ASKING COMPARATIVE QUESTIONS
THE IMPACT OF THE DIRECTION
OF COMPARISON

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Abstract Questions assessing comparative judgments are often phrased as directed comparisons, that is, a stimulus A (subject) is to be compared to a stimulus B (referent); for example, "Is tennis more exciting than soccer or less exciting?" Tversky's work on judgment of similarity indicated that comparing A to B may result in different similarity judgments than comparing B to A. The four studies reported in this article extend this work from judgments of similarity to evaluative judgments in general. The results demonstrate that the direction of comparison elicited by the wording of the question can have a strong impact on the obtained results. In some instances, a reversal in the direction of comparison (i.e., comparing A to B vs. B to A) resulted in a reversal of the ordinal ranking. Implications for question wording are discussed.

Survey respondents are often asked to report comparative judgments. For example, in market research, consumers may be asked to compare

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two competitive brands or to compare a product innovation to its predecessor. In social research, respondents may be asked to compare their current standard of living to that of 10 years ago. Opinion polls may ask respondents to compare the economic plan of the Democrats to that of the Republicans or vice versa. It is the "vice versa" on which we focus in this article: Does it make a difference if respondents compare the Democrats to the Republicans or the Republicans to the Democrats? Common logic would suggest no. If the Democrats are judged as better qualified to handle economic problems than the Republicans, for example, formal logic holds that the Republicans should be judged as less qualified than the Democrats. However, the dynamics of judgmental processes do not always follow formal logic, as numerous studies have shown (see Nisbett and Ross [1980] for a review), and comparative judgments are no exception in this regard. Theoretical analyses of the cognitive processes underlying comparative judgments suggest that the direction of comparison influences the judgment by determining, in part, which information is used for the judgment. Below, we discuss these cognitive processes and report survey and laboratory experiments bearing on them.

The Direction of Comparison and the Selection of Relevant Features

To date, the cognitive processes underlying comparative judgments have been most extensively studied in the domain of similarity judgments, for which Tversky (1977; Tversky and Gati 1978) developed a formal model. We address only a few selected aspects of Tversky's model in this article. Respondents may be asked, for example, how similar X is to Y (making X the subject and Y the referent of comparison, in the terminology of this research), or how similar Y is to X (thus making Y the subject and X the referent of comparison). In general, the object that is to be evaluated is called the "subject of comparison," whereas the object to which it is to be compared is called the "referent of comparison." This research has consistently demonstrated that respondents focus on the features of the subject of comparison and check to what extent these features are also present in the referent. However, by focusing on the features of the subject, respondents are likely to neglect unique features of the referent.

Suppose, for example, that object X is characterized by features A–D, as shown in figure 1, whereas object Y is characterized by features B–H. When asked to compare X (the subject of comparison) to Y (the referent of comparison), judges focus on features A–D and determine if these features are also present in Y. This comparison
results in a relative neglect of features E–H, which are not part of judges' representation of the subject of comparison. Conversely, when asked to compare Y to X (thus making Y the subject and X the referent of comparison), judges focus on features B–H, resulting in a relative neglect of feature A. Because judgments of similarity increase with the number of shared (or common) features that judges identify for both stimuli and decrease with the number of unique (or distinct) features they identify, different directions of comparison result in different judgments of similarity. In the present example, X would be judged as more similar to Y (given three common and one distinct feature when comparing X to Y) than Y would be judged as similar to X (given three common but four distinct features when comparing Y to X).

The cognitive processes identified in the domain of similarity judgments are likely to apply to comparative judgments in general. If so, the cognitive processes illustrated in figure 1 have two important implications. First, more features of a given stimulus should be taken into account if the stimulus serves as the subject rather than the referent of comparison. In the above example, judges would consider seven features of object Y (namely, B–H) when comparing Y to X, but only three features of Y (namely, B–D) when comparing X to Y. Second, and more important for the present purposes, judges' consideration of features is likely to be restricted by the features that characterize the subject of comparison, and features of the referent that are not shared by the subject of comparison are likely to go unnoticed. As a result, the comparative judgment would be based on a different selection of features when X is compared to Y, rather than Y to X. This differential

1. Our discussion of similarity judgments is limited to the aspects that are relevant to the present research; for a more detailed discussion of the assumptions described here, see Tversky (1977) and Tversky and Gati (1978), and for a general discussion of issues of similarity judgment, see Vosniadou and Ortony (1989).
selection of features is likely to result in different evaluations along many dimensions, rendering the asymmetric nature of comparison processes highly relevant to survey measurement.

These process assumptions have been developed and tested in the domain of similarity judgments (see Srull and Gaelick 1983; Tversky 1977; Tversky and Gati 1978), but their impact is not limited to these judgments (e.g., Agostinelli et al. 1986; McGill 1990; Schwarz and Scheuring 1989). On theoretical grounds, we may assume that these feature selection processes apply to evaluative judgments of the type, "Is Tennis more or less exciting to watch on TV than soccer?" Reversing the direction of comparison should influence which aspects judges focus on and, hence, may result in different evaluations, in contrast to what formal logic would suggest. Indeed, research on preference judgments has demonstrated that reported preferences may be influenced by the direction of comparison elicited in experiments (Houston, Sherman, and Baker 1989; Sanbonmatsu, Kardes, and Gibson 1991).

Unfortunately, however, the available studies lack practical relevance for survey research because the direction of comparison was manipulated by elaborate instructions in combination with different presentation orders of the stimuli. It therefore remains unclear whether changes in question wording alone are sufficient to elicit asymmetric comparison processes. To address the potential relevance of asymmetric comparison processes for survey measurement, we investigated the effects of question wording on comparative judgments. We first present evidence that the direction of comparison suggested in a question can have a substantial impact on the obtained responses. Subsequently, we discuss specific assumptions regarding the underlying processes and test them in laboratory and survey experiments.

**Does the Direction of Comparison Make a Difference?**

**Study 1**

Some suggestive evidence for the impact of question wording has been observed in data collected by the Allensbach Institute. These researchers repeatedly asked quota samples of German adults for comparative judgments of the moral quality of U.S. and Soviet foreign policy (see Noelle-Neumann and Köcher 1993). The question was run in two versions, presenting either the United States or the Soviet Union as the subject of comparison (see Appendix for question wording). The number of respondents who evaluated one superpower rather than the other as morally superior differed substantially as a function of question wording. For example, in a 1990 survey, 13 percent of the respon-
dents judged the Soviet foreign policy as morally superior when the question presented the Soviet Union as the subject of comparison. However, 31 percent endorsed the presumably equivalent response that the foreign policy of the United States is “not morally superior” when the United States was presented as the subject of comparison. Unfortunately, it remained unclear whether the observed discrepancy was solely caused by the respective direction of comparison. It is also conceivable that some respondents endorsed the “morally not superior” response in order to express their perceived lack of difference in the moral quality of the superpowers’ foreign policies. This ambiguity derives from the fact that a “no difference” response was offered as one of the response alternatives but was not explicitly mentioned in the question read to respondents. Accordingly, Study 1 was conducted to isolate the impact of question wording per se.

The first experiment, which was conducted in the laboratory, manipulated the direction of comparison in two different ways. For one set of questions, we manipulated the wording of the question, asking respondents to compare X to Y, or Y to X. For a second set of questions, we introduced the direction of comparison by varying the wording of the response alternatives.

METHOD

Thirty students of the University of Mannheim in Germany participated in this study. Two different comparative judgments were assessed in a self-administered questionnaire, using different manipulations of the direction of comparison.

The first judgment requested an evaluation of respondents’ high school teachers, and the direction of comparison was manipulated by the wording of the question. In one condition, respondents were asked, “Thinking of your teachers in high school, would you say that the female teachers were more empathetic with regard to academic and personal problems than the male teachers, or were they less empathetic?” The other respondents were asked, “Thinking of your teachers in high school, would you say that the male teachers were more empathetic with regard to academic and personal problems than the female teachers, or were they less empathetic?” Responses were given along nine-point rating scales, ranging from “less empathetic” (1) to “more empathetic” (9). These responses were recoded prior to analysis as described below.

The second judgment pertained to a comparison of soccer and tennis. However, the direction of comparison was manipulated by varying the wording of the response alternatives rather than the wording of the question stem. For all respondents, the question stem read: “Ten-
nis and soccer are the two sports that draw the largest audience. When you compare both sports with regard to how entertaining they are for a TV audience, would say that . . . ." This question stem was followed by one of the two sets of response alternatives shown in figure 2.

RESULTS AND DISCUSSION

To render the responses comparable across wording conditions, all judgments were recoded so that higher values reflect a more positive evaluation of the female teachers relative to the male teachers or of tennis relative to soccer, respectively. As expected, both judgments showed a pronounced impact of question wording on the obtained relative evaluations.

Specifically, respondents evaluated their female teachers as having been more empathetic when the question asked them to rate their female teachers compared to their male teachers ($M = 5.6$), rather than their male teachers compared to their female teachers ($M = 4.2$, $t (26) = 2.68, p < .02$). In contrast, they evaluated tennis as less exciting when the response alternatives elicited a comparison of tennis to soccer ($M = 3.7$), rather than soccer to tennis ($M = 4.9$, $t (28) = 1.99, p < .06$). Thus, the direction of comparison, elicited by the wording either of the question or of the response alternatives, influenced the results obtained for both items. Note, however, that female teachers were evaluated more positively when they were the subject rather than the referent of comparison, whereas tennis was evaluated more negatively under this condition. In Study 3 we will address the variables that determine the specific outcome of asymmetric comparison effects.

For the time being, we simply note that the direction of comparison can have a pronounced impact on the obtained results, which becomes most evident when we dichotomize the responses to reflect relative preferences for one target over the other. This analysis reveals that reversing the direction of comparison did not merely influence the relative advantage of one target over the other but actually reversed the targets’ ordinal positions as well, as shown in table 1.

When comparing their female with their male teachers, 41 percent of the respondents evaluated their female teachers as more empathetic than their male teachers, but only 9 percent did so when they compared their male with their female teachers. In contrast, male teachers were seen as more empathetic by 55 percent of the respondents in the latter condition, but only by 12 percent in the former. Similarly, tennis was judged as less exciting than soccer when respondents compared tennis with soccer (35 percent more exciting vs. 65 percent less exciting), but as more exciting than soccer when they compared soccer with tennis
Comparison of Tennis-Soccer Sequence
( ) Tennis is much more exciting than soccer
( ) Tennis is more exciting than soccer
( ) Tennis is somewhat more exciting than soccer
( ) Tennis and soccer are equally exciting
( ) Tennis is somewhat less exciting than soccer
( ) Tennis is less exciting than soccer
( ) Tennis is much less exciting than soccer

Comparison of Soccer-Tennis Sequence
( ) Soccer is much more exciting than tennis
( ) Soccer is more exciting than tennis
( ) Soccer is somewhat more exciting than tennis
( ) Soccer and tennis are equally exciting
( ) Soccer is somewhat less exciting than tennis
( ) Soccer is less exciting than tennis
( ) Soccer is much less exciting than tennis

Figure 2. Response alternatives for sports question

Table 1. Percentages of Preferences as a Function of the Direction of Comparison

<table>
<thead>
<tr>
<th></th>
<th>Female-Male (%)</th>
<th>Male-Female (%)</th>
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</thead>
<tbody>
<tr>
<td>Teachers:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Females more empathetic</td>
<td>41</td>
<td>9</td>
</tr>
<tr>
<td>Males more empathetic</td>
<td>12</td>
<td>55</td>
</tr>
<tr>
<td>Undecided</td>
<td>47</td>
<td>36</td>
</tr>
<tr>
<td>N</td>
<td>17</td>
<td>11</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Tennis-Soccer (%)</th>
<th>Soccer-Tennis (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sport:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tennis more exciting</td>
<td>35</td>
<td>77</td>
</tr>
<tr>
<td>Soccer more exciting</td>
<td>65</td>
<td>15</td>
</tr>
<tr>
<td>Undecided</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>N</td>
<td>17</td>
<td>13</td>
</tr>
</tbody>
</table>
(77 percent more exciting vs. 15 percent less exciting), with hardly any undecided respondents.

In summary, the results of Study 1 showed a striking impact of the direction of comparison on the obtained evaluations, including reversals of the ordinal positions of the to-be-evaluated stimuli. These reversals were obtained under conditions where formal logic would hold that both directions of comparison should result in similar judgments. Moreover, the wording of the male-female teacher question was carefully balanced, rendering other wording biases unlikely.

In addition, the manipulation of response alternatives used in the soccer-tennis question indicates that the effect is not limited to conditions where the direction of comparison is elicited by the question stem. In fact, one may attempt to write an apparently neutral question stem by asking respondents to "compare the two sports," as we did in the present experiment. To assess the relative evaluations of both sports, however, one needs to present response alternatives that reflect the comparison. As the present results indicate, these response alternatives are themselves likely to suggest a direction of comparison, thus affecting the obtained results. Note, however, that the manipulation of the response alternatives in the soccer-tennis question may have given rise to a response-order effect (see Schwarz, Hippler, and Noelle-Neumann 1992), which may have contributed to the results obtained on this item. We do not consider this very likely, however, because our subsequent experiments included response order manipulations, and their findings, to be reported below, suggest that response order is not what drives the obtained results.

In combination, the present findings demonstrate that we cannot necessarily assume that asking respondents to compare X to Y will produce similar results as asking respondents to compare Y to X. Below, we shall address the applied implications of these findings for question wording. This discussion, however, requires a more detailed theoretical understanding of the underlying cognitive processes. Next, we turn to these theoretical issues and explore under which conditions an object is evaluated more positively, or more negatively, when it is the subject rather than referent of the comparison.

**Why Does It Make a Difference? Studies 2 and 3**

On theoretical grounds, we assume that the direction of comparison effects observed in Study 1 reflect that subjects focus on the features of the subject of comparison, thereby neglecting unique features of the referent. However, the above experiments did not allow us to control which features subjects actually used. Accordingly, we could not pre-
dict if being the subject of comparison would result in a more positive evaluation (as was the case in the teacher example) or in a more negative evaluation (as was the case for the comparison of tennis and soccer). In general, a stimulus that has unique positive features should be evaluated more positively when it serves as the subject rather than the referent of the comparison. This follows from the assumption that more of its unique positive features are taken into account in the former than in the latter case. For the same reason, a stimulus that has unique negative features should be evaluated more negatively when it serves as the subject of the comparison. In contrast, the valence of the common features should have little impact on respondents’ preference of one over the other target, given that these features are, by definition, common to both targets. Hence, the valence of a target’s unique features should determine the specific nature of the asymmetry that results from making the target either the subject or the referent of comparison.

To test this implication of the theoretical process assumptions, it is imperative to control the number and the valence of the features that respondents consider in making their judgment. This was accomplished in Study 2, in which subjects learned about the relevant features of two fictitious department stores before making comparative judgments. Specifically, half of the subjects learned that the department stores were characterized by unique positive features, whereas the others learned that the stores were characterized by unique negative features, thus providing experimental control over the valence of the relevant features. Finally, subjects compared store A to store B, or vice versa, resulting in a 2 (positive or negative valence of unique features) × 2 (direction of comparison) factorial between-subjects design. According to our theoretical analysis, a store that has unique positive features should be evaluated more positively when it is the subject rather than the referent of comparison, whereas a store that has unique negative features should be evaluated more negatively under this condition.

STUDY 2

Method. Eighty-eight students of the University of Mannheim in Germany participated in this study and received a chocolate bar for their participation. Subjects were asked to evaluate two fictitious department stores ("Lauterbach" and "Sattler," henceforth called department store A and B, respectively), based on a feature description provided by the experimenter. In one condition, each department store had mainly negative features (four distinctive negative features, one common negative feature, and two common neutral features), whereas
in the other condition each department store had mainly positive features (four distinctive positive features, one common positive feature, and two common neutral features). The valence of the features had been determined in pilot studies. Subjects first read both feature lists and rated each feature according to how it would affect the store’s prices. Pilot studies had indicated that this judgment was unrelated to the comparison dimension used as the dependent variable (see below), thus rendering an impact of this first judgment on the dependent variable unlikely. This procedure for encoding the features should ensure that subjects could recall most features from memory during the following comparison task, because the feature lists were not visible during the time of judgment. The order in which the two lists were presented was counterbalanced across subjects to guard against presentation order effects.

Immediately after having rated all features, half of the subjects in each condition were asked to compare department store A with department store B. The other half of the subjects was asked to compare department store B with department store A. The comparisons were made along the dimension of the quality of service offered. Asking subjects to compare the department stores on this specific dimension ensured that respondents had to form their judgment on the spot and could not retrieve a general judgment that they might have formed at the encoding stage.

Specifically, one version of the question read, “Would you say that Lauterbach’s department store offers better service than Sattler’s department store or would you say it offers less good service?” The other version read, “Would you say that Sattler’s department store offers better service than Lauterbach’s department store or would you say it offers less good service?” Responses were given along 11-point rating scales, ranging from “Lauterbach’s [Sattler’s] offers much less good service” (1) to “much better service (11).”

Results. To render the comparison judgments comparable across conditions, all judgments were recoded so that higher values reflect a more positive evaluation of department store A relative to department store B. The recoded judgments were submitted to a $2 \times 2 \times 2$ factorial analysis of variance (ANOVA), with valence of features, direction of comparison, and order of feature list presentation as orthogonal factors. The order in which the feature lists pertaining to the two department stores were presented was included to control for possible order effects. However, order of presentation did not interact with the two other experimental factors, all $F < 1$, and will not be discussed.

2. The awkwardness of the question wording results from literal translation and does not apply to the German original.
Table 2. Mean Comparison Judgment as a Function of the Direction of Comparison and the Valence of the Features

<table>
<thead>
<tr>
<th>Direction of Comparison</th>
<th>A-B</th>
<th>B-A</th>
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<tbody>
<tr>
<td>Positive features</td>
<td>6.2</td>
<td>4.8</td>
</tr>
<tr>
<td>Negative features</td>
<td>5.5</td>
<td>6.1</td>
</tr>
</tbody>
</table>

Note.—The scores represent the relative judgment for department store A on an 11-point rating scale, with 1 indicating a lower evaluation of A relative to B and 11 indicating a higher evaluation of A relative to B. N in all cells = 22.

Further. Subjects' average relative evaluations of the two stores are shown in Table 2.

As predicted on theoretical grounds, subjects evaluated store A more positively when it served as the subject rather than referent of comparison under conditions with distinctive positive features (M = 6.2 vs. M = 4.8). But they evaluated it more negatively when it served as the subject rather than referent of comparison under conditions with distinctive negative features (M = 5.5 vs. M = 6.1). This pattern results in the predicted interaction of direction of comparison and feature valence, F (1, 80) = 6.27, p < .02.

Discussion. The results of Study 2 support the hypothesis that judges are likely to focus on the features that characterize the subject of comparison and to make less use of the features that characterize the referent of the comparison. In terms of the present example, respondents who are asked to compare store A with store B primarily focus on the features of store A and check to see if these features are also present in store B. In doing so, they are likely to neglect features of store B that are not shared by store A, reflecting that their consideration of B's features is constrained by the features of A. If this comparison process identifies unique positive features of A (i.e., positive features that are not present in B), store A is evaluated more positively than store B. In contrast, if the comparison process identifies unique negative features of A, store A is evaluated less positively than store B. In the present study, these asymmetries emerged despite the fact that store B had the same number of similarly positive (or negative) features as store A had (as established by pretest data)—a fact that
respondents apparently missed because their consideration of B’s features was constrained by the features of A. Reversing the direction of comparison, however, presumably resulted in a focus on the features of store B and a relative neglect of the features of store A, hence reversing the relative evaluations.

STUDY 3

Given this nature of the comparison process, it is often difficult to predict a priori if making a given stimulus the subject rather than the referent of comparison will result in a more positive or a more negative evaluation. The actual evaluation depends on the evaluative implications of the specific features that respondents consider. Moreover, different features may occasionally have similar evaluative implications. In this case, respondents may arrive at similar judgments even under conditions where they draw on different features. Unfortunately, this difficulty in predicting the specific outcome of different directions of comparison under most regular survey conditions renders the effects identified here all the more bothersome. In some cases, however, we may draw on data bearing on the object of judgment to make educated guesses with regard to the valence of the features respondents may use. We relied on this strategy in Study 3, which extends the previous experiments from a laboratory setting to regular telephone interview conditions.

Survey data consistently show that German citizens report high satisfaction with news reporting on German television as well as with the news reporting in their daily newspapers (Berg and Kiefer 1992). When asked for likes and dislikes, about 80 percent of a representative sample report a liking for news (Noelle-Neumann and Köcher 1993). In fact, according to survey data obtained by the Institut für Demoskopie Allensbach (Noelle-Neumann and Köcher 1993), news reports were the best liked program on German television in 1991. At the same time, the news reporting in daily newspapers is also highly important to German adults, with 85 percent reporting that they read at least one daily newspaper. When asked what they read in their newspaper, 65 percent of German adults report reading the national politics section and 55 percent report reading the international politics section. Germans’ high interest in political news reporting is also reflected in the low number of respondents (8 percent) who listed political news as the section they would least miss if parts of their newspaper were not available.

This suggests that both sources of news should be represented in memory by features with positive implications. However, at least some of these features are likely to be unique, as a study on mass media use
and evaluation shows (Berg and Kiefer 1992). For example, Germans credit TV news for fast and up-to-date reporting (69 percent for TV news vs. 26 percent for daily newspaper reporting) but consider their newspaper superior for regional news (15 percent TV vs. 66 percent newspaper). Both sources were rated equally high on giving a complete overview of current events and developments and on comprehensibility. Given pronounced differences in visual illustration, vividness, and background coverage, however, different features of TV reporting and newspaper reporting are likely to contribute to these positive evaluations (Findahl 1981; Winterhoff-Spurk 1983).

In combination, these data suggest that both sources of political news are positively evaluated by German respondents. But these positive evaluations are likely to be based on different specific features. Accordingly, we may expect that German respondents evaluate the news reporting in their daily newspapers more positively than TV news when the newspaper is the subject rather than referent of comparison. By the same token, however, we may expect that they evaluate TV news more positively than their newspaper when TV news is the subject rather than referent of comparison. These predictions reflect the effects observed in Study 1, under conditions where both objects had unique positive features. Depending on the strength of the emerging asymmetry, the direction of comparison may therefore again result in a preference reversal.

Method. As part of a telephone survey conducted by the Zentrum für Umfragen, Analysen und Methoden (ZUMA), 415 adult citizens of Mannheim, Germany, were asked to compare news reports in daily newspapers to news reports on television, or vice versa. The survey had a response rate of 73 percent, and respondents were randomly assigned to conditions. Due to a technical error, more questionnaires of version A than version B were administered, resulting in 254 interviews with version A versus 161 with version B. To control for possible response-order effects, the order in which the response alternatives were presented was reversed for half of the respondents in each comparison condition. In version A, the question that elicited a comparison of newspaper and television news, thus making newspapers the subject of comparison, read: "Thinking of the news reports in daily newspapers and in television: Is the reporting of news in daily newspapers [much better, somewhat better, equally good, somewhat worse, much worse] than the reporting of news in television?" In version B, this same question was asked, but with the order of responses reversed (i.e., much worse, somewhat worse, etc.).

Conversely, the question in version A that elicited a comparison of television and newspaper news, thus making television the subject of comparison, read: "Thinking of the news reports in television and in
daily newspaper: Is the reporting of news in television [much better, somewhat better, equally good, somewhat worse, much worse] than the reporting of news in daily newspapers?" In version B, this same question was asked, but with the order of responses reversed (i.e., much worse, somewhat worse, etc.).

Results. All responses were recoded according to a 5-point rating scale, with higher numbers reflecting a preference for news reporting on television, and analyzed by a 2 × 2 factorial ANOVA, with direction of comparison and order of response alternatives as between-subjects factors. This analysis revealed a significant effect of direction of comparison ($F(1, 411) = 3.37, p < .04$, one-tailed), which was not affected by the presentation order of response alternatives ($F(1, 411) = 1.79, p < .18$ for the interaction of the two factors). Hence, the data were pooled over both response-order conditions for further analyses. Table 3 shows the percentage of respondents who reported that they prefer the news reports in daily newspapers over TV news, reported no preference, or reported a preference for TV news over newspaper reports.

As in the previous experiments, the pattern of preferences would lead us to different substantive conclusions under different wording conditions. When respondents were asked to compare television news to newspapers reports, their reports indicate a marginal preference for television news (27 percent) over newspaper reports (23 percent). But when asked to compare newspapers reports to television news, their reports indicate a clear preference for newspaper reports (32 percent) over television news (24 percent). Thus, the direction of comparison elicted by question wording resulted in a preference reversal, $z = 1.64, p = .05$ (one-tailed, for the predicted interaction contrast [Rosenthal and Rosnow 1985]).

Analyses at the item level, however, indicate that the predicted effect did only emerge for the evaluation of newspaper reporting. When respondents were asked to compare the news reporting on TV to that in newspapers, 23 percent preferred newspaper reporting over TV reporting. However, this was true for 32 percent of the respondents who had to compare the news reporting on TV to that in newspapers, reflecting that the performance of newspapers was evaluated more positively when it was the subject rather than referent of comparison, $z = 2.12; p < .02$ (one-tailed). Respondents' preference for TV news,

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3. The statistical procedures took unequal cell sizes into account.
4. This analysis was based on respondents stating a preference.
5. Analyses at the item level included undecided respondents as well.
Table 3. Percentages of Preferences as a Function of the Direction of Comparison

<table>
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<th>Direction of Comparison</th>
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<tbody>
<tr>
<td></td>
<td>Newspaper-TV (%)</td>
<td>TV-Newspaper (%)</td>
<td>z</td>
<td>p</td>
<td></td>
</tr>
<tr>
<td>Newspaper preferred</td>
<td>32</td>
<td>23</td>
<td>2.12</td>
<td>&lt;.02</td>
<td></td>
</tr>
<tr>
<td>TV preferred</td>
<td>24</td>
<td>27</td>
<td>.069</td>
<td>n.s.</td>
<td></td>
</tr>
<tr>
<td>Interaction</td>
<td>...</td>
<td>...</td>
<td>1.64</td>
<td>&lt;.05</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>254</td>
<td>161</td>
<td></td>
<td></td>
<td></td>
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</table>

However, was only slightly more pronounced when TV news was the subject (27 percent) rather than referent (24 percent) of comparison.

Discussion. The results of Study 3 provide a conceptual replication of the findings of the previous studies. However, they also indicate that it is difficult to predict the specific outcome in the absence of knowledge of the unique features respondents may draw on. Based on previous survey data, we had assumed that the news reporting on TV and in newspapers would be represented in memory by a number of unique positive features, resulting in more positive evaluations when the respective news source is the subject rather than referent of comparison. This prediction was supported for newspaper reporting, but not for TV reporting. This may reflect that the different features of TV news that were presumably brought to mind under different direction of comparison conditions may have had similar evaluative implications. If so, judgments based on these features would result in similar judgments, as we shall discuss in more detail below.

In summary, the present findings indicate that the direction of comparison elicited by question wording may influence survey results under regular telephone interview conditions. That the specific outcome is difficult to predict in the absence of knowledge about the specific features respondents are likely to draw on renders this observation all the more bothersome from an applied point of view. Moreover, the emerging differences are not always negligible. Depending on the specific case, different directions of comparison may result in preference reversals, as was the case in Study 3 as well as in the previous examples pertaining to the entertainment value of tennis and soccer or evaluations of female and male teachers.

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Direction of Comparison Effects in Dichotomous Questions: Study 4

In the studies presented so far, the evidence for direction of comparison effects is based on responses given along rating scales or a graded set of response alternatives. We do not consider this a drawback. In fact, graded response alternatives provide a stronger test for our hypothesis because they are likely to induce more thoughtful processing, reflecting the fact that respondents have to weigh how much preference they assign to a stimulus. To address possible concerns regarding the generalization of our findings to simpler comparison questions, we conducted an additional study involving dichotomous response alternatives.

In Study 4, we replicated the question on news reporting used in Study 3, replacing the graded response alternatives with a dichotomous choice. In addition, we included two new questions, which allowed predictions regarding the direction of asymmetry, as outlined below.

One of these questions pertained to air pollution. Various studies attest that Germans consider industry and traffic to be the prime contributors to air pollution and acid rain (e.g., Noelle-Neumann and Köcher 1993; Wänke, Schwarz, and Einwiller, unpublished data). Because industry and traffic contribute in somewhat unique ways to air pollution, we expect that respondents assign more importance to each factor when it is presented as the subject rather than referent of comparison, reflecting that its unique features receive more attention in the former case.

Another question asked whether respondents had more or less luck in life than others. Given that people know more about their own than about others' lives (e.g., Srull and Gaelick 1983), they should be able to retrieve more lucky events pertaining to their own lives. Accordingly, they should generally see themselves as luckier than others. However, this bias should be more pronounced when the self is the subject of comparison, thus drawing attention to unique lucky events in one's own life than when others are the subject of comparison, thus drawing attention to unique lucky events in their lives.

METHOD

German adults (age 18 or over) were approached in the downtown pedestrian malls of two German cities. About 40 percent of the individuals who were approached agreed to participate in the study, resulting in a heterogeneous convenience sample of 114 males and 88 females, for a total N of 202. All interviews were conducted face-to-face. To assure random assignment of the respondents to conditions, the ques-
tionnaires were brought into a random order. The interviewers were unfamiliar with the hypotheses and were blind to the condition prior to the beginning of the interview, thus guarding against selection bias.

The questions in version A read: "Would you say that the news reporting in your newspaper is better or worse than the news reporting on television?" "Would you say that industry contributes more or less to air pollution than traffic?" "Would you say, that you had more or less luck in life than other people?"

The questions in version B read: "Would you say that the news reporting in television is better or worse than the news reporting in your newspaper?" "Would you say that traffic contributes more or less to air pollution than industry?" "Would you say, that other people had more or less luck in life than yourself?"

Each version was read to half of the respondents. Moreover, for half of the respondents in each version the order of the response alternatives was reversed to control for primacy or recency effects, resulting in a 2 (direction of comparison) × 2 (response order) factorial between-subjects design. The interviewers accepted "both are equal" and "don't know" as responses if volunteered but did not offer these alternatives.

RESULTS AND DISCUSSION

A log-linear analysis of the distribution in the four response categories (preference A, preference B, both equal, don't know) as a function of response order and direction of comparison was performed to test whether the response order affected the influence of the direction of comparison. This analysis revealed no significant interaction of direction of comparison and response order for the news reporting question (p > .41), the air pollution question (p > .60), or the luck in life question (p > .11). Because the latter did suggest a marginal influence of response order on the effect of direction of comparison, further analyses were performed on this question. These analyses revealed that the predicted direction of comparison effect was stronger in one order condition than the other, but the general pattern emerged in both conditions. Accordingly, the data were collapsed over response-order conditions for all three questions. Table 4 shows the obtained results.

For all three questions, the direction of comparison manipulation showed the predicted significant impact. The expected asymmetry was most pronounced for the air pollution question. Specifically, more respondents assigned primary responsibility to traffic when it was the subject (45 percent) rather than referent (24 percent) of the comparison (z = 2.98, p < .002, one-tailed). Similarly, more respondents assigned primary responsibility to industry when it was the subject (57 percent)
Table 4. Percentages of Preferences as a Function of the Direction of Comparison

<table>
<thead>
<tr>
<th>Direction of Comparison</th>
<th>A-B (%)</th>
<th>B-A (%)</th>
<th>z-score</th>
<th>Significance (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary contributor to pollution:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(A) Traffic</td>
<td>45</td>
<td>24</td>
<td>3.08</td>
<td>&lt;.002</td>
</tr>
<tr>
<td>(B) Industry</td>
<td>32</td>
<td>57</td>
<td>2.98</td>
<td>&lt;.002</td>
</tr>
<tr>
<td>Interaction</td>
<td>...</td>
<td>...</td>
<td>3.46</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Preferred news reporting:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(A) Newspaper</td>
<td>52</td>
<td>43</td>
<td>1.29</td>
<td>&lt;.1</td>
</tr>
<tr>
<td>(B) TV</td>
<td>19</td>
<td>30</td>
<td>1.9</td>
<td>&lt;.03</td>
</tr>
<tr>
<td>Interaction</td>
<td>...</td>
<td>...</td>
<td>1.95</td>
<td>&lt;.03</td>
</tr>
<tr>
<td>More luck in life:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(A) Others</td>
<td>15</td>
<td>9</td>
<td>1.33</td>
<td>&lt;.1</td>
</tr>
<tr>
<td>(B) Self</td>
<td>29</td>
<td>59</td>
<td>4.55</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Interaction</td>
<td>...</td>
<td>...</td>
<td>2.47</td>
<td>&lt;.007</td>
</tr>
</tbody>
</table>

N 102 100

Note.—Percentages do not add up to 100% because "don’t know" responses and "both equal" are not shown.

rather than referent (32 percent) of the comparison ($z = 3.08, p < .002$, one-tailed). Overall, this pattern results in the predicted interaction ($z = 3.46, p < .001$, one-tailed), and reflects a reversal in respondents’ judgments, as shown in Table 4.

As in Study 3, more respondents preferred news reporting in newspapers when newspapers were the subject (52 percent) rather than referent (43 percent) of the comparison ($z = 1.29, p < .1$, one-tailed). Similarly, more respondents preferred news reporting on TV when TV was the subject (30 percent) rather than referent (19 percent) of the comparison ($z = 1.9, p < .03$, one-tailed). Again, this pattern results in the predicted interaction ($z = 1.95, p < .03$, one-tailed). However, the differences were insufficient to produce a preference reversal.

Turning to the question about one’s luck in life, we note that most respondents assumed that they had more luck than others (see Table 4). This confirms the expected positivity bias, which forms the basis for our directional predictions. The size of this positivity bias was affected by the direction of comparison. Specifically, more respondents reported that they had more luck than others when the self was
the subject (59 percent) rather than referent of the comparison (29 percent; \( z = 4.55, p < .001 \), one-tailed). Conversely, more respondents assumed that others had more luck than they themselves when others were the subject (15 percent) rather than referent (9 percent) of the comparison (\( z = 1.33, p < .1 \), one-tailed). This pattern again results in the predicted interaction (\( z = 2.46, p < .007 \), one-tailed).

In combination, these findings indicate that direction of comparison effects are not restricted to graded response scales. Even in dichotomous comparison tasks, the direction of comparison elicited by the wording of the question can dramatically affect the obtained responses, resulting in reversals of the ordinal ranking in some cases.

Conclusions

In summary, our findings indicate that comparative judgments may be strongly influenced by the specific wording of the question. We suggest that this influence reflects asymmetries in feature comparison, which have been extensively documented in psychological research into similarity judgments (see Tversky [1977] and Tversky and Gati [1978] for a formal model and empirical evidence). Extending this line of research from similarity judgments to comparative judgments in general, we propose that respondents who are asked to compare X to Y focus on the features of X and check to see if these features are also present in Y. In doing so, they are likely to take more of the unique features of X into account than they would if they compared Y to X. Moreover, they are likely to neglect features of Y that are not brought to mind by the features of X. As a result, comparisons of X to Y are based on a different selection of features than comparisons of Y to X, resulting in different evaluations. While the assumed underlying processes have been documented in previous research in the domain of similarity judgment, the studies documented here extended this line of work by demonstrating the emergence of direction of comparison effects in evaluative judgments in general and by drawing attention to the role of question wording.

As the reported examples indicate, the emerging differences are not always negligible. At the extreme, the direction of comparison may reverse the ordinal position of two stimuli, as was the case in the evaluation of teachers’ empathy (Study 1), the entertainment value of tennis and soccer (Study 1), respondents’ preferences for TV or newspaper reports (Study 3), or the assumed contribution of industry and traffic to air pollution (Study 4). These findings document the applied importance of a phenomenon that has not previously been addressed in survey research. At the same time, however, the theoreti-
cal rationale specifies conditions under which the reported direction of comparison effects are unlikely to be obtained.

LIMITING CONDITIONS

The first set of limiting conditions pertains to the specific constellation of the features of the to-be-compared stimuli. Most obviously, the effects documented here require that the stimuli have unique features. In the rare case that all features are shared, either direction of comparison will result in the use of the same features and, hence, in the same judgment. Even unique features, however, may have similar evaluative implications. To the extent that feature A and feature B have similar implications, the evaluative judgment would presumably be similar as well, independent of which of these features is considered. Finally, the size of the observed effects should depend on the number of unique features and the extremity of their evaluative implications. Accordingly, only minimal direction of comparison effects would be expected when the evaluative implications of the unique features are very limited.

A second set of limiting conditions pertains to respondents’ processing motivation. Given that direction of comparison effects reflect a selective use of relevant features, we may expect that these effects are attenuated when judges are highly motivated to engage in a more detailed and careful comparison process. In that case, they may conduct a more complete information search (Chaiken, Liberman, and Eagly 1989; Kruglanski 1990; Petty and Cacioppo 1986), thus increasing the likelihood that features of the referent are considered as well, which, in turn, should reduce the constraining impact of features of the subject of comparison. If the judgment is very important, one might be pondering an issue for a long time, literally comparing back and forth between stimuli. Consistent with this assumption, Wänke (1993) observed that asymmetry effects were significantly reduced when college students were told that the accuracy of their judgment would be used to evaluate their general judgmental abilities. This suggests that the size of asymmetry effects varies as a function of respondents’ processing motivation. If so, we may also expect that asymmetry effects may become pronounced as survey respondents’ motivation decreases over the course of a lengthy interview. Hence, stronger asymmetry effects may be obtained at the end than at the beginning of a questionnaire. Preliminary data (Wänke 1993) suggest that this is the case, but more research is needed before firm conclusions can be drawn.

Finally, it is conceivable that the impact of the subject of comparison is attenuated when preceding questions induce subjects to elaborate
on the referent of comparison. In that case, features of the referent may be highly accessible due to the impact of the preceding questions. Systematic data bearing on this possibility, however, are not yet available.

**IMPLICATIONS FOR QUESTION WORDING**

What are the implications of our findings for survey practice? Given that the direction of comparison may make a difference, how should a comparative question be worded? In the ideal case, the comparison question should follow the direction of comparison that people are likely to choose spontaneously in daily life. Unfortunately, we do not yet fully understand what determines if a given object is spontaneously chosen as the subject or the referent of comparison. On theoretical grounds, we may assume that the more familiar or salient of two stimuli is likely to serve as the subject. For example, in comparing candidates for an election, one may conjecture that the incumbent is more salient and accessible than the challenger and, therefore, more likely to determine the dimensions of the comparison. If so, a question wording that reverses this direction would be likely to result in a judgment that differs from the judgment respondents would form spontaneously. Given our limited knowledge about the spontaneously chosen direction of comparison, however, the recommendation that question wording should reflect the direction of comparison that is spontaneously chosen in daily discourse is solid on theoretical grounds but difficult to implement. Thus, what are the alternatives?

On first glance, it seems that one may vary the direction of comparison and may pool the obtained responses to avoid systematic bias. However, an inspection of the tennis-soccer results shown in table 1 reveals that this solution is less than convincing. As our findings illustrate, the average value that results from pooling both comparison questions may not reflect the ordinal information provided by either judgment and may conceal important differences. Nevertheless, varying the direction of comparison has the advantage that it draws attention to possible differences and discourages the overinterpretation of the outcome of one single direction of comparison.

As another alternative, one may consider the use of undirected question wording. This, however, poses other problems. Obviously, we may ask respondents to compare “X and Y,” rather than “X to Y.” But the response alternatives offered to respondents would still need to reflect the relation of the two objects. For example, should one report to what extent X is larger than Y, or to what extent Y is smaller than X? As this example illustrates, the response alternatives are bound to introduce the directional information that one may painfully
avoid conveying in the body of the question. Given the extent to which respondents have been found to draw on response alternatives in interpreting the meaning of ambiguous questions (see Schwarz and Hippler [1991] for a review), it is therefore likely that they would extract the relevant directional information from the response alternatives presented to them, as was the case in Study 1.

This still leaves us with the question of what ought to be done. Instead of conceptualizing direction of comparison effects as a source of undesirable bias, it seems more fruitful to utilize the underlying cognitive dynamics. In many cases, the question we try to answer by assessing a comparative judgment calls for a specific direction of comparison in the first place. For example, in deciding whether or not to launch a product innovation, the crucial information is how the innovation is evaluated in comparison to its predecessor and not how the predecessor is evaluated in comparison to the new product that is to replace it. The latter comparison is one that consumers are unlikely to face, once the old product is taken off the market. Similarly, if we want to know how people evaluate social change we should ask them to compare the present to the past, rather than the past to the present. This follows from the observation that most spontaneous comparisons over time are triggered by salient aspects of one’s current experiences, thus rendering the present the subject of comparison (see Schwarz, Wänke, and Bless [1994] for a more detailed discussion). As usual, the most suitable strategy is to analyze the problem that we want to learn about and to word the question accordingly. The more we understand the cognitive processes that underlie respondents’ judgments, in surveys as in natural contexts, the more we will eventually be able to use them to our advantage.

Finally, we note that the wording effect addressed in this article has not been documented before in the survey literature. This, of course, is not surprising. Given that formal logic as well as common sense suggest that comparing X to Y should result in the same conclusions as comparing Y to X, survey methodologists saw no need to explore the potential impact of the direction of comparison requested from respondents. Rather, cognitive research into the nature of similarity judgments (Tversky 1977) identified processing strategies that implied that a wording effect of the type observed here had to exist, if one only looked for it. We emphasize this point because most of the recent applications of cognitive theories to survey measurement provided theoretical analyses of response effects that had long been documented by survey methodologists. In contrast, the present line of research indicates that cognitive theories may also allow us to identify response effects that have so far gone unnoticed.
Appendix

Question Wordings

INSTITUT FÜR DEMOSKOPIE, ALLENSBACH

Comparison: foreign policy USSR-USA. “Thinking of the foreign policies of the Soviet Union and the USA: Is the foreign policy of the Soviet Union morally superior to the foreign policy of the USA, or is it not morally superior?” (1 = morally superior; 2 = not morally superior; 3 = no difference; 4 = impossible to say)

Comparison: foreign policy USA-USSR. “Thinking of the foreign policies of the USA and the Soviet Union: Is the foreign policy of the USA morally superior to the foreign policy of the Soviet Union, or is it not morally superior?” (1 = morally superior; 2 = not morally superior; 3 = no difference; 4 = impossible to say)

German Question Wordings

INSTITUT FÜR DEMOSKOPIE, ALLENSBACH

Comparison: foreign policy, USSR-USA. “Wenn Sie jetzt einmal an die Außenpolitik der Sowjetunion und der USA denken: Ist die Außenpolitik der Sowjetunion moralisch besser als die Außenpolitik der USA, oder ist sie moralisch nicht besser?” (1 = moralisch besser; 2 = moralisch nicht besser; 3 = Kein Unterschied; 4 = unmöglich zu sagen)

Comparison: foreign policy, USA-USSR. “Wenn Sie jetzt einmal an die Außenpolitik der USA und der Sowjetunion denken: Ist die Außenpolitik der USA moralisch besser als die Außenpolitik der Sowjetunion, oder ist sie moralisch nicht besser?” (1 = moralisch besser; 2 = moralisch nicht besser; 3 = Kein Unterschied; 4 = unmöglich zu sagen)

STUDY 1

Comparison: female-male teachers. “Wenn Sie einmal an Ihre Schulzeit zurückdenken und sich an Ihre Lehrerinnen erinnern: Würden Sie sagen, die Lehrerinnen waren verständnisvoller bei schulischen und persönlichen Problemen als die männlichen Lehrer oder waren sie weniger verständnisvoll?” (1 = viel weniger verständnisvoll; 2 = viel verständnisvoll)

Comparison: male-female teachers. “Wenn Sie einmal an Ihre Schulzeit zurückdenken und sich an Ihre Lehrer erinnern: Würden Sie sagen, die männlichen Lehrer waren verständnisvoller bei schulischen und persönlichen Problemen als die Lehrerinnen oder waren sie weniger verständnisvoll?” (1 = viel weniger verständnisvoll; 2 = viel verständnisvoll)

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Comparison: tennis-soccer. "Tennis und Fußball sind hierzulande die publikumswirksamsten Sportarten. Wenn Sie beide Sportarten einmal hinsichtlich ihres Unterhaltungswerts für den Fernsehzuschauer miteinander vergleichen, würden Sie sagen: (Zutreffendes bitte ankreuzen): Tennis ist sehr viel spannender als Fußball; Tennis ist viel spannender als Fußball; Tennis ist spannender als Fußball; Tennis und Fußball sind gleich spannend; Tennis ist weniger spannend als Fußball; Tennis ist viel weniger spannend als Fußball; Tennis ist sehr viel weniger spannend als Fußball."

Comparison: soccer-tennis. "Fußball und Tennis sind hierzulande die publikumswirksamsten Sportarten. Wenn Sie beide Sportarten einmal hinsichtlich ihres Unterhaltungswerts für den Fernsehzuschauer miteinander vergleichen, würden Sie sagen: (Zutreffendes bitte ankreuzen): Fußball ist sehr viel spannender als Tennis; Fußball ist viel spannender als Tennis; Fußball ist spannender als Tennis; Fußball und Tennis sind gleich spannend; Fußball ist weniger spannend als Tennis; Fußball ist viel weniger spannend als Tennis; Fußball ist sehr viel weniger spannend als Tennis."

Study 2

Comparison: department store, Lauterbach-Sattler. "Wenn Sie einmal das Bekleidungshaus Lauterbach mit dem Bekleidungshaus Sattler vergleichen: Finden Sie, daß das Bekleidungshaus Lauterbach bessere Serviceleistungen bietet als das Bekleidungshaus Sattler oder bietet es Ihrer Meinung nach weniger gute Serviceleistungen?" ("Das Bekleidungshaus Lauterbach bietet [1 = sehr viel weniger gute; 11 = sehr viel bessere] Serviceleistungen."")

Comparison: department store, Sattler-Lauterbach. "Wenn Sie einmal das Bekleidungshaus Sattler mit dem Bekleidungshaus Lauterbach vergleichen: Finden Sie, daß das Bekleidungshaus Sattler bessere Serviceleistungen bietet als das Bekleidungshaus Lauterbach oder bietet es Ihrer Meinung nach weniger gute Serviceleistungen?" ("Das Bekleidungshaus Sattler bietet [1 = sehr viel weniger gute; 11 = sehr viel bessere] Serviceleistungen."")

Study 3

Comparison: TV-newspaper (newspaper-TV). Version A: "Wenn Sie einmal an die Berichterstattung des Fernsehens (der Tageszeitungen) und an die Berichterstattung der Tageszeitungen (des Fernsehens) denken. Ist die Berichterstattung des Fernsehens (der Tageszeitungen) [viel besser, etwas besser, gleich gut, etwas schlechter, viel schlechter] als die Berichterstattung der Tageszeitungen (des Fernsehens)," Version B: "Wenn Sie einmal an die Berichterstattung des Fernsehens (der Tageszeitungen) und an die Berichterstattung der Tageszeitungen (des Fernsehens) denken. Ist die Berichterstattung des Fernsehens (der Tageszeitungen) [viel schlechter, etwas schlechter, gleich gut, etwas besser, viel besser] als die Berichterstattung der Tageszeitungen (des Fernsehens)."
STUDY 4

(The reverse direction of comparison is given in parentheses.)

Version A.

Würden Sie sagen, die Berichterstattung in der Tageszeitung ist besser (schlechter) oder schlechter (besser) als die im Fernsehen?

Würden Sie sagen, der Verkehr trägt mehr (weniger) oder weniger (mehr) als die Industrie zur Umweltverschmutzung bei?

Würden Sie sagen, daß andere in ihrem Leben mehr (weniger) oder weniger (mehr) Glück gehabt haben als Sie selbst?

Version B.

Würden Sie sagen, die Berichterstattung im Fernsehen ist besser (schlechter) oder schlechter (besser) als die in der Tageszeitung?

Würden Sie sagen, die Industrie trägt mehr (weniger) oder weniger (mehr) als der Verkehr zur Umweltverschmutzung bei?

Würden Sie sagen, daß Sie in Ihrem Leben mehr (weniger) oder weniger (mehr) Glück gehabt haben als andere?

References


