

UC Merced

Proceedings of the Annual Meeting of the Cognitive Science Society

Title

Predicting Conversational Reports of a Personal Event

Permalink

<https://escholarship.org/uc/item/8n482093>

Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 7(0)

Author

Tenney, Yvette J.

Publication Date

1985

Peer reviewed

Predicting Conversational Reports of a Personal Event

Yvette J. Tenney
Bolt Beranek and Newman Inc.
Cambridge, MA 02238

This study addresses the question of how conversational reports are generated. Although previous research has been concerned with how one response is generated in response to another (Grice, 1975; Schank, 1977), a fundamental question that has not been investigated is how a speaker decides what to say when given the freedom to introduce a number of topics. The problem of deciding what to say is also relevant for written compositions (Hays and Flower, 1980). Yet little is known about the selection of ideas for discourse.

Kintsch (1980) has described the task of generating discourse as a problem of searching through memory for subject matter that meets the constraints of subject, audience, and discourse type. According to this view, factors that affect the salience of events in memory should be important in predicting topic choices. Furthermore, the influence of memory factors should be particularly clear in the case of conversations, where topic decisions have to be made rapidly and spontaneously.

What determines the salience of events in memory? Gamst (1982) has speculated that "interests, needs, concerns, and point of view" are important, while Schank (1980) has postulated that "unusual, important, painful, or otherwise notable" aspects of an event are likely to be accessible. Both of these factors were investigated in the present study.

The purpose of the study was to examine how speakers select items from long-term memory to produce conversational reports about real events. More specifically, the goal was to see if it was possible to predict what a particular speaker would say on the basis of individual concerns and the particular outcome of events. To meet these needs, it was necessary to find conversational topics that were predictable in advance, likely to be met with varying degrees of concern, and associated with a range of possible outcomes. Conversations about the birth of baby were selected because they met these requirements.

The study was carried out in three stages. In the first stage, couples who were expecting a baby filled out a questionnaire about their concerns one month prior to the birth. In the second stage, participants tape recorded phone conversations in which they announced the arrival of the baby. The third stage consisted of a follow-up questionnaire.

It was expected that both prior concerns and the outcome of events would affect the selection of topics. The first hypothesis was that subjects would be more likely to mention topics of high prior concern than topics of low concern. A number of investigations have shown that a subject's schema, or point of view, influences what is encoded and recalled about narratively depicted events (e.g., Anderson, 1978). Work on mental models (Gentner &

Stevens, 1983) has shown that memory for physical phenomena (e.g., the trajectory of a ball) is shaped by naive beliefs. The present study extends this line of research by examining the effects of prior concerns on the reporting of personal events.

A second hypothesis was that subjects would be more likely to mention topics that had an unusual outcome than topics that had an ordinary outcome. Several lines of evidence support this prediction. Robinson (1980) found that subjects were able to retrieve memories of unusually pleasant or unpleasant events more quickly than memories of neutral events. More generally, research has shown that subjects pay attention to aspects of an event that cannot be inferred on the basis of prior knowledge (e.g., Gibbs & Tenney, 1980).

Method

Subjects

Twelve couples participated in the study. Seven were expecting their first child, four their second, and one their fourth.

Materials

Materials consisted of a prenatal and a postnatal questionnaire concerning seventeen topics related to labor and delivery (e.g., difficulty of labor, father's role, use of the birthing room), the baby (e.g., name, sex, appearance), and activities during the postpartum period (e.g., breastfeeding, rooming-in, sibling visits). The prenatal questionnaire consisted of twenty-five questions (e.g., How concerned are you about possible discomfort to the mother during labor and delivery? 1-5 scale). The postnatal questionnaire consisted of twenty-eight questions on the same topics (e.g., How did the degree of discomfort to the mother during labor and delivery compare to what you had expected? 1-5 scale).

Procedure

One month prior to the mother's due date, the experimenter administered the prenatal questionnaire separately to father and mother and showed the couple how to record their calls. The postnatal questionnaire was administered one month after the birth.

Results

Questionnaire Results

Prenatal. Responses on the prenatal questionnaire were converted into the numbers 1 to 5, where 5 indicates the greatest concern. A subject's concern for a topic was categorized as high if the subject's score was above the mean for fathers or mothers, respectively, and low if it was below.

Postnatal. The outcome of each of the topics was categorized as unusual or ordinary. Responses were converted to the numbers 1 to 5, where 5 indicates the most favorable outcome and 1 the least favorable outcome. Outcome scores

were categorized as unusual if either of the extremes (1 or 5) was selected.

Assignment of Topics to Expectation x Outcome Categories

Each of the seventeen topics rated by a subject on the pre- and post-natal questionnaires was assigned to one of four expectation x outcome categories: high concern-unusual outcome, high concern-ordinary outcome, low concern-unusual outcome, low concern-ordinary outcome. Degree of concern was determined by responses on the prenatal questionnaire, while unusualness was determined by responses on the postnatal questionnaire.

Frequency of Mention of Topics

The recorded phone conversations yielded 90 separate reports. Each report was scored for mention of each of the seventeen topics by the investigator and a second, independent rater. In order not to bias the coding on the basis of outcome, both negative and positive statements about a topic were counted (e.g., mention of use as well as non-use of drugs counted for the topic of natural childbirth).

Analysis of Selection Rules

For each subject, the likelihood of mentioning each of the seventeen topics was defined as the proportion of conversations in which the subject mentioned the topic. Thus a subject who mentioned natural childbirth in three out of six conversations had a likelihood of mention for that topic of .50. The likelihoods for all the topics that fell into the same expectation x outcome category for a particular subject were averaged together. Table 1 shows the likelihood of mentioning topics in each of the four expectation x outcome categories, averaged across the nineteen subjects who had conversations.

Table 1

Average Likelihood of Mentioning Topic			
High Concern		Low Concern	
Unusual Outcome	Ordinary Outcome	Unusual Outcome	Ordinary Outcome
.446	.302	.287	.206

The likelihood data were analyzed in a two-way analysis of variance with concern (high, low) and outcome (unusual, ordinary) as within subject factors. The results revealed a significant main effect of concern, $F(1,18) = 6.70, p < .05$, a significant main effect of outcome, $F(1,18) = 5.22, p < .05$, and no interaction between concern and outcome, $F(1,18) < 1, p > .05$.

Discussion

This study was concerned with the question of what makes something interesting or worthy of mention. Given all the possible topics one might mention in describing an event, what determines which ones will be reported? The answer turns out to depend upon both the speaker's prior concerns and on

the events themselves.

The first hypothesis, that subjects would be more likely to mention topics of high than low concern, was supported by the data. Although the prenatal questionnaire was not designed to identify specific childbirth models, it was expected that subjects' models would be reflected in their responses. For example, one possible model is that labor is like an illness, requiring medical intervention. A contrasting view is that labor is a physical challenge that can be met by adequate preparation. It was expected that subjects with physical challenge models would be more likely than subjects with sickness models to give a high importance rating to the topic of natural childbirth.

Why were topics of high concern mentioned more frequently than topics of low concern? A reasonable explanation is that subjects had more elaborate models for those aspects for which they indicated strong concerns. A highly differentiated model would allow for more elaborate encoding of the event, by focussing attention on aspects that would otherwise be ignored. Consider, for example, the detailed description of labor techniques given by one of the mothers in the study who fell into the category of high concern-ordinary outcome on the topic of natural childbirth.

"Well, I sort of invented my own breathing technique as I went along. [Oh great, everybody does it their own way.] You know, I couldn't count one-two-three-four and then pause and then one-two-three-four. So I did sort of, something sli..., slightly different, whatever you know worked for me at the time."

The second hypothesis, that subjects would be more likely to recall topics that had an unusual than an ordinary outcome, also received confirmation from the data. There are several possible explanations for this finding. First, it is adaptive for subjects to allocate attention to the unusual, since the routine can be inferred, by default, from prior knowledge (Gibbs & Tenney, 1980). Secondly, unusual events may be intrinsically salient because they involve strong affect. Robinson (1980) showed that the intensity, though not the direction, of affect associated with an event predicted retrieval time on a test of autobiographical memory. Finally, there are the demands of good conversation. Listeners expect the speaker to be maximally informative, which suggests a focus on the novel (Grice, 1975).

Thus, although there was a tendency for speakers to emphasize areas of personal concern in their choice of topics, they did talk informatively about aspects that had not been of particular concern when the outcome was unusual. For example, two subjects who differed in the importance they attributed to early bonding gave similar descriptions of the bonding period that they were permitted in the hospital. The subject who had been concerned about bonding said,

"They gave me the baby almost immediately. They do that. I mean it's wonderful. We had her almost an hour and a half. We took pictures and everything and it was wonderful,"

while the subject who had been indifferent reported,

"They put her immediately, you know, her skin to my skin and they put a blanket over the two of us. [Aha] He was taking pictures and everything and... [Was it right on your tummy?] Oh Yeah, they put her right on me. [Oh nice] And um, you know, so it was really good."

To conclude, the study showed that it is possible to predict which speakers will talk about which general topics in naturally occurring conversations, given knowledge of their prior concerns and of what actually happened. However, there was considerable variety in how topics were handled. For example, the topic of the name was handled with humor ("Well, it was either 'Robin' or 'Blackbird'"), the topic of the baby's sex was treated with suspense ("It's...a baby!"), and finally, the topic of pain was handled philosophically, ("I just guess it dawned on me that there was only one way out and I had to do something. They weren't going to do anything for me"). It is this creative aspect of the reporting of personal events that poses the biggest challenge to our understanding.

Finally, the generation of ideas for discourse should be examined in other domains. Further research may show that the same memory processes apply to personal reports of weddings, trips, accidents, job offers, major purchases, and winning the lottery.

References

- Anderson, R. C. Schema-directed processes in language comprehension. In A. Lesgold, J. Pelligreno, S. Fokkema, and R. Glaser (Eds.), Cognitive psychology and instruction. New York: Plenum, 1978.
- Gamst, G. Memory for conversation: Toward a grammar of dyadic conversation. Discourse Processes, 1982, 5, 33-51.
- Gentner, D., & Stevens, A. Mental Models. New York: Erlbaum, 1983.
- Gibbs, R. W., & Tenney, Y. J. The concept of scripts in understanding stories. Journal of Psycholinguistic Research, 1980, 9, 275-284.
- Grice, H. P. Logic and conversation. In P. Cole and J. L. Morgan (Eds.), Syntax and semantics, Vol 3: Speech acts. N.Y.: Academic Press, 1975.
- Hayes, J. R. & Flower, L. S. Identifying the organization of writing processes. In L. W. Gregg & E. R. Steinberg (Eds.), Cognitive processes in writing. Hillsdale, N.J.: Lawrence Erlbaum, 1980.
- Kintsch, W. Psychological processes in discourse production. Institute of Cognitive Science Technical Report No. 99, University of Colorado, Boulder, Colorado, 1980.
- Schank, R. C. Rules and topics in conversation. Cognitive Science, 1977, 4, 421-441. 9, 71-82.
- Schank, R. C. Language and memory. Cognitive Science, 1980, 4, 243-284.