

# **Do Strength-Related Attitude Properties Determine Susceptibility to Response Effects? New Evidence From Response Latency, Attitude Extremity, and Aggregate Indices**

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*A great deal of research has shown that small changes in question wording, format, or ordering can sometimes substantially alter people's reports of their attitudes. Although many scholars have presumed that these so-called response effects are likely to be more pronounced when the attitudes being measured are weak, a number of studies have disconfirmed this notion. This paper presents several new tests of this hypothesis using a variety of measures and analytic techniques. The findings largely replicated previously documented effects and non-effects but also uncovered new effects not previously tested. No single strength-related attitude attribute emerged as a consistent moderator of all response effects. Rather, different individual attributes moderated different effects, and a conglomeration of strength-related dimensions did not emerge as a reliable moderator. Taken together, these results support the conclusions that different response effects occur as the result of different cognitive processes, and that various strength-related attitude attributes reflect distinct latent constructs rather than a single one.*

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In their landmark book on the effect of question wording, form, and context on survey responses, Schuman and Presser (1981) investigated a variety of effects that are cause for great concern among survey methodologists. These effects, generally known as response effects, have to do with the fact that responses to survey questions are often susceptible to slight variations in features of the questions. For a science that claims to have a measuring tape for assessing attitudes,

this might appear to be troublesome news, suggesting a measuring tape that yields substantially different estimates of length depending on how it is held or when it is used.

Response effects might seem perplexing when viewed from the traditional theoretical vantage point on attitudes. According to this view, attitudes are summary evaluations of attitude objects (e.g., Eagly & Chaiken, 1993; Fazio, 1995; Zanna & Rempel, 1988). These evaluations, which are presumed to reflect the effect of experience with the attitude object and of various beliefs associated with it, are thought to be unitary and stable. Why, then, should subtle properties of questions—such as their tone, the order in which they are asked, or the presence of other questions in near proximity—have a notable effect on the reporting of these summary evaluations?

The answer to this puzzle was, for a while, thought to rest in the realization that not all attitudes are created equal. Converse (1964) argued that summary evaluations fall on an attitude-nonattitude continuum, where some evaluations are so weakly crystallized as to qualify as nonattitudes, whereas others are highly stable and consequential. According to this view, it is weak attitudes (barely attitudes at all) that are susceptible to response effects; strong attitudes, in contrast, provide an anchor that is substantial enough to withstand the effect of subtle question variations (for examples of this view, see Cantril, 1944; Converse, 1974; Payne, 1951).

This assumption about the moderating effect of attitude strength on response effects was reasonable and comforting—until it was put to an empirical test. The test came in the form of a comprehensive analysis by Krosnick and Schuman (1988) of 27 experiments conducted in national surveys that contained question variations known to produce response effects and that also contained questions measuring three strength-related properties of attitudes: importance, intensity, and certainty. The results of this review were as clear as they were surprising.

None of the three strength-related attitude properties was found to moderate the impact of all question variations reliably. The impact of offering a middle response alternative (see below) was greatest among people who attached the least importance to the attitude and whose feelings on the issue were the least intense. But all other response effects due to variations in the order, wording, or form of questions were found to be as pronounced among respondents with intense, certain, and important attitudes as among respondents with weak, uncertain, or unimportant ones.

Comparable conclusions were reached by Bishop (1990) in a similar investigation. Like Krosnick and Schuman (1988), Bishop found that attraction to a middle alternative was significantly greater among people who attached less personal importance to the attitude involved. And like Krosnick and Schuman, Bishop found that rotation of question order and response choice order had the same impact on people high and low in attitude importance. But Bishop found that adding a counterargument to a question had significantly more impact on people who said they had thought the least about the issue previously, whereas Krosnick and Schuman had found importance and intensity to have no such effect in

regulating the impact of counterarguments. This raised the possibility that prior thought might be a more effective moderator of this response effect (and perhaps others as well) than importance or intensity.

A number of explanations for Krosnick and Schuman's (1988) and Bishop's (1990) failures to find that all strength-related attitude dimensions moderate all response effects can be gleaned from the literature. Krosnick and Schuman accounted for their null effects by suggesting that response effects may be due to a variety of information-processing and motivational factors that are different from the anchoring and perceptually biasing effects of attitudes originally thought to be responsible. For example, Krosnick and Schuman hypothesized that the impact of question order may derive in part from priming effects and from variations in the construal of the object that the respondent perceives the question to address. Acquiescence effects, by contrast, may result in part from self-presentational concerns (i.e., respondents wanting to appear agreeable). These explanations presume that response effects do not occur because the attitudes being measured involve weak or ambiguous internal cues.

These explanations notwithstanding, the imperviousness of response effects to many strength-related attitude dimensions is so counterintuitive, and Krosnick and Schuman's (1988) and Bishop's (1990) reliance on a small set of strength-related measures so salient, that concerns about methodological aspects of their research were voiced immediately. A first and obvious concern was that the single-item measures of attitude importance, intensity, and certainty were simply too unreliable to serve as good indices of properties related to attitude strength. Yet these authors subjected all their individual tests to meta-analyses, a procedure expressly designed to overcome unreliability. And their analyses were no more successful in revealing consistent moderation of response effects than were the individual experiments.

Recently, Lavine, Huff, Wagner, and Sweeney (1998) presented another, and apparently more successful, attempt at testing moderation of response effects by attitude strength. They focused on a question order effect caused by four "context" items that preceded a target attitude item about welfare reform, the rights of the accused, or defense spending. The context items were designed to promote either a liberal or conservative point of view on the target issue. Lavine et al. found that the effect of the context items was not moderated by importance or certainty, just as Krosnick and Schuman (1988) and Bishop (1990) found that these strength-related dimensions did not moderate question order effects.

However, Lavine et al. (1998) did uncover reliable evidence of moderation using two different approaches. First, they showed that the magnitude of their question order effect did indeed vary with attitudinal embeddedness, a strength-related dimension that Krosnick and Schuman (1988) and Bishop (1990) had not examined. As expected, reports of more embedded attitudes were less influenced by the content of prior questions. Also, Lavine et al. found evidence of moderation when they averaged measures of many different strength-related dimensions (e.g.,

importance, certainty, intensity, ambivalence, extremity, and frequency of thought) to create a single strength index.

Lavine et al. concluded that they succeeded where previous research had failed because they used measures of strength-related attitude properties that were “broad in bandwidth” (1998, p. 369). They suggested that their strength index and their measure of attitudinal embeddedness involved multiple nonredundant items. And if such arrays of items had been aggregated to measure strength in previous investigations, Lavine et al. suggested, more consistent and reliable evidence of response effect moderation would have been uncovered.

Combining multiple strength-related attitude attributes into a single index in this fashion makes theoretical sense if one believes that those attributes are all manifestations of a single underlying construct (such that their origins and consequences would be identical) and that averaging them together would yield a more reliable measure of that construct. And in many cases where such averaging has been done in the past, investigators have assumed they were generating an aggregate measure of attitude strength (e.g., Prislin, 1996).

To gauge resistance to change requires exposing people to a potentially change-inducing stimulus. Gauging stability over time requires repeated measurements of the same attitude on multiple occasions. And gauging the impact of attitudes on cognition or behavior requires measuring the constructs involved and somehow gauging the impact of one on another. A researcher can much more easily measure importance, knowledge, certainty, and other properties of attitudes that are correlated with strength (see Krosnick & Abelson, 1992), and these measures can be averaged to yield a reliable measure of strength.

Given that Lavine et al. (1998) explored the effect of aggregation on a single response effect, and given that this particular response effect was not part of the set investigated by Krosnick and Schuman (1988), we cannot be certain that aggregation is really the solution to the surprising results reported by those authors and by Bishop (1990). It is possible, in particular, that aggregation helped in the case of Lavine et al.’s particular question order effect but does not help in the case of other response effects, such as those investigated by Krosnick and Schuman and by Bishop.

Furthermore, there is reason to suspect that the principal assumption underlying aggregation may not be correct. In recent years, a number of investigators have conducted exploratory and confirmatory factor analyses to assess the latent structure of strength-related attitude attributes. Although some have found evidence suggesting that these attributes reflect a single underlying construct (Verplanken, 1989, 1991), others have found evidence of two or more factors (Abelson, 1988; Bassili, 1996b; Pomerantz, Chaiken, & Tordesillas, 1995; Prislin, 1996). And a series of confirmatory factor analyses suggested that each strength-related attribute is distinct from every other attribute, with no two reflecting the same underlying construct (Krosnick, Boninger, Chuang, Berent, & Carnot, 1993; Krosnick & Petty, 1995; Lavine et al., 1998). If this is true, aggregating such constructs may sometimes

yield strengthened results (when the constituents all happen to have similar effects on a phenomenon) and may other times yield muted results (when the constituents have different effects).

Another measurement issue that may shed light on the relation between strength-related attitude dimensions and response effects comes from a distinction recently drawn by Bassili (1996b) between meta-attitudinal and operative measures. Meta-attitudes are impressions of one's attitudes and are usually assessed by means of self-report measures. Operative measures of attitude properties, by contrast, involve more direct assessments of attitude functioning. For example, a report of how important the issue of capital punishment is to a respondent is a meta-attitudinal judgment, whereas the speed with which the respondent expresses his or her attitude toward capital punishment is an operative measure (see Bassili, 1996b, for more details on the distinction).

Bassili (1996b) argued that operative measures of strength-related attitude properties are less derivative and less susceptible to extraneous influences than meta-attitudinal measures and are, therefore, to be preferred to these measures. Yet Krosnick and Schuman's (1988) and Bishop's (1990) conclusions were based exclusively on meta-attitudinal measures of strength-related dimensions. It is possible, therefore, that operative measures may reveal more universal moderating effects of strength-related dimensions than were uncovered in prior investigations. Interestingly, Lavine et al.'s (1998) measure of attitudinal embeddedness appears to be more operative than meta-attitudinal, and their index of multiple strength properties included a dimension Bassili (1996b) considered to be operative: extremity. Therefore, Lavine et al.'s success could be attributable to their use of operative measures.

In the present study, our first aim was to test whether aggregation over strength-related attitude properties, as suggested by Lavine et al. (1998), can expose moderation of the response effects that were studied by Krosnick and Schuman (1988) and Bishop (1990). We also sought to test whether operative measures can expose moderating effects where meta-attitudinal measures have failed. And in the process, we explored whether multiple strength-related properties all reflect a single underlying construct or whether they are distinct attributes.

## Method

A random sample of University of Toronto students were interviewed in 1993. Cases were selected randomly from complete electronic registration lists. The sample of 904 valid telephone numbers yielded 621 completed interviews, representing a response rate of 68.7%.

The survey was administered by telephone using a computer-assisted telephone interviewing procedure that incorporated the measurement of response latency for each question (see Bassili, 1996a, for details of this procedure). The questionnaire contained 77 questions, only about half of which are relevant to the

present investigation. Specifically, four target questions that have been shown to produce response effects in the past and that were analyzed by Krosnick and Schuman (1988) were asked of respondents. These questions appeared in the 11th, 19th, 33rd, and 41st positions in the questionnaire and were each immediately followed by six questions assessing the following strength-related attitude properties: certainty, intensity, importance, knowledge, likelihood of change, and extremity. The first five of these properties were assessed by direct self-reports (see the Appendix for the wording of these questions). Extremity was assessed by calculating the deviation from the scale midpoint of responses to a question or questions asking respondents to evaluate the attitude or beliefs addressed in the target question on a 10-point rating scale.

### *Response Effects*

*Question order.* The first target question asked: “Would you tell me whether or not you think it should be possible for a pregnant woman to obtain a legal abortion if she is married and does not want any more children?” Respondents were randomly assigned to be asked this question either before or after the following question: “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?” According to past research, fewer respondents are in favor of abortion for the “married woman” when the question about her follows the question positing a serious defect in the baby (Schuman & Presser, 1981).

Krosnick and Schuman (1988) found this response effect to be moderated by certainty and importance in one survey, but not by certainty in three subsequent surveys. Likewise, Bishop (1990) found the abortion question order effect not to be moderated by importance. And Krosnick and Schuman found another question order effect (on trade between the United States and Japan) not to be moderated by certainty.

*Middle alternative.* The second target question asked: “In your opinion, should the penalties for using marijuana be more strict, less strict, or about the same as they are now?” The middle response alternative (“about the same”) was deleted from the question for a random half of the respondents, although interviewers were instructed to accept this response if it was volunteered. According to past research, more respondents select the middle alternative when it is presented in a question than volunteer it when it is not presented (Schuman & Presser, 1981).

Krosnick and Schuman (1988) found this sort of middle-alternative effect to be moderated marginally significantly by attitude intensity and importance in two surveys, but not by intensity in a third. Bishop (1990) found importance to reliably moderate the effect in only two of nine tests. But both Krosnick and Schuman’s and Bishop’s meta-analyses showed the strength-related attributes to moderate the middle-alternative effect significantly.

*Acquiescence.* For half the respondents (selected randomly), the third target question asked: "Please tell me whether you agree or disagree with this statement: Individuals are more to blame than social conditions for crime and lawlessness." For the other half of the respondents, the assertion instead stated: "Social conditions are more to blame than individuals for crime and lawlessness." Past research has shown an acquiescence effect, whereby respondents are inclined to agree with the assertion, regardless of what it says (Schuman & Presser, 1981). Krosnick and Schuman (1988) found that this acquiescence effect was not moderated by attitude intensity in four experiments.

*Tone of wording.* For half the respondents (selected randomly), the fourth target question asked: "Do you think that Canada should allow public speeches against democracy?" For the other half of the respondents, the question asked instead: "Do you think that Canada should forbid public speeches against democracy?" Past research suggests that people are more averse to forbidding public speeches against democracy than to not allowing them (Schuman & Presser, 1981).

Krosnick and Schuman (1988) found this response effect not to be moderated by certainty and to be moderated by attitude intensity in the direction opposite to expectation. That is, the effect was stronger among people with intense attitudes than among people with attitudes that did not involve strong feelings.

*Missing data.* The primary cause of missing response latency data involved cases where respondents asked the interviewer a question before giving their answer (see Bassili, 1996a, for a discussion of the conditions that invalidate response latency measurement). The percentage of missing cases due to invalid response latency measurement was 12.1%, 15.0%, 20.1%, and 16.3% for the question order, middle alternative, acquiescence, and tone-of-wording question manipulations, respectively. Respondents who reported not knowing the answer to a question or who refused to answer a question contributed to missing data.

### *Preparation of Response Latencies*

Response latencies were subjected to a square root transformation (Fazio, 1990). Although it is often desirable to adjust response latencies for respondents' baseline speed of responding, the analyses presented here were of unadjusted response times. This was done to keep a level playing field for all the measures of strength and also to avoid a potential neutralizing effect if some respondents genuinely had highly accessible attitudes across a range of social policy issues and others had less accessible attitudes across all issues. Correcting for average speed of responding to the attitudinal queries would inappropriately eliminate response latency differences among these people.<sup>1</sup>

<sup>1</sup> To ensure that the omission of the baseline correction was not handicapping the response latency measure unduly, we also conducted analyses of response latencies that were corrected for baseline speed of responding. In no case did such analyses yield a significant interaction effect that revealed



### *Analysis*

We conducted tests of response effect moderation via ordinary least squares regression.<sup>2</sup> First, we regressed responses to each target question on a dichotomous variable (coded 0 or 1) representing the two groups of respondents who received the two different question orders or wordings, a single strength-related attitude attribute, and the interaction between question order/wording and the strength-related attribute. Responses to each dichotomous target item were coded 0 or 1, with 1 corresponding to the response that was expected to be more frequent. For the middle-alternative experiment, both polar responses were coded 0, and the middle-alternative response was coded 1.

The interactions tested whether the order/wording effect was moderated by the strength-related attitude attributes. All the strength-related attributes were coded to range from 0 to 1, with 1 denoting maximum strength, and question order/wording was coded 0 or 1. Therefore, the coefficient of the main effect of order/wording represented the effect of this manipulation among people with the minimum value on the strength-related attribute. Adding the coefficient of the main effect to the coefficient of the interaction yields the effect of order/wording among people with attitudes of the maximum value of the strength-related attribute.

Then, we regressed responses to each target question on question order/wording, all strength-related attributes, and all interactions between question order/wording and the strength-related attributes. This approach was suggested by Krosnick et al.'s (1993) findings, which implied that various strength-related properties may be largely independent of one another and may have independent effects. If this is true, then multiple strength-related properties might be found to have significant moderating effects while controlling for the others. But if the strength-related attitude attributes all reflect a single underlying construct (appropriately called "attitude strength"), then at most only one dimension should have a significant moderating effect, and this should be the dimension that happens to have been measured most reliably.<sup>3</sup>

that susceptibility to a response effect was moderated by attitude accessibility as measured by response latency.

<sup>2</sup> Because the dependent variables in these regressions are dichotomous, it might seem that probit analysis would be more appropriate. We conducted such analyses and found essentially the same results as are reported here. However, this analytic strategy overweights percentage differences when distributions are more skewed (Knoke & Burke, 1980). This biases tests against our hypothesis in cases where the respondents who are expected to manifest the smallest effect of the manipulation (e.g., the high intensity group) have more skewed distributions (e.g., because they rarely volunteer or select a middle alternative). Therefore, we focus here on the OLS results.

<sup>3</sup> Before conducting the regressions, we squared all meta-attitudinal measures of strength-related attitude properties, on the basis of Krosnick's (1988) evidence that crystallization increases exponentially as ratings increase from the lowest end of a meta-attitudinal strength-related property rating scale



Finally, inspired by Lavine et al.'s (1998) work, we created an aggregate measure of meta-attitudinal strength-related dimensions by averaging ratings of certainty, importance, intensity, knowledge, and likelihood of change. Extremity was not part of this index because we wanted to keep "operative" measures separate from "meta-attitudinal" measures of strength. We tested the moderating impact of this index by itself and again in a regression controlling for the impact of extremity and response latency.<sup>4</sup>

## Results

### *Question Order*

Overall, for the target question regarding abortion, 69.1% of the respondents answered in favor of the woman's right to an abortion when that question appeared first, whereas 64.0% selected that option when the target question was preceded by the question positing the possibility of a serious defect in the baby. This 5.1% response effect was not significant [ $\chi^2(1, N = 587) = 1.72, p = .19$ ]. Although it is surprising that this well-documented response effect was not significant in our full university sample, it is possible that respondents with weak attitudes manifested a significant effect while people with stronger attitudes did not.

Table I displays descriptive statistics documenting the moderating roles of the strength-related attributes. In constructing this table, each strength-related attribute was subjected to a median split, to create groups "high" and "low" on the attributes of certainty, intensity, importance, knowledge, likelihood of change, and extremity. Respondents at the median of each dimension were omitted from these calculations. In an effort to keep the groups above and below the median roughly equal in size, we sometimes randomly removed some cases from a response category adjacent to the median.

In Table I, the two columns labeled "Difference" show the size of the question order effect for people in the high and low groups. The rightmost column shows the difference between these two columns, and therefore represents the moderating impact of each strength-related attribute. Table II presents statistical tests of the moderating impact of each dimension considered individually.

As Table I shows, respondents low in certainty, intensity, importance, and knowledge all manifested stronger question order effects than respondents high in those strength-related attributes ( $\Delta = 6.1\%$ ,  $8.2\%$ ,  $13.2\%$ , and  $1.4\%$ , respectively). Likewise, people higher in likelihood of change manifested a stronger question

to the highest end. When we redid the analyses without squaring, the observed results were comparable but a bit weaker.

<sup>4</sup> To parallel the analysis strategy used by Krosnick and Schuman (1988) and Bishop (1990), we also conducted log-linear analyses after dichotomizing the strength-related attributes and found results comparable to those reported in the text.

**Table I.** Responses to the Abortion Item

Strength-related attribute	High on strength-related attribute Question order			Low on strength-related attribute Question order			Moderating effect of strength-related attribute
	Married/ defect	Defect/ married	Difference	Married/ Defect	Defect/ married	Difference	
Certainty	70.2% (118)	67.6% (119)	2.6%	68.0% (85)	59.3% (64)	8.7%	6.1%
Intensity	66.4 (87)	66.9 (81)	-0.5	71.3 (77)	63.6 (68)	7.7	8.2
Importance	68.0 (102)	70.8 (68)	-2.8	72.8 (75)	62.4 (83)	10.4	13.2
Knowledge	68.9 (93)	65.2 (88)	3.7	69.2 (72)	64.1 (66)	5.1	1.4
Likelihood of change	69.7 (90)	72.1 (75)	-2.4	68.4 (93)	57.0 (77)	11.4	13.8
Meta-attitudinal index	68.3 (99)	68.2 (105)	0.1	70.3 (104)	60.0 (78)	10.3	10.2
Extremity	64.7 (97)	69.5 (66)	-4.8	74.1 (63)	59.5 (81)	14.6	19.4
Response latency	80.6 (102)	71.7 (104)	8.9	58.0 (69)	57.8 (78)	0.2	-8.7

*Note.* The columns labeled "Question order" show the percentage of respondents who said that it should be possible for a pregnant woman to obtain a legal abortion if she is married and does not want any more children, when asked either before or after a question about whether abortion should be permitted in the case of a serious fetal defect. The columns labeled "Difference" represent the sizes of the question order effects. The differences between the values in those columns are shown in the rightmost column.

order effect ( $\Delta = 13.8\%$ ). None of these differences reached significance ( $p = .10$  to  $.44$ ; Table II). These nonsignificant trends in moderating effects of certainty and importance are consistent with Krosnick and Schuman's (1988), Bishop's (1990), and Lavine et al.'s (1998) findings regarding these same strength-related properties' moderation of question order effects.

Aggregating the individual meta-attitudinal measures into a single index produced a marginally significant effect ( $b = -.33, p = .07$ ), because the question order effect was marginally significant among people scoring low on the index ( $b = -.11, p = .06$ ) and nonsignificant among people scoring high on the index ( $b = .00, p = .99$ ). However, breadth, as suggested by Lavine et al. (1998), was not necessary: Extremity alone yielded evidence of highly significant moderation ( $b = -.30, p < .01$ ). Respondents with moderate attitudes manifested a large question order effect (14.6%), whereas respondents with extreme attitudes manifested a smaller, nonsignificant difference in the opposite direction (-4.8%).

**Table II.** Ordinary Least Squares Regressions Predicting Responses to the Abortion Item

Strength-related attribute	Question order		Predictor Strength-related attribute		Order × strength-related attribute		R <sup>2</sup>	N
	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>		
Certainty	.15 (.08)	.07	.20 (.08)	.02	-.17 (.12)	.17	.01	577
Intensity	.12 (.08)	.14	.07 (.09)	.47	-.13 (.14)	.33	.01	581
Importance	.14 (.07)	.04	.18 (.09)	.06	-.21 (.14)	.12	.01	580
Knowledge	.10 (.07)	.17	.13 (.11)	.24	-.13 (.17)	.44	.01	584
Likelihood of change	.16 (.07)	.04	.20 (.08)	.01	-.17 (.11)	.10	.01	580
Meta-attitudinal index	.22 (.10)	.03	.32 (.12)	.01	-.33 (.18)	.07	.01	587
Extremity	.15 (.05)	.00	.13 (.07)	.07	-.30 (.10)	.00	.02	576
Response latency	.15 (.20)	.45	.54 (.18)	.00	-.11 (.26)	.67	.03	525

*Note.* Standard errors are listed below the regression coefficients in parentheses.

Surprisingly, response latency revealed a trend opposite to our expectations (see Table I). People who reported their attitudes quickly showed a sizable question order effect (8.9%), whereas people who reported their attitudes slowly manifested a tiny difference (0.2%). Again, however, the difference between these two groups was not significant ( $b = -.11, p > .1$ ; see Table II).

The results of a simultaneous regression analysis involving the main effect of question order and interaction terms for all strength-related measures appear in Table III. Here, the only significant moderating effect appears for extremity, in the same direction as we have seen thus far ( $b = -.30, p < .05$ ). None of the individual meta-attitudinal measures exerted significant moderating effects, nor did response latency.

When we conducted this regression again, this time removing the meta-attitudinal measures and replacing them with the meta-attitudinal index, we found that the moderating effect of extremity remained significant ( $b = -.28, p = .02$ ), the moderating effect of the strength index dropped to nonsignificance ( $b = -.08, p = .71$ ), and the moderating effect of response latency remained nonsignificant ( $b = -.14, p = .59$ ). These results reinforce the conclusion that breadth of measurement is not necessary to detect moderation of question order effects, and suggest that any apparent effect of the index was spurious because of its correlation with extremity.

**Table III.** Multiple Regressions Assessing the Moderating Effects of Multiple Strength-Related Attitude Attributes Simultaneously

	Question order	Response effect		
		Question wording: Middle alternative	Question wording: Acquiescence	Question wording: Tone
Question wording/order	.16 (.22)	.53* (.24)	.04 (.26)	-.09 (.19)
Certainty	.12 (.11)	-.10 (.11)	-.12 (.15)	.15 (.12)
Intensity	-.16 (.12)	-.03 (.12)	.01 (.17)	-.25† (.15)
Importance	.14 (.12)	-.07 (.12)	.02 (.16)	-.29* (.11)
Knowledge	.01 (.14)	.15 (.12)	-.03 (.17)	.20 (.17)
Likelihood of change	.10 (.09)	.04 (.08)	-.05 (.10)	.07 (.09)
Extremity	.04 (.08)	.02 (.08)	.73** (.20)	-.13 (.08)
Response latency	.41* (.18)	-.60** (.20)	-.32 (.20)	.22 (.17)
Wording/order × certainty	.02 (.17)	-.30* (.14)	-.04 (.23)	-.24 (.16)
Wording/order × intensity	.04 (.18)	-.05 (.17)	.16 (.24)	.38† (.20)
Wording/order × importance	.04 (.18)	-.22 (.16)	.13 (.22)	.20 (.15)
Wording/order × knowledge	-.04 (.22)	-.31† (.16)	-.20 (.25)	-.09 (.22)
Wording/order × likelihood of change	-.04 (.13)	.13 (.11)	.20 (.15)	-.09 (.12)
Wording/order × extremity	-.30* (.12)	.08 (.10)	-.84** (.28)	.06 (.11)
Wording/order × response latency	.07 (.27)	-.02 (.29)	.05 (.30)	.21 (.24)
$R^2$	.06	.27	.06	.09
$N$	500	496	473	530

*Note.* Unstandardized regression coefficients are shown. Standard errors appear in parentheses below the coefficients.

† $p < .10$ , \* $p < .05$ , \*\* $p < .01$ .

Middle Alternative

Overall, 40.9% of the respondents selected the middle alternative in the marijuana laws question (“about the same”) when this alternative was presented explicitly, whereas only 8.6% volunteered it when it was not presented in the question. This 32% response effect was highly significant [ $\chi^2(1, N = 575) = 75.86, p < .001$ ].

As shown in Tables IV and V, the middle-alternative effect was significantly weaker among people higher in certainty ( $b = -.30, p = .01$ ), intensity ( $b = -.29, p = .03$ ), importance ( $b = -.33, p = .01$ ), knowledge ( $b = -.44, p < .01$ ), and the meta-attitudinal index ( $b = -.57, p < .01$ ). The second and third of these findings are consistent with Krosnick and Schuman’s (1988) and Bishop’s (1990) evidence of significant or marginally significant moderating effects of importance and intensity in the same directions. In contrast, the effects of likelihood of change ( $b = -.05, p = .63$ ), extremity ( $b = -.11, p = .24$ ), and response latency ( $b = -.31, p = .28$ ) were all nonsignificant. Thus, it is clear that all strength-related dimensions

Table IV. Responses to the Marijuana Item

Strength-related attribute	High on strength-related attribute Question wording			Low on strength-related attribute Question wording			Moderating effect of strength-related attribute
	Middle alternative omitted	Middle alternative offered	Difference	Middle alternative omitted	Middle alternative offered	Difference	
Certainty	7.1% (9)	26.3% (26)	19.2%	15.5% (13)	52.9% (82)	37.4%	18.2%
Intensity	3.2 (3)	27.3 (36)	24.1	13.6 (15)	52.9 (72)	39.3	15.2
Importance	3.2 (3)	25.9 (30)	22.7	11.9 (14)	52.0 (77)	40.1	17.4
Knowledge	8.9 (11)	31.1 (46)	22.2	9.5 (8)	54.2 (64)	44.7	22.5
Likelihood of change	10.8 (13)	39.7 (60)	28.9	6.5 (7)	39.6 (57)	33.1	4.2
Meta-attitudinal index	6.5 (9)	29.2 (54)	22.7	12.0 (13)	56.7 (76)	44.7	22.0
Extremity	8.7 (9)	37.4 (55)	28.7	10.3 (9)	43.2 (41)	32.9	4.2
Response latency	0.9 (1)	31.3 (46)	30.4	13.2 (14)	47.5 (67)	34.3	3.9

Note. The columns labeled “Question wording” show the percentage of respondents who said that marijuana laws should be kept as they are now, depending on whether a middle response alternative was or was not offered. The columns labeled “Difference” represent the sizes of the question wording effects. The differences between the values in those columns are shown in the rightmost column.

**Table V.** Ordinary Least Squares Regressions Predicting Responses to the Marijuana Item

Strength-related attribute	Question wording		Predictor Strength-related attribute		Wording × strength-related attribute		$R^2$	$N$
	$b$	$p$	$b$	$p$	$b$	$p$		
Certainty	.44 (.06)	.00	-.15 (.08)	.08	-.30 (.11)	.01	.18	572
Intensity	.39 (.05)	.00	-.13 (.10)	.16	-.29 (.13)	.03	.17	571
Importance	.40 (.05)	.00	-.14 (.09)	.13	-.33 (.12)	.01	.18	572
Knowledge	.44 (.05)	.00	.00 (.10)	.97	-.44 (.14)	.00	.16	573
Likelihood of change	.35 (.07)	.00	.06 (.08)	.45	-.05 (.11)	.63	.13	569
Meta-attitudinal index	.52 (.07)	.00	-.15 (.14)	.26	-.57 (.18)	.00	.18	574
Extremity	.35 (.04)	.00	.01 (.07)	.91	-.11 (.10)	.24	.13	565
Response latency	.59 (.24)	.01	-.60 (.19)	.00	-.31 (.28)	.28	.18	508

*Note.* Standard errors are listed below the regression coefficients in parentheses.

do not behave identically, which supports the multidimensional view of strength-related attitude dimensions. And it is clear that the breadth of the meta-attitudinal index was not necessary to observe significant moderation.

When the effects of all individual strength-related dimensions were entered simultaneously in a regression analysis with question wording as the main effect, most of the significant effects disappeared (see Table III). Specifically, the moderating effects of intensity ( $b = -.05$ ,  $p = .78$ ) and importance ( $b = -.22$ ,  $p = .18$ ) became nonsignificant. Certainty emerged as a significant moderator of the response effect ( $b = -.30$ ,  $p = .04$ ), with highly certain people showing a weaker response effect than people who were less certain. Also, knowledge emerged as a marginally significant moderator ( $b = -.31$ ,  $p = .06$ ), with more knowledgeable people evidencing a weaker response effect than less knowledgeable people. The appearance of these two independent effects reinforces the notion of strength as multidimensional. Extremity and response latency continued to have nonsignificant effects ( $b = .08$ ,  $p = .44$ , and  $b = -.02$ ,  $p = .94$ , respectively).

**Table VI.** Responses to the Crime Item

Strength-related attribute	High on strength-related attribute Question wording			Low on strength-related attribute Question wording			Moderating effect of strength-related attribute
	Social conditions to blame	Individuals to blame	Difference	Social conditions to blame	Individuals to blame	Difference	
Certainty	68.5% (85)	57.3% (71)	11.2%	63.4% (52)	57.9% (44)	5.5%	-5.7%
Intensity	71.5 (93)	54.7 (35)	16.8	65.4 (51)	64.3 (74)	1.1	-15.7
Importance	67.9 (53)	51.4 (36)	16.5	66.7 (82)	64.5 (69)	2.2	-14.3
Knowledge	64.4 (58)	62.5 (54)	1.6	67.2 (78)	55.3 (52)	11.9	10.3
Likelihood of change	65.6 (86)	53.7 (72)	11.9	69.3 (88)	65.5 (55)	3.8	-8.1
Meta-attitudinal index	70.0 (112)	53.8 (85)	16.2	66.7 (84)	62.7 (64)	4.0	-12.2
Extremity	57.0 (61)	57.4 (62)	-0.4	75.7 (134)	58.1 (86)	17.6	18.0
Response latency	72.9 (89)	59.6 (68)	13.3	70.3 (78)	54.2 (58)	16.1	2.8

*Note.* The columns labeled “Question wording” show the percentage of respondents who said that social conditions are more to blame than individuals for crime and lawlessness, depending on whether this response agreed with the assertion in one form of the question or disagreed with the contrary assertion in the other form. The columns labeled “Difference” represent the sizes of the question wording effects. The differences between the values in those columns are shown in the rightmost column.

### Acquiescence

Overall, 68.5% of the respondents agreed that social conditions are more to blame than individuals for crime and lawlessness, whereas 57.3% of the respondents expressed this opinion when asked if they agreed or disagreed with a statement asserting the opposite. This 11.2% response effect was significant [ $\chi^2(1, N = 546) = 7.38, p < .01$ ].

According to the results in Tables VI and VII, this acquiescence effect was significantly moderated by only one of the strength-related attributes. Extremity emerged as a significant moderator when analyzed by itself ( $b = -.68, p < .01$ ; see Table VII) and when analyzed in a simultaneous regression with all of the other strength-related attributes with question wording as the main effect ( $b = -.84, p < .01$ ; see Table III). As expected, people with moderate attitudes manifested significant acquiescence, whereas people with more extreme attitudes did not.



**Table VII.** Ordinary Least Squares Regressions Predicting Responses to the Crime Item

Strength-related attribute	Predictor						$R^2$	$N$
	Question wording		Strength-related attribute		Wording $\times$ strength-related attribute			
	$b$	$p$	$b$	$p$	$b$	$p$		
Certainty	.08 (.09)	.35	-.05 (.11)	.61	.02 (.16)	.88	.01	585
Intensity	-.01 (.10)	.91	-.08 (.11)	.50	.20 (.17)	.22	.01	583
Importance	.04 (.10)	.68	.02 (.12)	.84	.09 (.16)	.57	.01	580
Knowledge	.21 (.09)	.02	.04 (.13)	.74	-.26 (.18)	.16	.02	585
Likelihood of change	.04 (.07)	.53	-.03 (.09)	.73	.12 (.12)	.33	.01	585
Meta-attitudinal index	.03 (.12)	.81	-.06 (.16)	.71	.14 (.23)	.55	.01	585
Extremity	.17 (.05)	.00	.56 (.17)	.00	-.68 (.24)	.00	.03	579
Response latency	.20 (.23)	.38	-.20 (.20)	.31	-.09 (.29)	.76	.02	482

*Note.* Standard errors are listed below the regression coefficients in parentheses.

When all the meta-attitudinal indices were combined, the index also had no reliable moderating effect ( $b = .14$ ,  $p = .55$ ) but revealed a trend in the direction opposite to expectations. Again, breadth was not necessary to observe significant moderation.

It is worth noting that the main effect of question wording ( $b = .04$ ; see Table III) is nonsignificant for this response effect. This might seem to suggest that acquiescence is nonsignificant at zero extremity, an implication that would contradict our interpretation of this experiment's results. However, the main effect of wording is not only for people at zero extremity, but also at zero on all of the other strength-related attitude features. And in this case, many of the other strength-related features are (nonsignificantly) related to the magnitude of the response effect oppositely to extremity: Acquiescence is greater among people high in certainty, high in intensity, high in importance, and low in likelihood of change. Therefore, among people low on all strength-related features, the net response effect ends up being zero.

**Table VIII.** Responses to the Speeches Item

Strength-related attitude	High on strength-related attribute Question wording			Low on strength-related attribute Question wording			Moderating effect of strength-related attribute
	Allow	Forbid	Difference	Allow	Forbid	Difference	
Certainty	75.7% (81)	86.6% (116)	10.9%	70.8% (97)	86.8% (119)	16.0%	5.1%
Intensity	62.0 (83)	84.4 (119)	22.4	80.2 (73)	85.5 (88)	5.3	-17.1
Importance	61.8 (65)	85.3 (104)	23.5	82.0 (118)	88.8 (128)	6.8	-16.7
Knowledge	70.7 (68)	89.0 (96)	18.3	72.5 (105)	88.1 (125)	15.6	-2.7
Likelihood of change	73.7 (98)	86.0 (117)	12.3	69.4 (68)	86.9 (86)	17.5	5.2
Meta-attitudinal index	65.0 (106)	85.0 (148)	20.0	78.9 (105)	88.6 (124)	9.7	-10.3
Extremity	65.6 (88)	82.6 (108)	17.0	78.9 (79)	87.5 (105)	8.6	-8.4
Response latency	75.2 (100)	91.8 (124)	16.6	72.7 (96)	81.3 (109)	8.6	-8.0

*Note.* The columns labeled “Question wording” show the percentage of respondents who said a speech against democracy should be permitted, depending on whether this response agreed with one form of the question or disagreed with the contrary position (that such speech should be forbidden) in the other form. The columns labeled “Difference” represent the sizes of the question wording effects. The differences between the values in those columns are shown in the rightmost column.

*Tone of Wording*

Overall, 71.5% of the respondents selected the pro-free speech alternative when the question asked if public speeches against democracy should be allowed, whereas 86.4% selected the pro-free speech alternative when the question asked if such speeches should be forbidden. This 14.9% response effect was significant [ $\chi^2(1, N = 614) = 20.68, p < .01$ ].

In regressions examining one strength-related dimension at a time, moderating effects of intensity and importance were statistically significant in the direction opposite what we expected ( $b = .32, p = .01$ , and  $b = .35, p < .01$ , respectively; see Tables VIII and IX). People whose attitudes were intense and very important manifested strong tone-of-wording effects ( $b = -.23, p < .01$ , in both cases), whereas people whose attitudes were less intense and important were less affected by tone of wording ( $b = .12$  and  $.11$ , respectively;  $p < .01$  in both cases).

**Table IX.** Ordinary Least Squares Regressions Predicting Responses to the Speeches Item

Strength-related attribute	Predictor						$R^2$	$N$
	Question wording		Strength-related attribute		Wording $\times$ strength-related attribute			
	$b$	$p$	$b$	$p$	$b$	$p$		
Certainty	.17 (.05)	.00	.07 (.09)	.48	-.07 (.12)	.56	.03	613
Intensity	.06 (.05)	.25	-.29 (.10)	.00	.32 (.13)	.01	.05	613
Importance	.04 (.05)	.39	-.37 (.09)	.00	.35 (.12)	.00	.06	611
Knowledge	.13 (.05)	.01	-.06 (.12)	.61	.12 (.16)	.44	.04	613
Likelihood of change	.18 (.06)	.00	.04 (.08)	.65	-.07 (.11)	.54	.04	613
Meta-attitudinal index	.07 (.07)	.33	-.26 (.14)	.06	.27 (.18)	.14	.04	614
Extremity	.14 (.04)	.00	-.16 (.07)	.02	.04 (.10)	.68	.05	613
Response latency	-.03 (.19)	.87	.21 (.17)	.22	.20 (.24)	.42	.04	534

*Note.* Standard errors are listed below the regression coefficients in parentheses.

All other strength-related dimensions yielded moderating effects that were not significant (see Table IX).

A simultaneous regression including all strength-related measures with question wording as the main effect revealed only one marginally significant moderating effect: of intensity ( $b = -.38$ ,  $p = .06$ ; see Table III). Interestingly, the effect of intensity was slightly weaker than that of importance in the individual regressions, yet the former emerged as having the only reliable effect in the simultaneous regression. This finding is again inconsistent with the notion that these two dimensions both reflect a single underlying construct, and instead supports the notion that the apparent effect of importance was spurious because of its correlation with intensity.

These results replicate those of Krosnick and Schuman (1988), who also found that intensity significantly moderated the same tone-of-wording effect in the same way, and that certainty did not exert a significant moderating effect.

## Discussion

We conducted this study in an effort to answer three questions about response effects. The first was whether aggregation over measures of strength-related attitude properties can expose moderating effects where individual measures have failed. The second was whether operative measures of attitude strength can expose expected moderating effects where meta-attitudinal measures have failed. And in doing so, we sought evidence regarding whether various strength-related properties of attitudes are all surface manifestations of a single underlying construct or whether they represent distinct constructs.

In a nutshell, the answer to the first two of these questions is “no!” Susceptibility to response effects, like Krosnick and Schuman (1988), Bishop (1990), and Lavine et al. (1998) had found, is not moderated consistently by any single attitude strength-related property. Neither aggregation nor operative measures provide a pat solution to the puzzle created by these authors’ findings.

Aggregation over homogeneous measures of any construct is always desirable, because it enhances the reliability of measurement of the construct. But our findings indicate that the strength-related properties we assessed were not in fact homogeneous measures. Therefore, aggregating them was neither necessary nor effective in revealing moderating effects in the present data across all response effects. In the two instances where an aggregate index exhibited significant moderation, the difference was also apparent when individual strength-related properties were used. In no case in this research was the aggregate index significant at the same time that all measures of individual properties failed to reach significance. Because the response effect investigated by Lavine et al. (1998) was different from those examined here, it is possible that aggregation may be more important in some situations than in others.<sup>5</sup>

Operative measures of strength-related attributes were also not successful in consistently moderating the response effects we examined. Response latency is unambiguously an operative measure, because it is taken without the respondents’ awareness. Across our four experiments, response latency never emerged as a significant moderator. The present findings therefore provide no support for the possibility that this operative measure can expose moderating effects where meta-attitudinal measures have failed.

Attitude extremity was indeed a significant moderator of the question order and acquiescence effects, which might be viewed as more success for an operative measure. However, attitude extremity is not unambiguously an operative measure, because it is based on a self-report of the attitude itself (see Bassili, 1996b, for a

<sup>5</sup> It may also be that extremity moderated Lavine et al.’s (1998) effect and would have been shown to do so if analyzed as a continuous variable (as we did). That is, the strategy of dichotomizing extremity used by Lavine et al. may have amounted to discarding useful information in the independent variable that would have improved its predictive ability.

discussion of this point). Moreover, some theorists have argued that attitudes that differ in extremity constitute different attitudes rather than differentially strong attitudes (Fazio, 1995). Therefore, we are inclined to view this finding simply as attesting to the value of considering and studying extremity as a strength-related property. But even extremity was found to moderate only two of the four response effects we examined, the other two being moderated by measures that are clearly meta-attitudinal. So there is clearly value in these latter measures as well as in efforts to understand attitudinal processes.

Other aspects of these results are surprising. For example, the appearance of certainty and knowledge, but not extremity, as moderators of the middle-alternative effect is certainly unexpected. A priori, it seemed likely that middle alternatives would be most appealing to people with moderate attitudes, because middle alternatives offer the opportunity to report maximally moderate opinions accurately. Yet the effects of extremity did not even approach significance.

One possible explanation for this pattern begins by recognizing that the middle-alternative experiment we conducted did not involve a rating scale in the typical sense. Most rating scales measuring attitudes offer a midpoint that represents neutrality, neither positivity nor negativity, toward an object. But the middle alternative offered in our item is more substantive: endorsing the status quo. If a respondent has a neutral attitude toward marijuana, believing it is neither bad nor good, it is not necessarily obvious that such a person should favor the status quo, which outlaws marijuana use. Instead, such a person might be inclined to favor relaxing marijuana laws, so offering a status quo middle alternative would not be expected to have much impact on his or her response.

Why did certainty and knowledge moderate the middle-alternative effect? A default assumption many people may make is that laws were generally passed for some good reason and that they should only be changed if a compelling good reason exists to do so. Therefore, in the absence of information indicating that marijuana laws are not working effectively, people may be inclined toward supporting the status quo. Of course, even some people who are knowledgeable about the effectiveness of current marijuana laws may feel they are working well and need not be changed. But people who do feel these laws should be changed, either weakened or strengthened, would presumably hold such beliefs because they have knowledge that the laws are not working well. Therefore, knowledge (and the confidence in one's opinion that follows from it) may be the most effective predictor of which respondents will be anchored to the two extreme response options offered by the marijuana question. People without strong knowledge bases (and confidence) may therefore endorse the status quo disproportionately when this option is offered and are forced to endorse social change when the middle alternative is omitted from a question.

Also unexpected is the tendency of respondents with more intense attitudes toward free speech to be more susceptible to the "forbid-allow" tone-of-wording

manipulation. Because this reversal of the expected relation replicates Krosnick and Schuman's (1988) finding in this regard, it seems reliable and worth interpreting.

When respondents with strong pro-democracy attitudes are asked whether a democratic government should forbid such speeches, the word "forbid" may be quite charged, immediately and powerfully signifying government repression and focusing respondents' attention on that word. People who intensely favor democracy precisely because it is a system of government that permits and values free speech then face a dilemma, wanting to express their opposition to anti-democratic sentiments and actions but not wanting to resort to repressive means to do so. For people with intense attitudes toward free speech, the powerful word "forbid" may be particularly likely to tip the balance in the direction of avoiding repression rather than protecting the image of democracy by preventing speeches against it.

Why did extremity moderate the acquiescence and question order effects we examined? This may have hinged on the fact that the target questions used to assess these response effects were dichotomous. This means that shifts in underlying attitudes or shifts in perceptions of those attitudes will only be detected if the attitudes or perceptions cross the midpoint of the latent attitude dimension. And people whose attitudes are initially moderate and therefore closest to the midpoint can most readily be pushed across it.

The case of acquiescence can be understood in the context of Krosnick's suggestion that acquiescence is the result of weak satisficing (Krosnick, 1991, 1999), a response strategy that entails a shortcut around the cognitive processes involved in considering possible answers to a survey question. Such a response strategy is heavily slanted by a confirmatory bias, so that some people misperceive their attitudes as slightly more in agreement with an assertion in an agree/disagree question than they truly are. If these people's attitudes are truly near the scale midpoint, then such misperception may be enough to move their perceptions across the midpoint and thereby change their attitude reports.

The moderating effect of extremity on the abortion question order effect may best be understood by recognizing that the response effect may be due to perceptual contrast (Schuman & Presser, 1981). When asked whether a married woman who does not want more children should be permitted to get a legal abortion, people presumably answer that question on its own merits. But when that question has been preceded by a question about a defect in the baby, many people perceive this situation as providing a very compelling reason, so a married woman's desire not to have more children seems less compelling in comparison. This perceptual contrast is likely to slightly dampen people's support for abortion for the married woman; among people whose attitudes are truly close to neutral, such a shift is most likely to push them across the neutral point, thereby changing their response to the target attitude question. This logic suggests that if continuous attitude rating scales had been used in our study rather than dichotomous items, the effects of extremity in moderating the acquiescence and question order effects may have disappeared.

This sort of reasoning fits with a broader conclusion that response effects do not all stem from the same psychological mechanism. The intuitive notion that strong attitudes are less likely to be influenced by question variations than weak ones fails to take into consideration that response effects do not necessarily reflect the impact of persuasive pressures or perception biases on attitudes themselves. As Krosnick and Schuman (1988) pointed out, different response effects may stem from different psychological processes, processes that include the construal of the object of the question, self-presentational concerns, the extensiveness of memory retrieval processes, bias in the evaluation of retrieved information, and more. These processes do not necessarily make weak attitudes more susceptible to response effects than strong ones. Indeed, our research suggests that respondents with intense attitudes may sometimes be more susceptible to variation in question wording than respondents with less intense attitudes.

Finally, our findings speak to the debate in the attitude literature on the latent factor structure of strength-related attitude attributes. If all or some meta-attitudinal measures are surface manifestations of a single underlying construct, then they should consistently show the same effects when examined separately. If one attribute is measured more unreliably than another, then relations involving the former may be consistently weaker than relations involving the latter. But in no case should the two attributes have opposite effects or associations with other variables. And when examining their effects controlling for one another, only one should manifest significant associations with other variables, because all the true score variance in one should be identical to all the true score variance in the other. Likewise, if extremity and response latency both reflect a single underlying latent construct (i.e., "operative strength"), then they should also behave in the same way.

These implications of the common-factors perspective were clearly disconfirmed with regard to the meta-attitudinal attributes in our middle-alternative and tone-of-wording experiments. When considered individually, multiple meta-attitudinal attributes appeared to regulate both effects. Two emerged as independent moderators in the middle-alternative experiment (certainty and knowledge), and one (intensity) was a significant moderator of the tone-of-wording effect. Certainty and knowledge did not exert even a hint of moderation in the tone-of-wording experiment, which challenges the notion that these variables exerted more apparent moderation effects in the middle-alternative experiment simply because they were measured more reliably. Thus, the results point to differences among the strength-related meta-attitudinal attributes, rather than supporting the notion that they all behave identically (and perhaps are different in measurement precision).

The same conclusion might seem to apply to the operative strength-related measures as well, because extremity emerged as having two significant moderating effects while response latency had none. This result could be consistent with a single-factor view if extremity had been measured quite precisely while response latency was measured very unreliably. But the approach to measuring response



latency used here has been used successfully in other studies to yield reliable and theoretically sensible relations (Bassili, 1993; Bassili & Fletcher, 1991), so it seems to have sufficient validity and reliability to uncover effects where they are real. We are therefore inclined to believe that our findings point to a functional distinction between extremity and response latency, rather than to inadequacy in the assessment of the latter.

Taken together, these results suggest complication at two levels: one in terms of the causes and regulators of response effects, and the other in terms of the structure and functions of strength-related attitude properties. We look forward to future research clarifying the complex nature of both phenomena so that we might better understand attitudes and their measurement.

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### REFERENCES

- Abelson, R.P. (1988). Conviction. *American Psychologist*, *43*, 267–275.
- Bassili, J. N. (1993). Response latency versus certainty as indexes of the strength of voting intentions in a CATI survey. *Public Opinion Quarterly*, *57*, 54–61.
- Bassili, J. N. (1996a). The “how” and “why” of response latency measurement in survey research. In N. Schwartz & S. Sudman (Eds.), *Answering questions: Methodology for determining cognitive and communicative processes in survey research* (pp. 319–346). San Francisco: Jossey-Bass.
- Bassili, J. N. (1996b). Meta-judgmental versus operative indexes of psychological attributes: The case of measures of attitude strength. *Journal of Personality and Social Psychology*, *71*, 637–653.
- Bassili, J. N., & Fletcher, J. F. (1991). Response-time measurement in survey research: A method for CATI and a new look at non-attitudes. *Public Opinion Quarterly*, *55*, 331–346.
- Bishop, G. F. (1990). Issue involvement and response effects in public opinion surveys. *Public Opinion Quarterly*, *54*, 209–218.
- Cantril, H. (1944). *Gauging public opinion*. Princeton, NJ: Princeton University Press.
- Converse, P. E. (1964). The nature of belief systems in mass publics. In D. E. Apter (Ed.), *Ideology and discontent* (pp. 206–261). New York: Free Press.
- Converse, P. E. (1974). Comment: The status of nonattitudes. *American Political Science Review*, *68*, 650–660.
- Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes*. Fort Worth, TX: Harcourt Brace Jovanovich.

- Fazio, R. H. (1990). A practical guide to the use of response latency in social psychological research. In C. Hendrick & M. S. Clark (Eds.), *Research methods in personality and social psychology* (pp. 74–97). Newbury Park, CA: Sage.
- Fazio, R. H. (1995). Attitudes as object-evaluation associations: Determinants, consequences, and correlates of attitude accessibility. In R. E. Petty & J. A. Krosnick (Eds.), *Attitude strength: Antecedents and consequences* (pp. 247–282). Hillsdale, NJ: Erlbaum.
- Knoke, D., & Burke, P. J. (1980). *Log-linear models*. Beverly Hills, CA: Sage.
- Krosnick, J. A. (1988). The role of attitude importance in social evaluation: A study of policy preferences, presidential candidate evaluations, and voting behavior. *Journal of Personality and Social Psychology*, 55, 196–210.
- Krosnick, J. A. (1991). Response strategies for coping with the cognitive demands of attitude measures in surveys. *Applied Cognitive Psychology*, 5, 213–236.
- Krosnick, J. A. (1999). Survey research. *Annual Review of Psychology*, 50, 537–567.
- Krosnick, J. A., & Abelson, R. P. (1991). The case for measuring attitude strength in surveys. In J. Tanur (Ed.), *Questions about questions: Inquiries into the cognitive bases of survey questions* (pp. 77–203). New York: Russell Sage Foundation.
- Krosnick, J. A., Boninger, D. S., Chuang, Y. C., Berent, M. K., & Carnot, C. G. (1993). Attitude strength: One construct or many related constructs? *Journal of Personality and Social Psychology*, 65, 1132–1151.
- Krosnick, J. A., & Petty, R. E. (1995). Attitude strength: An overview. In R. E. Petty & J. A. Krosnick (Eds.), *Attitude strength: Antecedents and consequences* (pp. 1–24). Hillsdale, NJ: Erlbaum.
- Krosnick, J. A., & Schuman, H. (1988). Attitude intensity, importance, and certainty and susceptibility to response effects. *Journal of Personality and Social Psychology*, 54, 940–952.
- Lavine, H., Huff, J. W., Wagner, S. H., & Sweeney, D. (1998). The moderating influence of attitude strength on the susceptibility to context effects in attitude surveys. *Journal of Personality and Social Psychology*, 75, 359–373.
- Payne, S. L. (1951). *The art of asking questions*. Princeton, NJ: Princeton University Press.
- Pomerantz, E. M., Chaiken, S., & Tordesillas, R. S. (1995). Attitude strength and resistance processes. *Journal of Personality and Social Psychology*, 69, 408–419.
- Prislin, R. (1996). Attitude stability and attitude strength: One is enough to make it stable. *European Journal of Psychology*, 26, 447–477.
- Schuman, H., & Presser, S. (1981). *Questions and answers in attitude surveys: Experiments on question form, wording, and context*. New York: Academic Press.
- Verplanken, B. (1989). Involvement and need for cognition as moderators of beliefs-attitude-intention consistency. *British Journal of Social Psychology*, 28, 115–122.
- Verplanken, B. (1991). Persuasive communication of risk information: A test of cue versus message processing effects in a field experiment. *Personality and Social Psychology Bulletin*, 17, 188–193.
- Zanna, M. P., & Rempel, J. K. (1988). Attitudes: A new look at an old concept. In D. Bar-Tal & A. W. Kruglanski (Eds.), *The social psychology of knowledge* (pp. 315–334). Cambridge: Cambridge University Press.

## APPENDIX

### Meta-Attitudinal Measures of Strength-Related Attitude Attributes

*Preamble to strength measures:* “I will ask you a number of questions and I would like you to answer these questions on a scale from 1 to 10, where 1 means

that you DON'T FEEL a certain way at all and 10 means that you feel a certain way VERY MUCH. Okay?"

### *Question Order*

*Certainty:* "How certain are you of your feelings about abortion laws?"

*Intensity:* "Compared with how you feel on other public issues, how strong are your feelings about abortion laws?"

*Importance:* "How important is a candidate's position on the general issue of abortion laws when you decide how to vote in an election?"

*Knowledge:* "How knowledgeable do you consider yourself on the issue of abortion laws?"

*Likelihood of change:* "How likely do you think it is that your feelings towards abortion laws will change with time?"

*Extremity:* "How desirable do you think lenient abortion laws are?" (Extremity was computed by taking the absolute value of the deviation between a person's answer to this question on the 10-point scale and 5.5, which is the midpoint of the scale.)

### *Middle Alternative*

The meta-attitudinal measures for the marijuana question and the extremity measure were phrased as for abortion, with the phrase "abortion laws" replaced by "laws on the use of marijuana."

### *Acquiescence*

The meta-attitudinal measures for the question about the causes of crime were all phrased as for abortion, with the phrase "abortion laws" replaced by "the causes of crime and lawlessness." Extremity was measured by asking people two questions involving 10-point rating scales: "How responsible do you think individuals are for crime and lawlessness?" and "How responsible do you think social conditions are for crime and lawlessness?" Answers to the second of these questions were subtracted from answers to the first, and the absolute value of the result was treated as a measure of extremity.

### *Tone of Wording*

The measures of certainty, intensity, and knowledge for the question about political speech were all phrased as for abortion, with the phrase "abortion laws" replaced by "laws on the control of speeches against democracy." The measure of importance replaced "abortion laws" with the phrase "controlling speeches against democracy." The likelihood-of-change measure replaced the phrase "abortion

laws” with the phrase “laws controlling public speeches against democracy.” And the extremity question asked: “How desirable do you think it is to allow speeches against democracy?”