer than either extreme. Other things being equal, then, respondents whose attitudes are being measured may attempt to create the impression of being moderate on a topic. Respon-

dents can create the impression of moderation by using middle response categories. The response options are often restricted, however, to dichotomous, pro–con alternatives. In such cases, respondents can still create the appearance of moderation by balancing pro and con answers across a series of items on the same topic. For example, respondents with moderate pro-choice views on abortion may be eager to give pro-life responses after they have given a series of pro-choice answers, just to make clear to the interviewer that they are not partisans or extremists on the issue. Their responses to a given item may, in part, reflect their fears that their earlier answers may have created an erroneously extreme impression. They may edit their later answers to offset this impression. (For a related hypothesis, see Turner & Martin, 1984, p. 293, on response contrast.)

Carryover Versus Backfire in Editing

When is the editing process likely to enhance consistency as opposed to moderation? The consistency effect should be greatest when a close, even logical, relation exists among the items (McGuire, 1960), when this relation has been made salient (Wyer & Rosen, 1972), and when respondents are sufficiently involved in the issue to care about being consistent. The moderation effect is likely to occur when involvement in the issue is low or when respondents do, in fact, have moderate views, which have not been conveyed by their responses to the prior items. Thus, a series of dichotomous items on a topic that most people would agree (or disagree) with may encourage inconsistent responses to a later item, especially if the later item is less consensual than those that preceded it.

Variables Affecting the Impact of Context

Given the multiplicity of mechanisms underlying context effects and the empirical confusions surrounding them, it is not always possible to specify exactly when each type of context effect will occur. In some cases, there are simply no relevant data or theories to guide predictions. In other cases, there are data, but they give conflicting answers. Several investigators have reported attempts to replicate context effects, only to have the replications fail to obtain any effects of context (Bishop et al., 1985; Schuman & Presser, 1981, Appendix A) or only to obtain effects in the opposite direction from the original result (e.g., Schuman & Presser, 1981, pp. 42–43). The resolving power of the data is poor, and this places limits on our ability to say with any precision when each type of effect will occur. Aside from that, context effects result from complex processes that may not allow simple answers to such apparently straightforward questions as "When will respondents reject accessible beliefs rather than being swept along by them?" Such questions are likely to prove as difficult to answer as similar questions about, for example, attitude change (e.g., "When will an expert be the most effective persuader?"). For the time being at least, the answer must be that it depends; and we have yet to identify all the variables that it depends on.

Within these limits, however, we have identified in previous sections a number of variables that affect the size and direction of context effects. In this section of the article, we highlight these variables. Most of them are related to the reliability of one or more of the processes involved in answering an attitude question; it is when the response process is unreliable that it is most readily affected by context. These variables can be grouped according to the stage of the attitude-response process that they primarily affect. Table 3 contains a summary list of these variables.

Table 3
Variables Affecting Size and Direction of Context Effects

Variable	Effect
Variables affecting interpretation	
Issue familiarity	Unfamiliar issues more susceptible to interpretive carryover effects.
Attitude accessibility	Inaccessible attitudes susceptible to interpretive carryover effects.
Variables affecting retrieval	
Mixed, or conflicted, beliefs	Mixed respondents more susceptible to carryover effects at retrieval.
Issue expertise and involvement	Expert and involved respondents less likely to show carryover effects.
Question form (direct opinion versus related judgment)	Related judgment items more susceptible to carryover effects.
Obviousness of context	Obvious contexts may be discounted.
Depth of thought (mode and pace of administration)	Use of self-administered questionnaires and conducting interviews at a slow pace may reduce context effects.
Variables affecting judgment	
Complexity of judgment	Multifaceted issues susceptible to judgmental carryover effects; comparative judgments susceptible to backfire (i.e., judgmental contrast) effects.
Similarity and extremity of context items	Extreme or dissimilar anchors foster backfire (i.e., contrast) effects.
Variables affecting response selection	
Characteristics of anchor (labels, midpoints versus extremes)	Labeling every option may reduce anchoring effects during response-mapping stage; extreme anchors foster backfire (contrast) effects.
Salience of the relation among items	Heightening salience may increase consistency effect for involved respondents and moderation effect for uninvolved respondents.

Interpretation Stage

A crucial component of the interpretation of an attitude item is determining which attitude is relevant to the question. At least two variables—the familiarity of the issue and the accessibility of the attitude—can influence whether this determination

will be made reliably or will be influenced by the context of the item.

Issue familiarity. When the issue is ambiguous or unfamiliar to most respondents (e.g., the Monetary Control Bill), respondents may have difficulty in identifying a relevant attitude structure; they must search for one, and context can bias this search. By contrast, when the issue is a familiar one or when the item wording clarifies the nature of the issue, this interpretive carryover effect appears to be eliminated. In fact, with highly familiar issues, an attitude structure may be activated automatically when the issue is confronted (Fazio et al., 1986). Context effects with unfamiliar issues generally run in the direction of carryover (Herr et al., 1984; Tourangeau & Rasinski, 1986; Trope, 1986), with respondents interpreting the target item in terms of the attitude evoked by the context items. If the context items are to disambiguate an unfamiliar issue, it may be important that they come in a block that is placed immediately before the target item (Tourangeau & Rasinski, 1986). When the context items are scattered or otherwise disguised, respondents may not make the interpretive connection between the target and context items.

Attitude accessibility. Issues so obscure that few respondents know which (if any) of their attitudes are relevant to the target item are an extreme case, but even with familiar issues, individuals may differ markedly in how readily they locate the relevant attitude or attitudes when confronted with an item. Fazio et al. (1986) and Fazio and Williams (1986) have argued that individuals differ in the accessibility of their attitudes on a given topic. It seems reasonable to assume that respondents with highly accessible attitudes on an issue will identify (and retrieve) their attitudes reliably and that those with less accessible attitudes will be less reliable in locating relevant attitude structures and more susceptible to the effects of context. Several variables are likely to relate to an attitude's long-term accessibility, including expertise and involvement in the issue (Fiske & Kinder, 1981), attitude centrality, and direct experience with the issue. One line of evidence reviewed by Converse (1964, 1975) supports this reasoning: Expertise and involvement lead to greater consistency in responses over time. Other variables, such as recent retrieval of the attitude or related attitudes, can have short-term effects on attitude accessibility.

Retrieval Stage

We have argued that retrieval often involves two steps—retrieving an overall attitude structure and retrieving individual beliefs or feeling from within that structure. The first step is closely linked with interpreting the issue; it may be difficult to identify the relevant structure without activating it (Fazio et al., 1986). Thus, the reliability of retrieving an overall structure depends on two variables that we have already mentioned—the familiarity of the issue and the chronic accessibility of the attitude. Five additional variables may influence the retrieval of individual beliefs and the susceptibility of this stage of the retrieval process to the effects of context.

Mixed, or conflicted, beliefs. The view that answering an attitude question involves a sampling of relevant beliefs suggests that the response process will be unreliable when the population of beliefs being sampled is heterogeneous, that is, when the retrieved attitude structure includes beliefs supporting both sides of an issue. We have found that respondents with mixed views are most sensitive to differences in item wording (Tourangeau & Rasinski, 1986); Smith (1982) reviewed evidence that middle-of-the-road respondents (who are likely to have mixed views) are most vulnerable to context effects as well. Respondents with internally consistent views are unlikely to be affected by contextually induced priming because the characteristics of samples of beliefs will not vary much when the underlying population is homogeneous. When beliefs are mixed, however, context may shift the balance by rendering beliefs on one side of the issue more accessible to retrieval (Tourangeau & Rasinski, 1986).

Issue expertise and involvement. Other researchers have suggested that issue expertise and involvement may decrease susceptibility to context effects (Fiske & Kinder, 1981; see also Rugg & Cantril, 1944, on attitude crystallization). *Expertise* about an issue refers to how much respondents know about it; *involvement* refers to how much they care about it. The two variables are doubtless generally correlated. For our purposes, the distinction is not crucial, because both experts and involved respondents are likely to have tightly interconnected attitude structures. For such structures, the retrieval process is thought to be thorough and reliable (Smith, Adams, & Schorr, 1978)—and unlikely to be affected by context.

These hypotheses about issue expertise and involvement are closely related to our earlier hypothesis concerning the familiarity of the issue. An unfamiliar issue is simply one for which few respondents are expert or involved. We prefer to use the term *familiarity* when characterizing issues and the terms *involvement* and *expertise* when characterizing individual respondents. Still, we could restate our earlier hypothesis regarding interpretive carryover effects by saying that expert and involved respondents ought to be less prone to such effects.

Question form: Direct opinions versus related judgments. Even when it is clear what overall attitude is relevant, a question may still leave considerable ambiguity about what beliefs are relevant. Some attitude items ask for relatively clear-cut agree–disagree responses. These direct opinion items may allow a straightforward readout of a belief. By contrast, many of the studies that find large context effects use questions that call for a related judgment, such as predicting the frequency of an event or assigning blame in a rape case. Respondents may not be sure what beliefs are relevant to these related judgments (or how to use beliefs that they see as relevant). When it is not clear what beliefs are relevant because the item requires a complex judgment rather than a direct statement of belief, the retrieval process will be unreliable and open to the effects of context. Under these circumstances, carryover effects produced by priming may be especially prevalent.

Obviousness of context. Martin (1986, p. 494) argued that most successful priming studies have used rather subtle manipulations of context; for example, the priming task is sometimes presented as part of a different study from the target judgment (Wyer et al., 1985). When the prior context is made obvious, respondents may discount or reject the material that it has rendered accessible, because they judge it to be irrelevant to the target item or they find it disagreeable in some other way. For example, Schwarz and Clore (1983) showed that calling respon-

dents' attention to the weather eliminated its effect on judgments of life satisfaction. The basic priming effect is thought to reflect an automatic process (i.e., spreading activation) and, therefore, should not depend on respondents' conscious awareness of the connection between the context and target items. The discounting or rejection of context, however, appears to involve more controlled processes.[3]

Depth of thought. At first blush, it might seem obvious that context effects are the products of superficial thinking about an issue and that if respondents could be induced to think more deeply before they answered, context effects would disappear or at least be reduced. There are, however, reasons to suppose that the opposite may sometimes be the case: Under some circumstances, increased thoughtfulness may magnify rather than diminish the effects of context. In a related vein, Wilson and Dunn (1986) and Wilson, Dunn, Bybee, Hyman, and Rotondo (1984) have shown that increased thoughtfulness can decrease the correlation between attitudes and behaviors on an issue. Our model of the response process assumes that answers to attitude questions often reflect the sampling of individual beliefs. If the sampling process is biased by prior items, additional thought may simply yield additional beliefs that are consistent with those sampled earlier (Millar & Tesser, 1986; Tesser & Leone, 1977). Of course, this effect must have some limit. As respondents sample their beliefs on a topic exhaustively, their answers should eventually become stable. Thus, the overall relation between depth of thought and size of the context effect may be curvilinear. And the relation may be even more complex than that; as we have just noted, when the context is obvious, respondents may engage in more thoughtful, controlled processing and, in formulating their final answers, they may exclude some of the material that they have retrieved. Variables that encourage deeper thought may make it more likely that such controlled processes will be engaged.

A number of procedural variables can encourage or discourage thoughtful processing. Multiple items on the target issue may encourage repeated attempts at retrieval and, thus, more thorough sampling of relevant beliefs. In addition, the pace of the interview (Tourangeau, Lessler, & Salter, 1986) and the mode of administration may affect how much thought respondents give to their answers. Recent studies by Bishop and Hippler (1986) indicate that some context effects (but not all) are reduced when the questions are self-administered rather than administered in a telephone interview. Bishop and Hippler attributed this mode difference to the slower pace (and greater thought) typical of self-administered questionnaires.

Judgment Stage

Implicitly or explicitly, different forms of attitude questions require respondents to make different types of judgments, ranging from relatively simple judgments of agreement to extremely complex judgments of fairness or equity. Even when respondents retrieve a stable set of beliefs or values relevant to the question at hand, they may not know exactly how to use them in making the requisite judgment. As Fischoff et al. (1980) pointed out, respondents may need practice in thinking through the implications of their values in new settings.

Complexity of the judgment. One variable that affects the reliability of the judgment process is the complexity of the judgment involved: The simpler the judgment, the less likely it is to be affected by context. At one extreme, items that map directly onto existing, highly accessible beliefs or overall evaluations are likely to produce stable answers; thus, an item asking whether abortion is murder is, for most pro-life respondents, unlikely to require much judgment at all. Items that map directly onto existing beliefs are probably very much the exception in surveys, with almost all items requiring at least some judgment.

Many issues, such as the president's performance in office or one's life satisfaction, are inherently multidimensional; as a result, respondents may have a difficult time formulating a coherent judgment strategy. With such issues, many relevant dimensions of judgment, each with its own criteria and standards of comparison, have to be integrated in some way. In such cases, respondents may simplify their task by focusing on dimensions and standards of comparison that readily come to mind, and context can determine which dimensions or standards come to mind.

Even questions that seem to be posed in absolute terms may involve comparisons as a key component of the judgment process. For example, nothing in the item about legal abortions for women who are married and do not want any more children appears to require comparison processes. Yet at least some respondents seem to answer this item by comparing the strength of the reason given for abortion in this case with the stronger reason mentioned in the preceding birth-defect item. As Higgins and Lurie (1983) argued, many absolute judgments are in fact relative. Thus, when the criteria for an absolute judgment are unclear or when the judgment is inherently comparative and an explicit standard is lacking, the judgment process may be unreliable—and may fall prey to the influence of contextually salient criteria and anchors.

Characteristics of the context items. If a judgment is based on a comparison with a prior item or some other anchor suggested by the context, then the size and direction of the context effect depend on such characteristics of the anchor as its extremity and its similarity to the target. Extreme standards of comparison are likely to produce judgmental contrast effects (Herr et al., 1984; Herr, 1986; Judd & Harackiewicz, 1980; Schwarz & Strack, 1985), whereas anchors representing moderate values (such as the average for a category or the midpoint of a scale) seem to produce assimilation effects as a rule (Schwarz & Hippler, 1987). One reason that extreme context items may produce contrast (or, in our terms, backfire) effects is that the context items may be seen as dissimilar or unrelated to the target item. When the standard suggested by context is dissimilar from the target, contrast is the usual result.

[3] The effects of blocking the context items described here depend on the issue's being a familiar one. When the issue is unfamiliar, the effects of blocking the context items are reversed, with blocked items producing carryover effects. With unfamiliar issues, context appears to affect the interpretation of the item, and the context and target items must be presented in a block for an interpretive carryover effect to occur (Tourangeau & Rasinski, 1986). Apparently, with obscure issues, the blocked presentation encourages respondents to infer that the target item concerns the same issue as the context items.

Response-Selection Stage

The final stage of the response process, in which an answer is selected from among the options presented, involves at least two processes that can be affected by context. The judgment must be mapped onto one of the response categories; in addition, the response may be edited for consistency with prior responses or to create a favorable impression. The mapping process can be affected by the nature of the anchors or labels given in the answer categories. Context can also create pressure to appear consistent or moderate.

Anchors for the response scale. Even when respondents are clear that they agree or disagree with an item, they may have difficulty in mapping this judgment onto the response scale. Researchers usually provide labels to help anchor the mapping process, sometimes labeling every option and sometimes labeling only the extremes. Labeling all the options may reduce context effects (Schwarz & Wyer, 1985) or may encourage the use of the middle response category as an anchor for the mapping process. Use of the midpoint or middle category as an anchor appears to produce assimilation effects (Higgins & Lurie, 1983; Schwarz & Hippler, 1987). Higgins and Lurie (1983) demonstrated that particularly large context effects can result when one anchor is used in making an initial judgment but a different anchor is used in mapping the final response.

Heightening the relations among items. In the original Socratic effect research, McGuire (1960) assumed that, when the connection among logically related items was made salient, people would attempt to reduce inconsistencies among their responses to the items. Subsequent research (Wyer & Rosen, 1972) shows that it is essential to the Socratic effect that the connections among the items be salient to the respondents. Some of the variables mentioned earlier, such as the obviousness of the context items and the depth of thought given to the answers, may help make the relation among items salient. Editing for consistency (as well as editing to create an impression of being a moderate on an issue) presupposes a close relation, even a logical one, among the items. With less directly related items, we would expect the editing process to reflect other considerations, such as social desirability.

The pressure to appear consistent or moderate is greater when the connection between the context and target items is obvious. When respondents care about the issue, heightening the connections among the items is likely to produce consistency effects; when respondents do not care about the issue, it is likely to produce moderation effects.

Summary and Conclusions

Context can product either backfire or carryover effects that change the apparent distribution of opinion on related issues. Context can produce these shifts by (a) changing what object or issue is being judged; (b) changing the considerations and beliefs that enter into the judgment; (c) changing the dimensions, standards, or norms that are applied in making the judgment; and (d) changing how the judgment is reported. Context effects are often unstable; this instability may reflect the number and complexity of the processes that are responsible for the effects, as well as the large number of variables that can influence the size and direction of context effects. Table 3 offers a partial list of these variables, along with a number of specific embodiments of them.

It should be apparent from our account that context effects are not merely artifactual. First, context effects are inextricably bound up with both the structure of attitudes and the process of answering attitude questions. The beliefs and feelings that constitute an attitude are often complex and mixed. The issues that appear regularly on surveys are ones that engender enduring controversy, and it is difficult for most people to take a strong and clear stand on these issues. Given the underlying heterogeneity of people's beliefs, it is no surprise that they are susceptible to the subtle effects of item wording or item context. And even when beliefs are unmixed, judgments are still affected by context, as long as the relevant dimensions of judgment are unspecified and the standards of comparison are unclear.

A second reason for viewing these effects as more than mere artifacts is that they are not necessarily short-lived. The attitude changes produced by consistency pressures are known to be enduring on some occasions (e.g., Freedman, 1965; Rokeach, 1975). Most of the mechanisms that we distinguish in this article can probably lead to enduring changes in attitudes. For example, once a dimension is used in making a judgment, it probably tends to be reused. More generally, Lingle and Ostrom (1979) and Lingle et al. (1979) have argued that once a judgment is made, it tends to be retrieved and applied in rendering related judgments later. Responses influenced by context may thus persist in memory and affect subsequent responses.

Other Order Effects

We have not attempted to make this article comprehensive in its coverage of order effects in surveys. A number of such effects do not involve the specific content of the prior items. For example, survey researchers tend to put sensitive items toward the end of the questionnaire, partly because they believe that during the course of the interview, rapport gradually builds between the interviewer and the respondent so that respondents are more likely to admit to embarrassing facts about themselves later in the interview, after a positive relationship has been established. Another frequently cited sequence effect involves respondent fatigue. Tourangeau et al. (1986) showed that underreporting of dental visits increases as the interview gets longer. Aside from sheer fatigue, the effects on reporting of interview length or position within the interview may reflect the respondents' changing criteria for reporting. Criterion shifts may be especially marked when positive responses to an item trigger a series of follow-up questions, a contingency that respondents are likely to note during the course of a long interview.

Tourangeau et al. (1986) showed how context effects can be put to positive use. They argued that warm-up questions can trigger the recall of specific events, decreasing the amount of underreporting. Retrieval cues can be valuable when they increase the effectiveness of the retrieval process—rather than biasing it.

The sequence of the response options may also make a difference to the answers. Tourangeau (1984, p. 90) argued that respondents may use a satisficing rule in selecting a response, especially when they are confronted with a long series of response

options. This hypothesis implies that under the right circumstances, primacy effects will be observed, a prediction recently confirmed by Krosnick and Alwin (1986).

Implications for Practice

Although we have not explicitly tried to spell out the implications for the practice of attitude measurement of the variables listed in Table 3, some of the variables clearly carry such implications: Questions involving unfamiliar issues should define the issues; questions requiring complex judgments should be avoided, or the relevant dimensions and judgmental anchors should be clearly specified; respondents should be encouraged to admit that they do not have an opinion or that their beliefs are conflicted; and so on. We are reluctant to offer such recommendations until the range of context effects—and the mechanisms underlying them—is better understood. Opinion researchers often bemoan the fragmentary and noncumulative nature of research on context effects. We hope that our model of the process of responding to attitude questions can help bring some order to this tangled area.

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