A Test of the Conversational Logic Analysis Model of Question Order Effects

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The conversational logic analysis model of question order effects proposed by Schwarz, Strack & Mai (1991) was tested on a set of specific-general questions concerned with approval of abortion under various circumstances. Though results consistent with those predicted by the model occurred when respondents were explicitly instructed to include or exclude certain information from their consideration of the general question, there was little other evidence in support of the model. Possible reasons for the failure of this study to reproduce Schwarz et al.'s findings are that the questions used did not constitute an unambiguous part-whole set, that opinions which are strongly held are less susceptible to question order effects, or that the model does not reflect the process by which respondents answer general questions in specific-general question combinations. This study suggests that researchers should give explicit instructions to respondents to include or exclude specific circumstances from their consideration of a general question, rather than rely on respondents applying conversational norms to a survey.

Keywords: question order effects, questionnaire design

Introduction

It is widely recognised by survey researchers that the context of survey questions can affect respondents' answers to them. When a question or set of questions has some influence on responses to a subsequent question or questions, the phenomenon is referred to as a question order effect.

Two particular types of question order effects have frequently been discussed in the literature; these are assimilation and contrast effects (also referred to as consistency and redundancy effects, respectively). Assimilation effects occur when respondents adjust their reply to a later question so that their responses to a set of questions are consistent. Contrast effects occur when, having answered a question on a particular topic, respondents discount, or subtract, the information used in making that judgement when answering a subsequent, related question.

Both types of effects have been reported in what are known as specific-general, or part-whole, question combinations. Such question combinations involve a set of questions in which one of the questions is more general than the others and is assumed to "contain, summarise, or imply another in some important sense, but not necessarily the reverse" (Schuman & Presser 1981, p27).

Kalton, Collins & Brook (1978) reported a contrast effect in a study in which they investigated questions relating to the standard of driving. The questions were:

> "Do you think that driving standards generally are lower than they used to be, or higher than they used to be, or about the same?"

and

> *"Do you think that driving standards amongst younger drivers are lower than they used to be, or higher than they used to be, or about the same?"*

When the general question followed the specific question, significantly fewer respondents said that they believed general driving standards had worsened than when the general question preceded the specific question.

Schuman & Presser (1981) also reported contrast effects in two separate studies. The first was in a set of questions relating to approval of abortion in different circumstances; a specific and a general circumstance. The specific circumstance related to the case of a defect in the unborn child, the general circumstance related to a married woman who did not want any more children. Schuman & Presser found that when the specific question preceded the general question, the general question received considerably less support than when it was asked first.

The second study involved two questions relating to marital and general happiness. When the marital happiness question (the specific question) was asked first, significantly fewer respondents described themselves as generally very happy, than when the general happiness question was asked first.

Both Kalton et al. and Schuman & Presser suggested that a "subtraction" effect was responsible for the results they observed. In other words, having already considered a question that presented a specific situation, respondents then excluded that specific situation from their consideration when asked a more general question on the same topic. Thus, in Kalton et al.'s study, once respondents had considered the standard of driving amongst younger drivers, they then excluded younger drivers from their consideration when answering the question about the general standard of driving. And, in Schuman & Presser's study, respondents were assumed to have excluded consideration of their marriage when answering the question about general happiness.

However, several other studies produced the opposite effect, suggesting that, when answering a general question that relates to the same topic as a preceding specific question, respondents will directly consider the specific situation. In other words, an assimilation effect will occur.

Using the same general happiness and marital happiness questions as Schuman & Presser, Smith (1982) found that respondents were significantly *more* likely to say they were very happy when they had first answered the marriage question. As Tourangeau, Rasinski & Bradburn (1991) point out, Smith's finding is the easiest to explain. Since most respondents report they are happily married, it follows that reminding respondents of their mostly happy marriages before asking them about their overall happiness will produce higher levels of reported happiness.

Bishop, Oldendick & Tuchfarber (1984) report a similar assimilation effect in a study in which two specific questions preceded a general question on interest in public affairs. They found that respondents who gave negative answers to questions on what they remembered about their representative's record in congress, were less likely to report that they "follow politics most of the time" than when the general question preceded the two specific questions. Such assimilation effects have also been observed with other attitude items such as happiness with dating and happiness with life-as-a whole (see Strack, Martin & Schwarz 1988).

In the 1980 American General Social Survey (GSS) on which Smith's results were based, the two happiness items followed five questions about satisfaction in other life domains; these were absent in Schuman and Presser's study. Tourangeau & Rasinki (1988) have suggested that a long list of prior specifics "*may encourage respondents to interpret the general item as a summary of the particulars rather than a residual category*" (p.303). Thus, when general and specific items are part of a longer series of related items, contrast effects may be less likely. This could explain why Smith and Bishop et al. found assimilation effects, while Schuman & Presser and Kalton et al. found contrast. However, a 1987 replication of the GSS experiment concluded that placement of the satisfaction items had little impact on responses to the two happiness items (Tourangeau et al. 1991).

Conversational Logic Analysis Model

In an attempt to explain these inconsistencies in the empirical evidence on order effects in specific-general question combinations Schwarz, Strack & Mai (1991) proposed a model based on conversational logic analysis. This model utilises the theories of cognitive accessibility and conversational norms (For a discussion of these theories see Strack & Martin 1987).

The theory of cognitive accessibility suggests that, when answering a question, respondents are most likely to use information that is easily retrieved from their memory; this is likely to be information they have used recently (for example, when answering an earlier question). If respondents use this easily accessible information, an assimilation effect will occur.

However, other factors may cause respondents to disregard this easily-retrieved information. One such factor is a conversational norm which requires speakers to make contributions to a conversation that are not redundant (i.e., that do not repeat information the listener already knows). This norm of non-redundancy suggests that respondents do not expect to be asked for particular information more than once. Thus, each question is interpreted as a request for new information.

Schwartz et al.'s model suggests that, if a single specific question precedes a general question, and the questions are construed by respondents as part of the same conversational context, the general question will be interpreted as a request for information **other than** that provided in the specific question. The result will be a contrast effect. However, if the general question is preceded by several specific questions, it is proposed that respondents will interpret the general question as a request for a **summary** of the specific circumstances previously considered, and an assimilation effect will occur.

If the specific and general questions are not considered part of the same conversational context, the norm of non-redundancy of contributions would not apply. Consequently the information used in answering the general question is likely to be that most easily retrieved; the answer to the previous question or questions. Inclusion of this information in the consideration of responses to a general question will result in an assimilation effect between specific and general questions.

An important implication of Schwarz et al.'s model is that by manipulating the conversational context of a questionnaire, respondents can be led to either consider or disregard certain circumstances when answering a general question. In particular, the model suggests that if there is one circumstance a researcher does not want respondents to consider, then that issue

should be addressed in the same conversational context, by a single question preceding a general question. If a researcher wants respondents to specifically consider one circumstance when answering a general question, a single question should precede the general question, but in a different conversational context. If it is desirable that respondents consider more than one specific instance in their response to a general question, the general question should be preceded by specific questions addressing each of these issues (either within the same conversational context as the general question or not).

Schwarz et al. (1991) tested their model on a set of questions about life satisfaction, and found patterns of responses generally consistent with those predicted by the model, though the evidence for contrast effects was much weaker than that for assimilation effects. A subsequent study on general happiness by Tourangeau et al (1991) produced results which were basically consistent with those of Schwartz et al. However, Tourangeau et al. concluded that neither their study nor the one by Schwarz and his colleagues satisfactorily explained the order effects originally observed by Smith (1982) and Schuman & Presser (1981). Thus a complete explanation of the process by which order effects occur in specific-general combinations remains elusive.

Most of the research on order effects in part-whole questions has been concerned with marital happiness and general happiness. This paper reports a replication of Schwarz et al.'s study on a set of questions about approval of abortion under various circumstances.

Method

This study closely replicated the methodology of Schwarz et al. (1991); a self-administered survey on abortion, using a 2-by-4 factorial design, with a non-factorial control group. The experimental treatments involved combinations of one or three specific questions and four different conversational contexts: no conversational context, explicit conversational context, explicit inclusion instructions, or explicit exclusion instructions. The experimental design and predicted outcome of each treatment are shown in Figure 1.

Figure 1. Experimental Design: Conditions and expected outcomes

	Number of Specific Questions	
Condition	One	Three
General-specific	assimilation	Control
Specific-general	Contrast	assimilation
Specific-general, joint lead-in	assimilation	assimilation
Specific-general, explicit inclusion	contrast	assimilation
Specific-general, explicit exclusion		contrast

The control group was asked the general question on personal approval of abortion first, followed by three questions concerned with the acceptability of legal abortion in more specific circumstances. These specific circumstances were when the family has a low income and cannot afford any more children, when the pregnancy is the result of rape, and when there is a strong chance of a serious defect in the child, respectively (see Appendix for question wordings).

Respondents assigned to "*single specific question*" treatments answered the question on abortion when there is a strong chance of a serious defect in the baby, and then responded to the general question on their personal approval of abortion. Respondents assigned to the "*three specific questions*" treatments first answered the questions on abortion in the case of poverty, and when the pregnancy is a result of rape, then answered the questions on abortion when there is a strong chance of a serious defect in the baby, and on their personal approval of abortion. Thus, in all experimental treatments, the general question on approval of abortion was immediately preceded by the question on the acceptability of legal abortion when there is a strong chance of a serious defect in the baby.

The experimental groups that required respondents to construe the questions as part of the same conversational context used a joint introduction which read:

> *"We would like to ask about your opinion on four [two] circumstances involving women and abortion:*
> a) *when the family has a low income and cannot afford any more children.*
> b) *when the pregnancy is a result of rape.*
> c) *when there is a strong chance of a serious defect in the baby.*
> and d) *whether it is right or wrong for a woman to have an abortion."*

The experimental treatments that required respondents to construe the questions as **not** in the same conversational context had the general question about personal approval of abortion over the page from the question about abortion when there is a strong chance of a serious defect in the baby. As in the study by Schwarz et al., this step was taken to reduce the "visual relatedness" (and the conversational context) of the questions.

Finally, respondents in the remaining experimental treatments were explicitly instructed to either include or exclude the specific circumstances in their consideration of the general question. For example,

> "*Now, INCLUDING/LEAVING ASIDE the circumstances you just told us about (when there is a strong chance of a serious defect in the baby), do you personally think it is right or wrong for a woman to have an abortion?"*

A convenience sample of just under 1400 potential respondents was selected by mall intercept in a Palmerston North shopping centre over two consecutive weekends in July 1994. Male and female respondents were sought for alternate questionnaires to achieve balanced proportions of men and women in the nine treatment groups. Of the 1386 people approached, 829 were successfully interviewed, a response rate of 60%. Each treatment group contained between 91 and 93 respondents, aged over 15 years, with approximately equal numbers of men and women and similar demographic characteristics.

The survey instrument was a two-page, self completion questionnaire, and the survey itself was described as a survey of social attitudes.

Results

Responses to the general question on personal approval of abortion by experimental condition are shown in Table 1.

For three of the eight experimental conditions, question order appeared to have some influence on response to the general question. (Though none of the differences between experimental and control conditions is significant at p<.05.) These conditions were those that explicitly instructed respondents to **include** a specific circumstance or circumstances in their consideration of the general question, and the condition that involved three specific questions and a joint introduction.

The two conditions that explicitly instructed respondents to consider the specific circumstances addressed in a previous question or questions when responding to the question on personal approval of abortion, were expected to result in a **higher** proportion of positive responses to the general question. This expectation was based on the assumption that some respondents would agree that abortion was acceptable in some circumstances, while disapproving of abortion in general. If such respondents were explicitly asked to include this circumstance when asked whether they personally approve of abortion, their responses should be more positive (or, at least, less negative) than they would otherwise have been. As Table 1 shows, the expected assimilation effect is evidenced by an increase in the proportion of positive responses.

Table 1. Response to general question by questionnaire condition

	Response			
Condition	**n**	**Positive %**	**Negative %**	**Can't Choose %**
Three specific questions				
General-specific	92	70.6	20.6	8.7
Specific-general	92	70.6	22.8	6.5
Specific-general, joint lead-in	91	61.6	33.0	5.5
Specific-general, explicit inclusion	91	76.9	18.7	4.4
Specific-general explicit exclusion	92	71.7	22.8	5.4
Single specific question				
Specific-general	93	68.8	24.7	6.5
Specific-general, joint lead-in	92	71.8	21.8	6.5
Specific-general, explicit inclusion	93	79.2	11.9	8.6
Specific-general, explicit exclusion	93	73.1	22.6	4.3

Note: Positive responses were Always right/Often right/Sometimes right; negative responses were Always wrong/Often wrong/Sometimes wrong.

Similar results were expected for the "*single specific question, specific-general*", and "*three specific questions joint lead-in*", conditions. It was assumed that both of these conditions would create conversational contexts for the general question which would lead to assimilation effects. But in neither case was there evidence of the expected effect. In fact, for the "*three specific questions, joint lead-in*" condition there was a marked decrease in the proportion of positive responses to the general question, suggesting instead a contrast effect.

However, the impact of including or excluding information about a specific circumstance may affect subsequent judgements about a general circumstance in different ways, depending on whether the evaluation of the specific circumstance is favourable or unfavourable. In other words, the effect of question order on approval of abortion in general may be different for those who agree that a woman should be able to have an abortion when there is a strong chance of a serious defect in the baby and for those who disagree. For this reason, correlational analyses of the responses to general and specific questions provide a better test of the conversational logic analysis model than do analyses of directional effects.

Table 2 shows the correlations between responses to the specific question on the acceptability of abortion when there is a strong chance of a serious defect in the baby and responses to the general question on personal approval of abortion, as a function of the experimental conditions. Neither of the assimilation effects suggested by the directional analysis of responses to the general question was supported by the correlation results, but the unexpected contrast effect for the "three specific questions, joint lead-in", was.

Table 2. Correlation between responses to specific and general questions on abortion

Condition	Number of Specific Questions	
	One	Three
General-specific	0.54	0.52
Specific-general	0.43	0.43
Specific-general, joint lead-in	0.46	0.42
Specific-general, explicit inclusion	0.39	0.36
Specific-general, explicit exclusion		0.23*

Note: N = 91 to 93 for each cell.
* $p < .05$ (one-tailed test).

If the conversational logic analysis model is correct, we would expect contrast effects (demonstrated by lower correlation coefficients than for the general-specific control) for the "*single specific question, joint lead-in*" and both "*specific-general, explicit exclusion*" treatments; we would expect assimilation effects (demonstrated by higher correlation coefficients than for the control group) for all other treatments.

However, while the three contrast effects expected are observed, only one is significant. The only evidence of an assimilation effect occurred for the "*single specific question, specific-general*" treatment ($r=.54$, compared to $r=.52$ for the general-specific control), but this effect

was very weak and certainly not significant. In fact, apart from this condition, all of the experimental treatments produced correlations consistent with contrast effects. This implies that, whatever the question order or conversational context, respondents' consideration of the acceptability of abortion when there is a strong chance of a serious defect in the baby, was **excluded** from their personal evaluation of the morality of abortion.

Discussion

The conversational logic analysis model predicts that, if respondents do not consider the questions in a specific-general question combination to be part of the same conversational context, they will consider the specific circumstances when replying to the general question, and an assimilation effect will result. This is assumed to occur because the specific circumstances are easily accessible in respondents' minds and conversational norms do not require respondents to exclude this easily-retrieved information from their consideration of the general question. This type of effect was anticipated to occur in the "*three"* and "*single*" experimental treatments and in the corresponding "control" groups (single specific question and three specific questions, with explicit inclusion).

If the questions in a part-whole set are construed as belonging to the same conversational context, the anticipated effect of question order depends on the number of specific questions that precede the general question. When a series of specific questions precedes a general question, respondents may validly interpret the general question as a request for a summary of their responses to the previous specific questions. This would create an assimilation effect, which was expected to occur in "*three specific question, joint lead-in*" experimental condition and its corresponding "control" treatment ("*three specific questions, explicit inclusion*").

If, in the same conversational context, a single specific question precedes the general question, respondents should still interpret the general question as a request for new information. However, in the case of a single specific question preceding a general question, the most logical request for new information relates to areas other than that addressed by the specific question. Consequently, respondents should disregard the specific circumstance from their consideration of the more general question, and a contrast effect should result. This process was anticipated to occur in the "*single specific question, joint lead-in*" experimental treatment, and its corresponding "*single specific question, explicit exclusion*" "control" treatment.

The replication of Schwarz et al.'s research reported here produced results consistent with those predicted by the conversational logic analysis model when respondents are explicitly instructed or encouraged to exclude specific circumstances in their consideration of a general question. But there was little evidence in support of the assimilation effects predicted by the model.

There are several possible reasons why our study failed to produce results similar to those of Schwarz and his colleagues. The first is that the specific questions used in this study could not be said to be completely encompassed by the general question. That is, accepting someone else's legal right to an abortion in particular circumstances is not necessarily the same thing as approving of abortion in those circumstances. Consequently, answering the specific question does not render the general question redundant, thus eliminating the prerequisite for a subtraction effect. Furthermore, assimilation effects require an asymmetry in the implications of the specific question for the general question, and vice versa. This

asymmetry is debatable in the set of questions studied. Thus, it can be argued that the effects predicted by Schwarz et al.'s model could not be expected from these questions.

Nethertheless, the questions used in this study had an inherent specific-general relationship (and were used because, in practice, researchers and policy makers are often interested in differences between the acceptance of rights for others and personal morality on issues like abortion). If this is the main reason for this study's failure to replicate Schwarz et al.'s results, it would suggest that the predictive ability of their model is limited to situations where the specific-general relationship is more straightforward.

Another explanation is that opinions which are strongly held, as those on abortion are assumed to be, are less susceptible to question order effects than opinions on life satisfaction. Schuman & Presser (1981) reported an experiment in which respondents who found abortion a difficult issue on which to make a decision were more susceptible to question order effects than those who had made a firm decision on the issue. The tentative support that this study provides for Schwarz et al.'s model could be a result of the lack of susceptibility of the particular topic to question order effects in general. If so, attempts to model question order effects may be more successful if confined to issues on which the strength of respondents' opinions varies a lot, or is low.

There is also, of course, the possibility that the conversational logic analysis model does not reflect the process by which respondents answer general questions in specific-general question combinations.

Because general questions are more susceptible to question order effects than specific questions, a common recommendation in the literature is that practitioners place the general question in a part-whole question combination before any specific questions (McFarland, 1981; Converse & Presser, 1986, p41). However, this recommendation ignores the fact that it may be desirable for respondents' answers to a general question to be influenced by their consideration of specific related circumstances.

The results of this study suggest that until the conversational logic analysis model has been more widely tested, researchers should not rely on respondents applying conversational norms to surveys. Rather they should explicitly instruct respondents to include or exclude specific circumstances from their consideration of a general question.

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Appendix. Question Wordings

The general question in all treatments was:

"Do you personally think it is right or wrong for a woman to have an abortion?"
(1 = Always right, 6 = Always wrong)

The common specific question was:

"Do you think a woman should be able to have a legal abortion if there is a strong chance of a serious defect in the baby?"
(1 = Definitely should be able, 4 = Definitely should not be able)

The other specific questions were:

"Do you think a woman should be able to have a legal abortion if the family has a very low income and cannot afford any more children?"

and

"Do you think a woman should be able to have a legal abortion if her pregnancy is the result of rape?"