

### Response order effects in dichotomous questions: the impact of administration mode

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Veröffentlichungsversion / Published Version

Konferenzbeitrag / conference paper

Zur Verfügung gestellt in Kooperation mit / provided in cooperation with:

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#### Empfohlene Zitierung / Suggested Citation:

Hippler, H.-J., Schwarz, N., & Noelle-Neumann, E. (1989). *Response order effects in dichotomous questions: the impact of administration mode*. (ZUMA-Arbeitsbericht, 1989/17). Mannheim: Zentrum für Umfragen, Methoden und Analysen -ZUMA-. <https://nbn-resolving.org/urn:nbn:de:0168-ssoar-67009>

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Response Order Effects  
in Dichotomous Questions:  
The Impact of Administration Mode

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ZUMA-Arbeitsbericht Nr. 89/17

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Response Order Effects in Dichotomous Questions:  
The Impact of Administration Mode

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## Response Order Effects in Dichotomous Questions:

## The Impact of Administration Mode

Survey researchers have long been aware that the order in which response alternatives are presented to respondents may profoundly affect the obtained results (cf. Payne, 1951). However, the exact nature of the impact of response order is not well understood. Theoretically, primacy effects, that is, higher endorsements of items presented early in the list, as well as recency effects, that is, higher endorsements of items presented late in the list, may be obtained. Most investigators who were interested in response order effects explored their emergence in long lists of response alternatives. The majority of these investigations suggested that primacy effects are more likely to emerge than recency effects. However, a number of qualifications apply, as is pointed out in a theoretically related paper that addresses order effects in lists (Schwarz, Hippler, Noelle-Neumann, Ring & Münkler, 1989).

In contrast to research on response order effects in long lists, research on response order effects in short questions — that use only two or three response alternatives — is rather sparse. In a few early investigations, Rugg and Cantril (1944) as well as Payne (1951), and subsequently Schuman & Presser (1981) in a replications of Payne's questions, observed the emergence of recency effects. That is, a given response alternative was more likely to be endorsed if presented last rather than first. However, the emergence of recency effects was apparently not a very robust phenomenon and the authors

eventually attributed it to the unusual length and difficulty of the respective questions.

In fact, from a theoretical perspective, one may wonder why response order effects should emerge at all if only two or three alternatives are presented? Theoretically, response order effects are usually attributed to a differential allocation of attention to items presented in different parts of lists. For example, Krosnick and Alwin (1987, p. 213) suggest that "items presented early in a list are likely to be subjected to deeper cognitive processing; by the time a respondent considers the later alternatives, his or her mind is likely to be cluttered with thoughts about previous alternatives that inhibit extensive consideration of later ones". Accordingly, items presented early in the list are more likely to be endorsed -- unless the administration mode interferes with their cognitive elaboration. Specifically, if the items are not presented on show cards but are read to respondents, respondents have little opportunity to elaborate on the early ones, because the time that is available for processing is restricted by the speed with which the interviewer moves on to read the next item. In addition, respondents may find it difficult to keep all response alternatives in mind without the help of show cards. Accordingly, the degree of elaboration depends on administration mode: If the response alternatives are presented on show cards, items presented early in the list are more likely to be extensively processed than items presented later, resulting in primacy effects. In contrast, if the items are read to respondents, the last response alternatives are more

likely to be extensively processed and recalled than the first ones, resulting in recency effects.

While this interaction of serial position and administration mode has been documented for long lists (cf. Krosnick & Alwin, 1987), the findings to be reviewed in the present paper suggest that it holds just as well for questions that provide only two or three forced-choice response alternatives. Our data base is provided by a large number of split-ballot experiments conducted by the Allensbach Institute, under the direction of Elisabeth Noelle-Neumann, since the early 1950's. Each experiment is based on a quota sample of about 2000 adult respondents in West Germany. The selected examples are typical for a large number of experiments that are currently subjected to a quantitative meta-analysis.

All examples involve the use of so called "dialogue questions", where different opinions are attributed to different fictitious individuals and the respondent is asked which opinion is closer to his or her own. If a show card is used, it provides a schematic portrayal of two individuals who present the two diverging opinions, as shown in Chart 1.

#### Chart 1

#### Visual Presentation Format

The first group of experiments that we will consider involves the use of these show cards, with the restriction that the response alternatives are only shown to respondents but are not

read to them at the same time. Under this condition, a primacy effect is most likely to be obtained.

For example, in one study conducted in the early 1960's, respondents were given a show card of this type that presented two different opinions on the role of government in social welfare, one emphasizing the role of government and one the role of private charity. They were asked to read both opinions, and had to report if they agreed with the opinion presented in the upper or in the lower part of the page -- a wording that avoided labeling the opinions with political catch words.

#### Chart 2

In this example, a pronounced primacy effect of 14 and 6 percentage points emerged, and the same holds true for the majority of studies that followed this format.

#### Auditory Presentation Format

On the other hand, if both response alternatives are read to respondents without the help of show cards, recency effects are likely to emerge. For example, in an experiment that was conducted in the summer of 1960, two opinions about different forms of government were read to respondents. One opinion favored an authoritarian form of government and the other a democratic form of government. As shown in Chart 3, pronounced recency effects of 11 and 9 percentage points were obtained.

#### Chart 3

Moreover, this finding is not restricted to response alternatives that are particularly lengthy and complicated, but is also obtained with response alternatives that are easy to process. For example, in an experiment conducted in the spring of 1957, respondents were asked,

"If you had the choice to read either a serious or a humorous novel, what would you rather read these days: The serious or the humorous novel?".

As shown in the next Chart,

#### Chart 4

recency effects of 5 and 4 percentage points emerged on this rather simple question. By and large, the available data suggest that response order effects are more pronounced for lengthy and complicated questions but they are definitely not restricted to these conditions (cf. Noelle-Neumann, 1984).

#### Visual and Auditory Presentation Format

In some experiments, a combination of visual and auditory presentation formats was used. Specifically, the response alternatives were read to respondents before they were presented on a show card to facilitate the respondent's answer. In most experiments of this type, recency effects were likely to emerge. For example, in one experiment, two different opinions about the introduction of a second TV channel were first read to respondents and then presented on a show card. As shown in the next Chart,

#### Chart 5

recency effects of 7 and 12 percentage points were obtained, despite the presentation of a show card. This and related findings suggest that respondents process the response alternatives while they are read to them by interviewer, without too much attention to either the accompanying or subsequent presentation of a show card. Accordingly, the data pattern follows the pattern that is observed under a purely auditory administration mode.

In summary, we conclude from this sketchy review of the Allensbach findings that response order effects do in fact emerge in dichotomous questions, and that they do so more frequently than one would assume on the basis of the available literature. In contrast to Schuman & Presser's (1981) conclusion, based on their literature review, the Allensbach data suggest that response order effects in dichotomous questions are all but a rare phenomenon. Specifically, they are obtained in about 40% of the split-ballot experiments -- which, of course, does not mean that they are obtained on 40% of all dichotomous questions. Even though the Allensbach researchers conduct a recommendable number of split-ballot experiments in their surveys, they are more likely to introduce a split when intuition and experience suggest that response order may be important. Accordingly, the available split-ballot data do not reflect a representative sample of survey questions, although they cover an amazing variety of content domains.

While we are still far from understanding the exact conditions under which response order effects are obtained, we offer the following generalizations, which we are currently testing in controlled laboratory experiments:

- First, if the response alternatives of a dichotomous question are presented on a show card, primacy effects are more likely to be obtained than recency effects. In fact, we have so far not observed a recency effect under a purely visual presentation format.
- Second, if the response alternatives of a dichotomous question are read to respondents, recency effects are more likely to emerge than primacy effects.
- Third, if visual and auditory presentation formats are combined, the auditory format is likely to dominate, resulting in recency effects.

From an applied point of view, the most problematic finding is certainly that the direction of response order effects depends on administration mode. Most importantly, this finding indicates that face-to-face interviews with the help of show cards will render results that are quite different from the results of telephone interviews without the use of show cards, given that the primacy effects that operate in one mode combine with the recency effects that operate in the other.

### What Mediates the Emergence of Response Order Effects?

Finally, let us turn to the theoretically most interesting question: What are the cognitive processes that mediate the emergence of response order effects? In line with Krosnick and Alwin (1987), as well as others, we suggest that a given response alternative is more likely to be endorsed if it is processed more extensively, an assumption that can account for the interaction of serial position and administration mode. Moreover, this assumption is in line with other bodies of research in experimental cognitive social psychology (Tesser, 1978). This general assumption has two interesting implications.

- First, it suggests a plausible account for data patterns that do not follow our generalization. Assume, for example, that a response alternative appears plausible at the surface level, but loses in plausibility the more you think about it. If so, this response alternative should be less plausible the more extensively it is processed, and should therefore be less likely to be endorsed. This should result in the emergence of an order effect that contradicts our generalization. Unfortunately, we do not yet have controlled data that bear on this hypothesis, although it is in line with a few examples provided by the Allensbach data sets.
- Second, the assumption that the likelihood of endorsement depends on the degree of processing that a response alternative receives, suggests conditions under which response order effects should not be obtained.

In this regard, the current argument rests on the hypothesis that at least some respondents may not have thought about implications of a given response alternative until it is presented to them. If so, we should be able to reduce response order effects by stimulating respondents to think about the respective content area while they answer preceding questions. The findings of our first experiment that bears on this issue support this hypothesis.

Specifically, we replicated a modified version of Payne's (1951) "Oil Supply" question, used by Schuman and Presser (1981), in an experiment with 91 adult citizens of Mannheim, West Germany. Respondents were read the following question:

"Some people say that we still have plenty of oil 25 years from now. Others say that at the rate we are using our oil, it will all be used up in about 15 years. Which of these ideas would you guess is most nearly right?"

The order in which the two opinions were presented was reversed for half of the sample. As shown in the next chart,

#### Chart 6

Payne's original finding replicated well in the German sample. As predicted by our previous generalizations about auditory presentation formats, pronounced recency effects of 33 percentage points were obtained for both response alternatives.

For half of the sample, however, Payne's question was preceded by two questions that tapped the same content domain and should therefore trigger cognitive elaborations bearing on the oil supply issue. These questions concerned the respondents' attitudes toward restrictions in the consumption of oil and towards the development of alternative sources of energy. As expected, introducing these context questions completely eliminated the response order effect, as shown in the next chart.

#### Chart 7

This finding supports the general hypothesis that response order effects are a function of the cognitive elaboration of the response alternatives: If respondents are induced by preceding questions to elaborate on the issue before they are exposed to the response alternatives, response order effects may be eliminated.

#### Conclusion

Pending more controlled experiments, the data reviewed in the present paper as well as its companion volume (Schwarz et al., 1989) suggest that we may eventually see a reasonably coherent story regarding the emergence of response order effects. It seems that a given response alternative is more likely to be endorsed the more likely it is to be extensively processed, as suggested by Krosnick and Alwin (1987) -- at least as long as more extensive processing does not uncover that the response alternative is implausible. Accordingly, the direction of response order effects depends on the presentation format used,

which determines if the early or the later alternatives have a better chance to be extensively processed. Moreover, response order effects may be eliminated if cognitive elaboration of the issue domain has been elicited by preceding questions, as the theoretical argument would predict. We hope that future experiments will support these generalizations.

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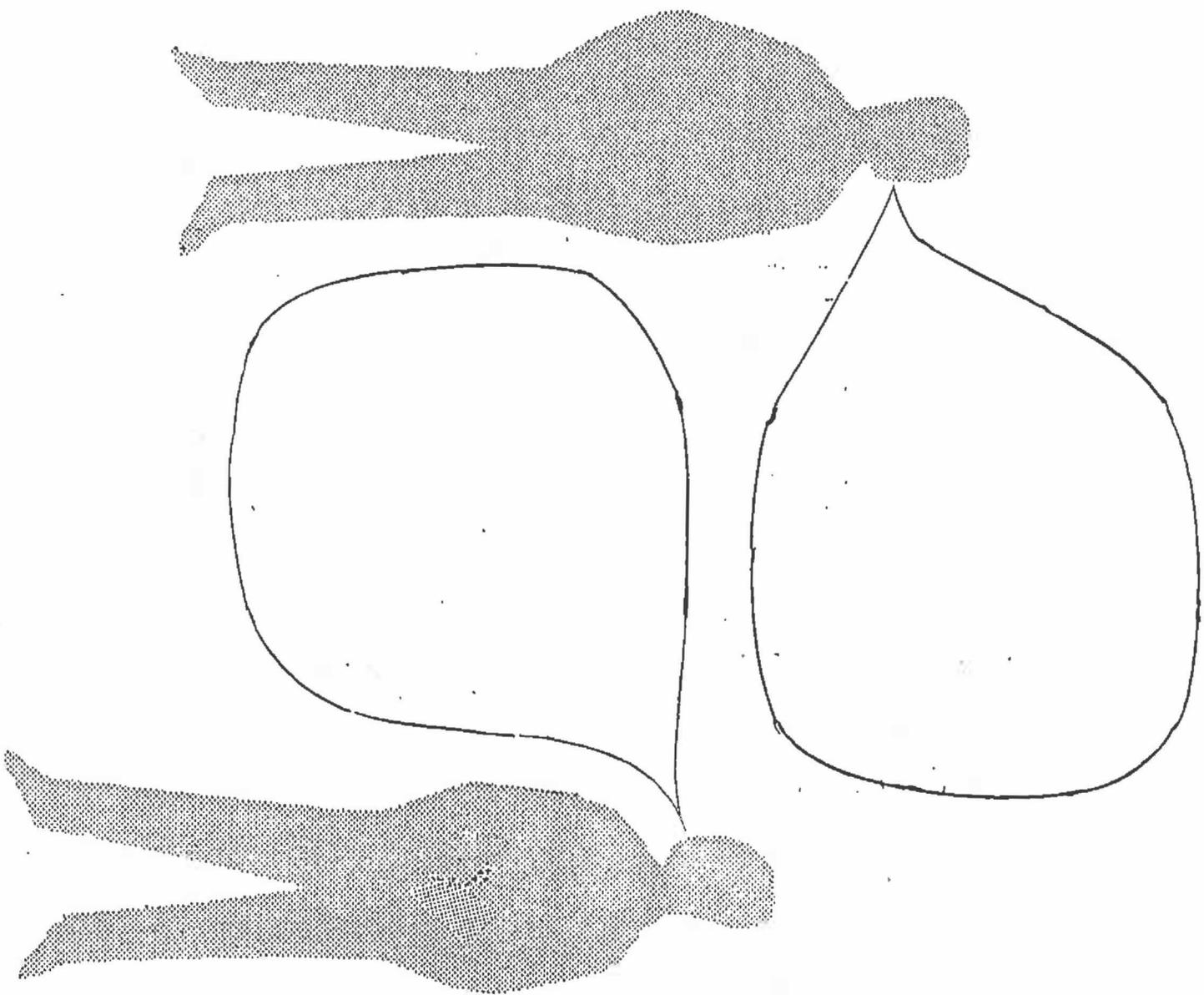
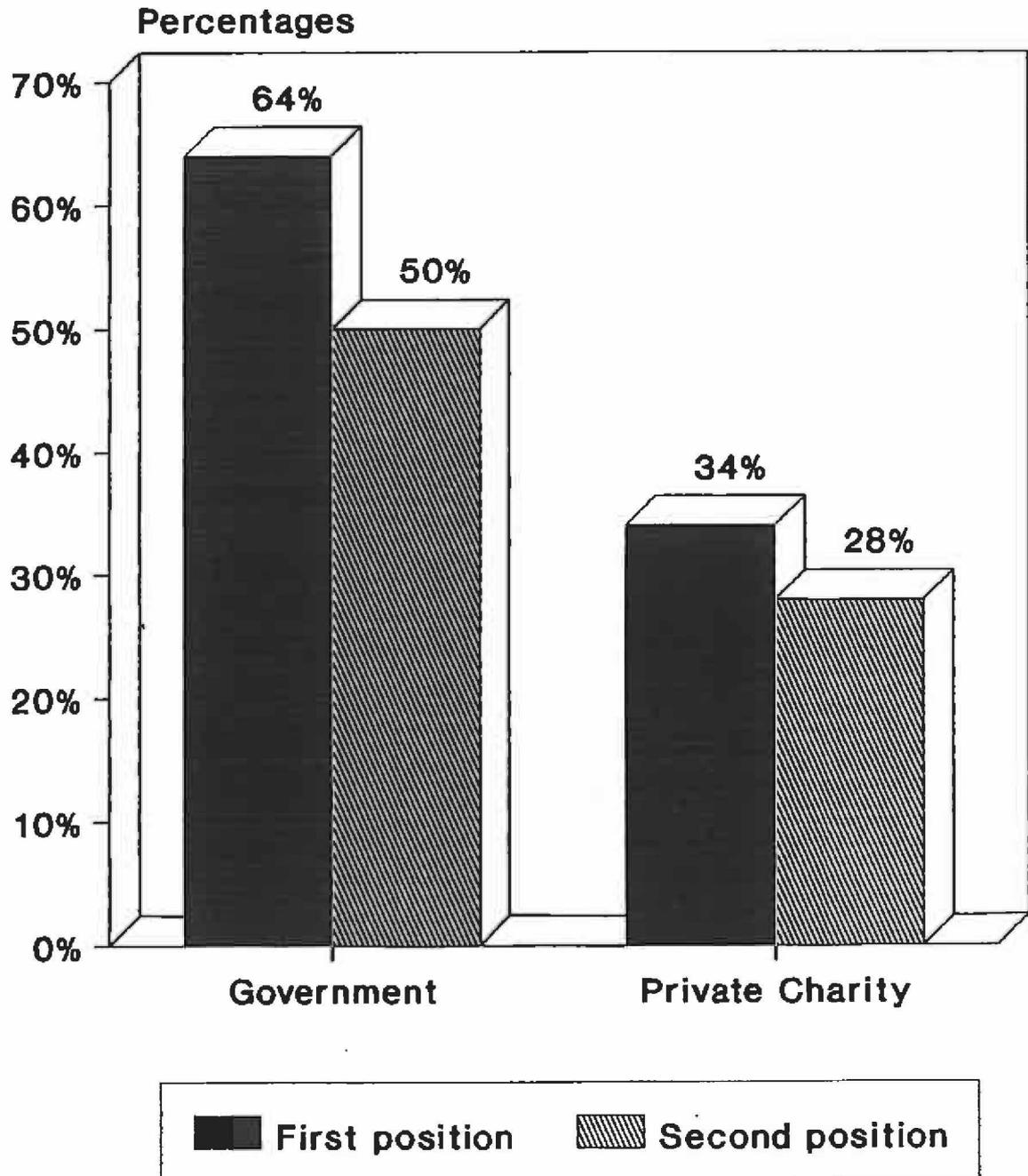


CHART A

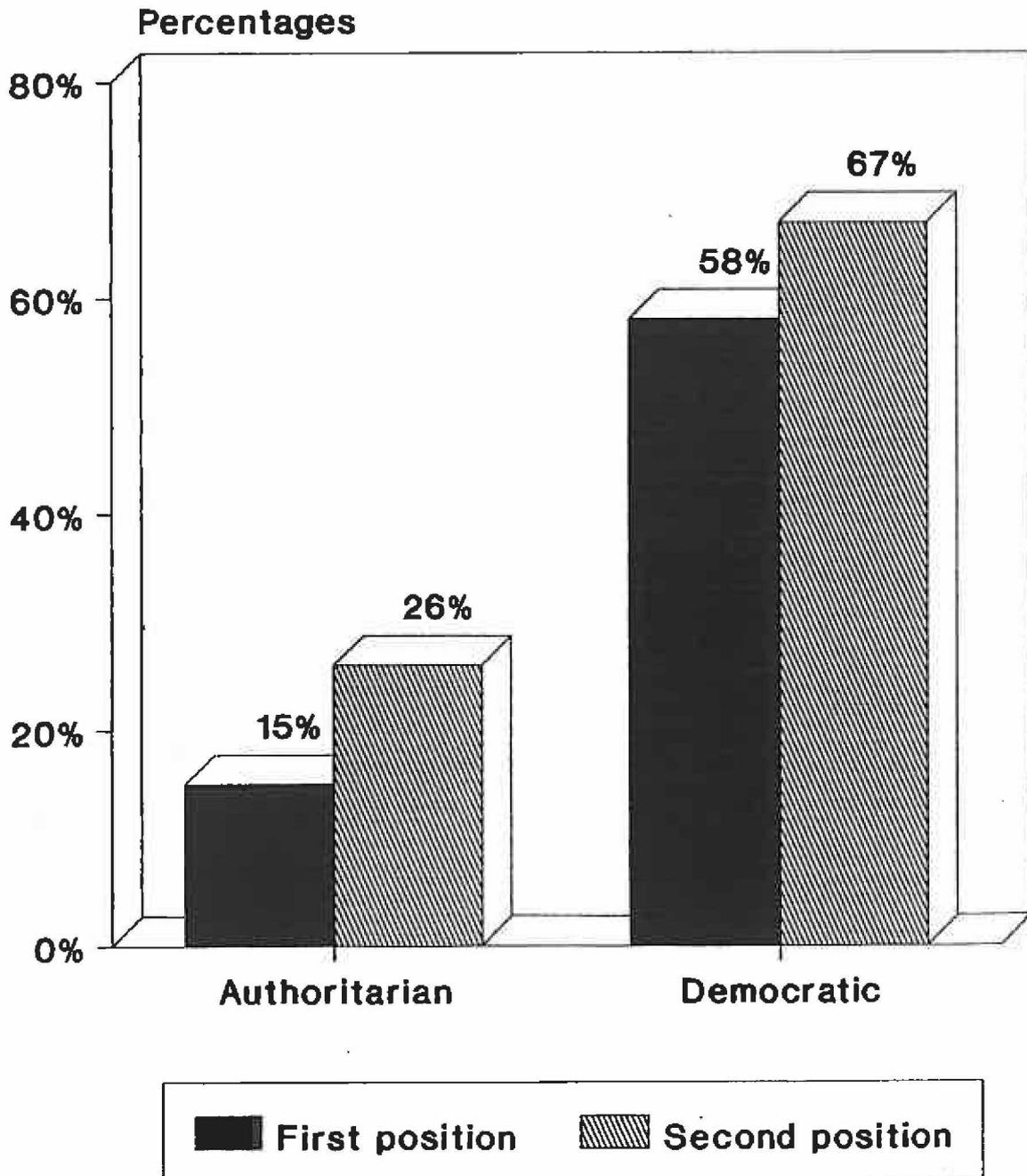
# Primacy Effects

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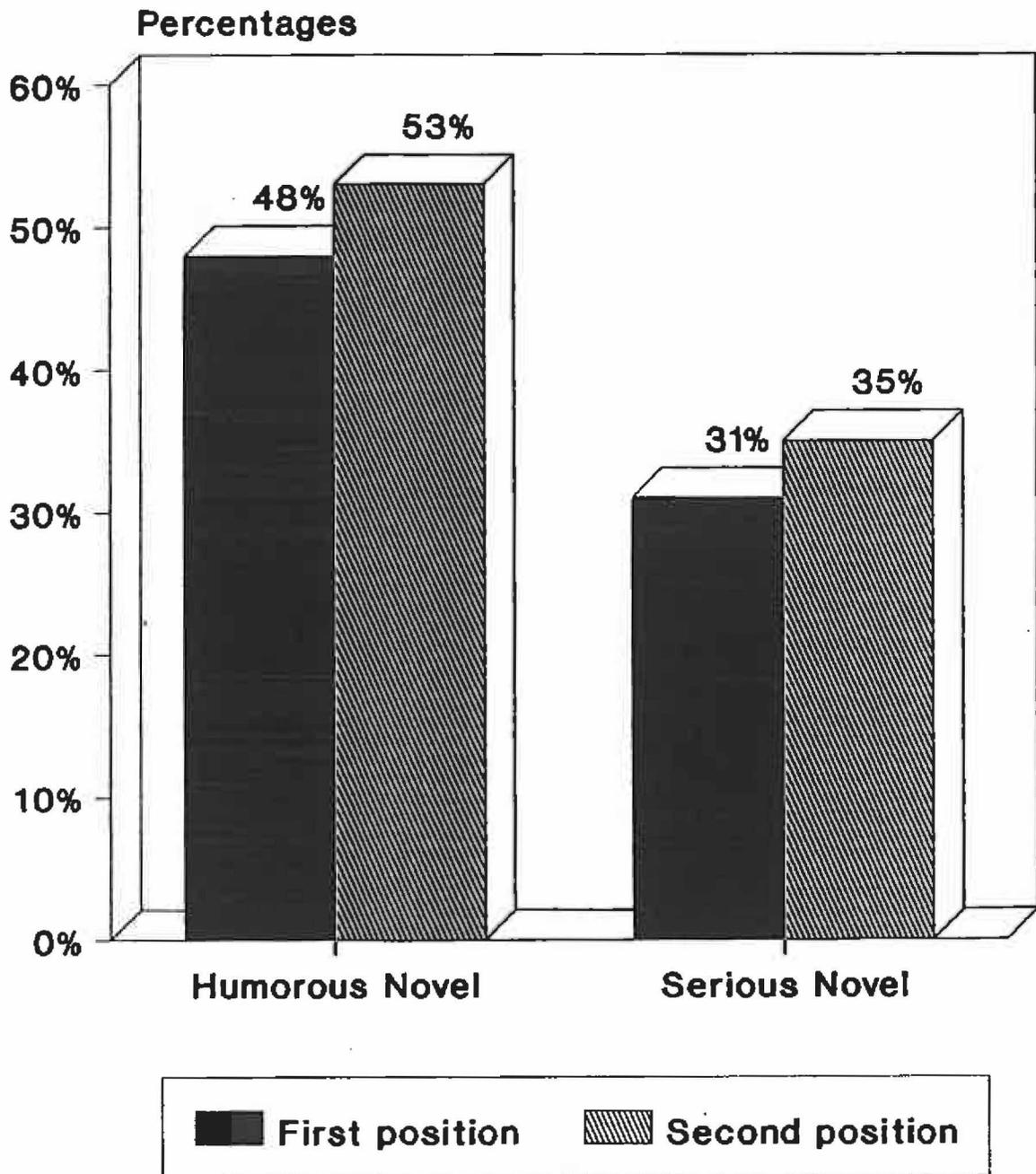
Source: IfD HB 1064

# Recency Effects Form of Government



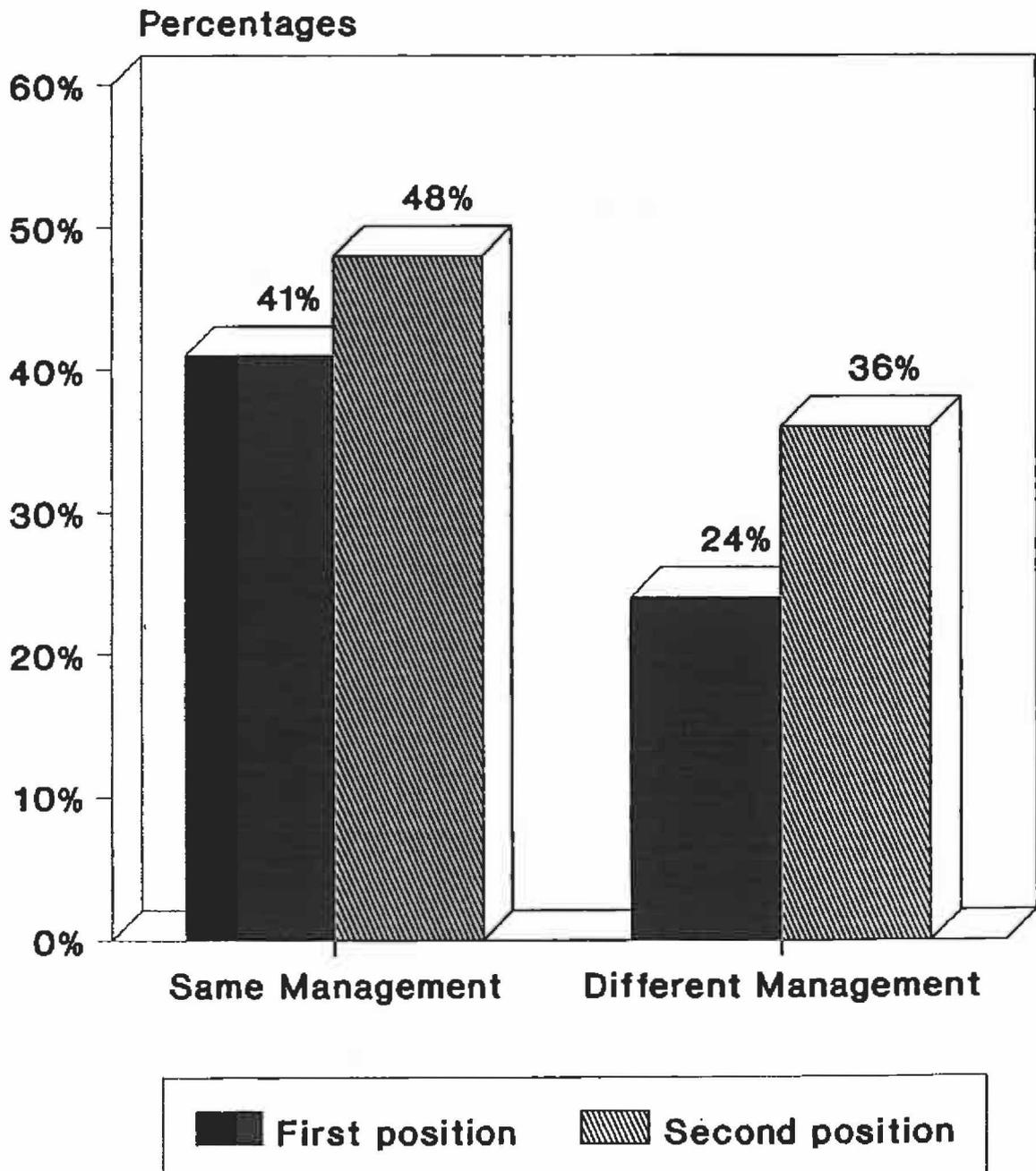
Source: IfD HB 1044, July 1960

# Recency Effects Preferred Novel



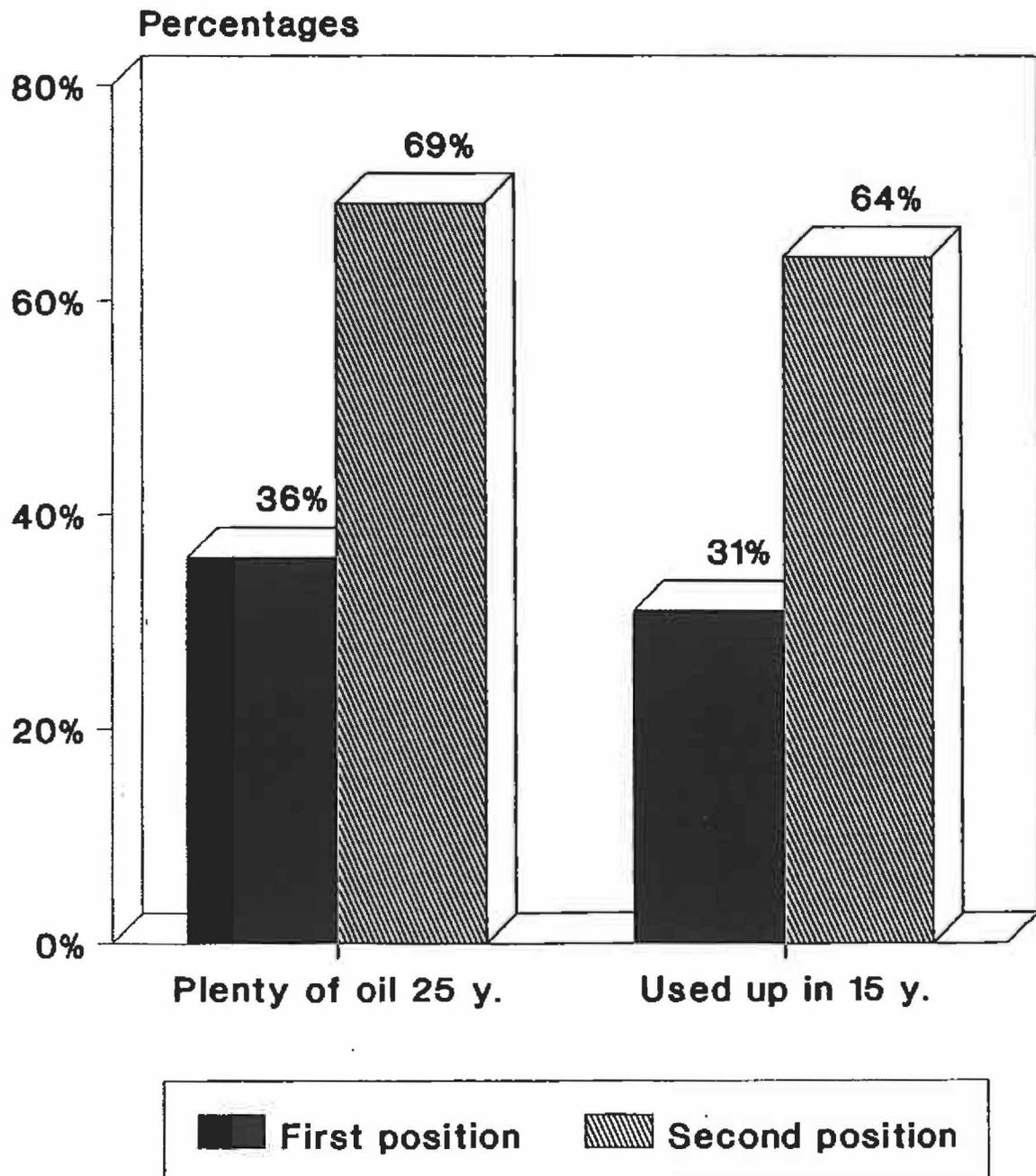
Source: IfD HB 445, March 1957

## Recency Effects Second TV Channel

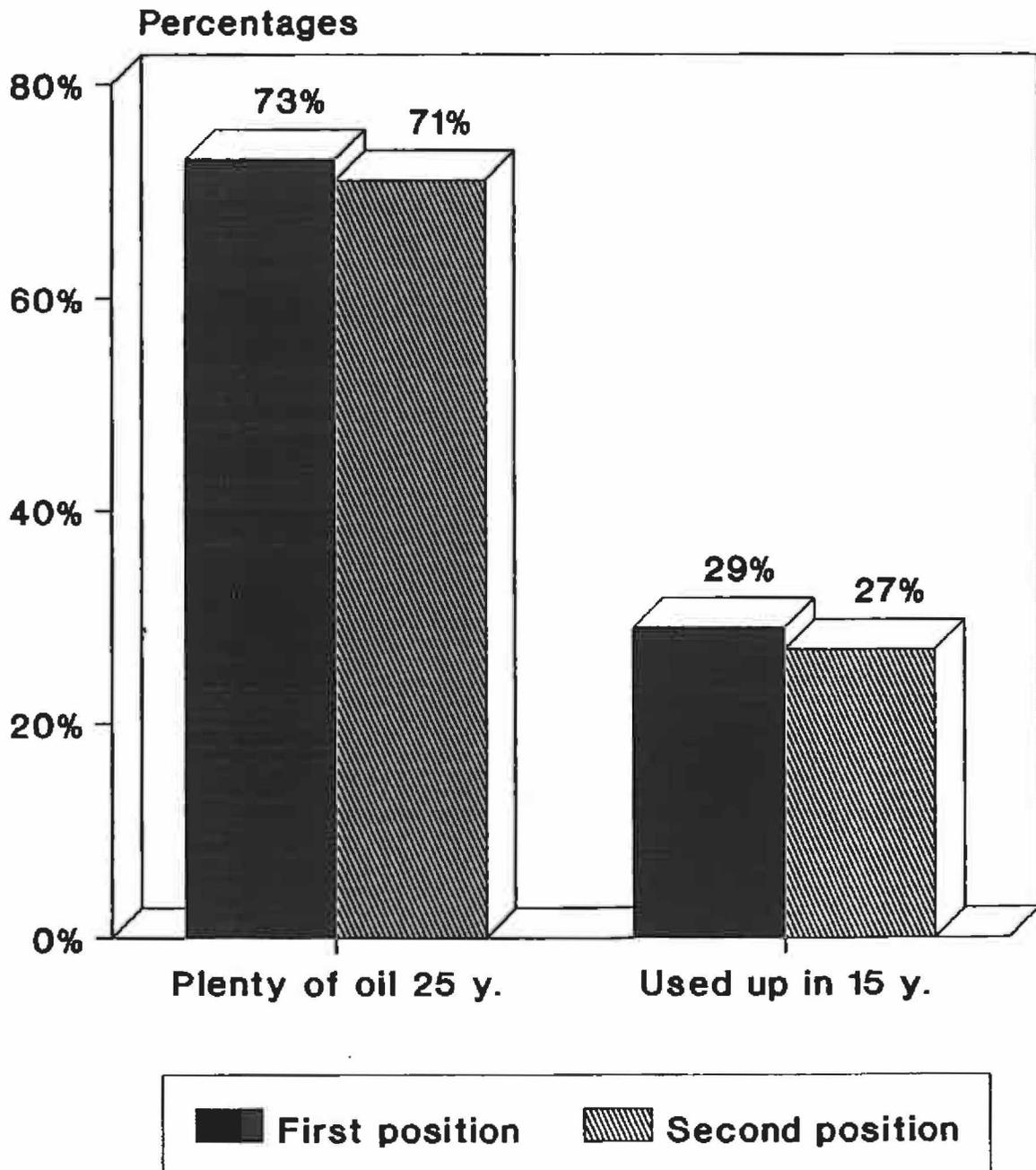


Source: IfD HB 1064

## "Oil Supply Question": Without Context Questions



## "Oil Supply Question": With Context Questions



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