

Pragmatic Structure in Appointment-Making Conversations

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Abstract

Conversational structure was examined by applying pragmatic and sequential analyses to two-party, single-purpose conversations. A subgoal achievement label was given to each talking turn of 93 automatically tape-recorded telephone conversations between native English-speaking beauty salon receptionists and a confederate female caller. The confederate played a standardized, nonleading role in getting an appointment for a haircut. Lag sequential analyses showed that these conversations have subgoal structures and that some structures are more prevalent than others. Regularities were attributed to social and organizational problems that appointment making presents and that pragmatic theory addresses.

One general approach to understanding the mental processes and structures deployed during language comprehension involves searching for regularities in the products of those mental structures. The characteristics of such regularities should be indicative of the nature of the internal processes that gave rise to them. Pragmatic perspectives of language have proved useful in this regard (e.g., Clark, 1977, 1979; Clark & Marshall, 1981; Isaacs & Clark, 1987; Kent et al., 1981). They treat utterances as purposeful speaker action and they focus on the connections between personal and interpersonal linguistic activity (Levinson, 1983).

Clark (1985) has argued that in order to understand how language is comprehended, we must understand how it is used, and to understand how it is used, we must understand the role that utterances play in conversations. Clark's view characterizes research in disciplines such as linguistics, philosophy, cognitive science, and sociology (Edmonson, 1981; Hobbs, 1979; Levin & Moore, 1976, 1977; Nofsinger, 1976; Sacks et al., 1974; Winograd, 1980). The present study contributes to the understanding of language comprehension by seeking patterns in two-party conversations. Patterns are attributed to the fact that conversations are created and used by interacting participants who have reasons for participating in the way they do.

There are theoretical and empirical reasons for believing that conversational patterns can be described in terms of subgoal structure. While some philosophers have maintained that it is single utterances that carry the burden of “doing something” (Austin, 1975; Grice, 1957, 1975; Searle, 1969), there is a tradition among some linguists and ethnomethodologists of viewing language-in-use as a joint, cooperative venture, taking place over at least two separate turns at talking (Nofsinger, 1976; Sacks et al., 1974; Streeck, 1980). If the latter view is correct, then two-party conversations are composed of sets of separate achievements, two talking turns long, each turn coming from a different participant. These two-turn achievements are called *adjacency pairs* by theorists who advocate their use. Adjacency pairs can also be called subgoals when they service higher-order goals in the whole conversation.

Workers in artificial intelligence attempting to create models that explicate what conversationalists know have found it necessary to include representations of subgoal patterns (Allen & Perrault, 1978, 1980; Carberry, 1990; Cohen & Perrault, 1979; Levin & Moore, 1976, 1977). Some of these analyses emphasize the orderly nature of conversational subgoals (Bunt, 1989) and the possibility that orderings are hierarchical (Grosz & Sidner, 1986; Shadbolt, 1989).

Orderliness is present in the minimal conversations generated by Linde and Labor (1975). The researcher asked a single question: "Could you tell me the layout of your apartment?". The monologue that followed was always orderly and uniform in that certain rooms were never mentioned, certain others always were, and mental tours dictated by spatial layout were always followed.

Merritt (1976) has described some question-answer sequences which are examples of adjacency pairs. They arise within conversational "service encounters" between clerks and customers as information-seeking/ information-granting sequences. These sequences are run off in the service of higher-order conversational goals. For instance, in one of Merritt's examples, seeking and getting the information that a customer was old enough to be allowed to drink alcohol was accomplished before a waiter was willing to list what was on draft (the customer's original request). Merritt's study is suggestive of the idea that routine, repetitive, single-purpose conversations between strangers trying to coordinate their actions are played out according to a small set of systematic subgoal plans (Lewis, 1969).

Subgoal structure is also evident in child language (Jose, 1988). Children aged 4 to 6 were told a story and then instructed to talk to an adult about the stories they had just heard. By applying a coding scheme derived from speech act theory to both participants' utterances, Jose was able to show that these single-purpose conversations have pragmatic structure.

It would be useful to extend the generality of these findings by examining a different task with a methodology similar in outline but different in detail. The present research does this by examining subgoal structure in two-party, single-purpose, routine telephone conversations between strangers who are making an appointment.

Subgoal structure will be present if it can be shown that what happens at one turn in the conversation is predictive of what happens at a later turn in the conversation.

METHOD

Subjects

One 20-year-old female college student was trained to serve as a caller to beauty salons for the purpose of making appointments for a haircut. She was uninformed about the nature of the research, but she was aware that her conversations were being recorded.

Twenty-four beauty salons were selected randomly from the Yellow Pages of the telephone book to provide training calls for the confederate. A further 120 beauty salons selected randomly from the Yellow Pages provided data-collection calls. The confederate reported that she had never previously phoned or visited any salon among the 144.

Apparatus

Tape recordings of training and data-collection conversations were made with a Sony cassette recorder. It was attached to a device that automatically activated the "record" mode when the confederate caller picked up the telephone receiver. A microphone attached to the speaking end of the confederate's telephone picked up both parts of each conversation. Transcriptions of all conversations were made using a Sony transcriber.

Procedure

The instructions given to the confederate caller, for both training calls and data-generating calls, required that she use a standard opening ("Yes. I'd like to make an appointment.") and a standard set of requested services (a cut, shampoo, and blow dry). She was told to let the other party (the receptionist) lead the conversation. The only other restriction was that she make each appointment for a time that she could actually keep. She was asked to indicate which conversations, in her opinion, were with nonnative speakers of North American English.

Approximately 20 conversations were generated during each data-collection session until a total of 120 conversations had been collected. The researcher left the

room while the confederate caller made these telephone calls. The confederate caller canceled the appointment later the same day.

Twenty-seven conversations (22.5%) were discarded for the following reasons:

1. The callee seemed to be a nonnative speaker of North America English (11 conversations). This criterion limits potential structural variability attributable to cultural differences (Kent et al., 1978).
2. The confederate caller led at some point in the conversations, that is, she introduced a topic (eight conversations). The interest here is in receptionist-imposed structure rather than caller-imposed structure.
3. The appointment was not completed. That is, either the confederate's name was never provided to the receptionist, the day of the appointment was never settled, the time for the appointment was never determined, or some combination of these omissions occurred (three conversations). This criterion serves to define a type of conversation as being "for an appointment".
4. The conversation was interrupted or the confederate caller was put "on hold" once the business of obtaining an appointment had begun (four conversations). This criterion eliminates the impact of memory limitations on conversational structure.
5. The signal from the tape recording was of such poor quality that it was impossible to transcribe the conversation (one conversation).

Decisions to discard conversations were made by the first author and an independent judge who made the final decision in cases of disagreement.

All the 93 remaining conversations were transcribed following the guidelines in Schenkein (1975). Each transcript was reviewed and a subgoal label for what was "happening" in each turn was assigned using 18 exhaustive, mutually exclusive subgoal categories derived from Doré (1979), Schegloff and Sacks (1973), and D'Andrade and Wish (1985). Sixteen of these categories (Table I) had two other categories nested within them: *Open* and *Close*. A category opened at the turn where the designated activity was judged to have begun; it closed at the turn where the

designated activity was judged to have been completed.

Table I. Subgoal Categories Applied to Appointment-Making Conversations

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1. Time: establishing a time for the appointment
 2. Time confirm: confirming the agreed-upon time for the appointment; this category can be used only after the Time category has been applied to a turn or turns
 3. Operator determination: establishing the caller's preference for an operator (stylist)
 4. Operator confirm: this is analogous to Time confirm but concerns operator
 5. Services: establishing what the caller wants to have done during the appointment
 6. Services confirm: this is analogous to Time confirm but concerns services
 7. Name: establishing the identity of the caller
 8. Operator assignment: establishing the operator the caller will have for her appointment
 9. Referral: establishing if the caller was referred to the salon
 10. Previous visits: establishing whether the caller has been to the salon before
 11. State of hair: establishing the current condition of the caller's hair
 12. Telephone: establishing the caller's telephone number
 13. Location: establishing where the salon is located
 14. Price: establishing the cost of the services the caller desires
 15. Service supports: establishing what props (usually pictures) are useful in providing services to the caller
 16. Greeting: conventional form for opening a conversation
 17. Farewell: conventional form for terminating a conversation
 18. Residual: none of the above categories applies
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Note: Categories 1 to 15 and 18 each have two other categories nested within them – *open* and *close*. See text.

An example of a coded conversation is given in Table II.

Table II. Eighteen Subgoal Categories Applied to an Appointment-Making Conversation

Greeting	A. Good Morning The Oak Room
	B. Yes I'd like to make an appointment
Time open	A. Okay For when
	B. Friday morning
Service open	A. Alrighty What's it for
	B. Shampoo cut and a blow dry
	A. Ah What time
	B. About eleven
Time close, Name open	A. Yes That's fine What's your name
	B. It's Morag
	A. Okay Can you spell that
	B. M-O-R-A-G
Name close, Services confirm open	A. Okay That's for a haircut shampoo and blow dry
	B. Yeah
Services confirm close	A. Okay
Residual	B. Thank you
Farewell	A. Okay
	B. Bye

A 37-year-old male independently assigned subgoal categories to 28 of the 93 conversations. Agreement across 172 comparisons was 95%, $\kappa = .95$, $p < .00001$.

RESULTS

Conversations ranged from 8 to 20 subgoals in length, with a mean of 12.6 (standard deviation = 3.0). Subgoals did not occur with equal frequency across conversations, as shown in Fig. 1. Some subgoals appeared in every conversation;

others appeared only infrequently ($\chi^2 = 927, p < .00001$; Cramer's $V = .79$). Specifically, standardized deviates indicated that the first seven codes in Fig. 1 occurred more frequently than one would expect by chance (*Name* and *Time*, of course, were required); *Service confirm* occurred at chance levels, and the remaining codes

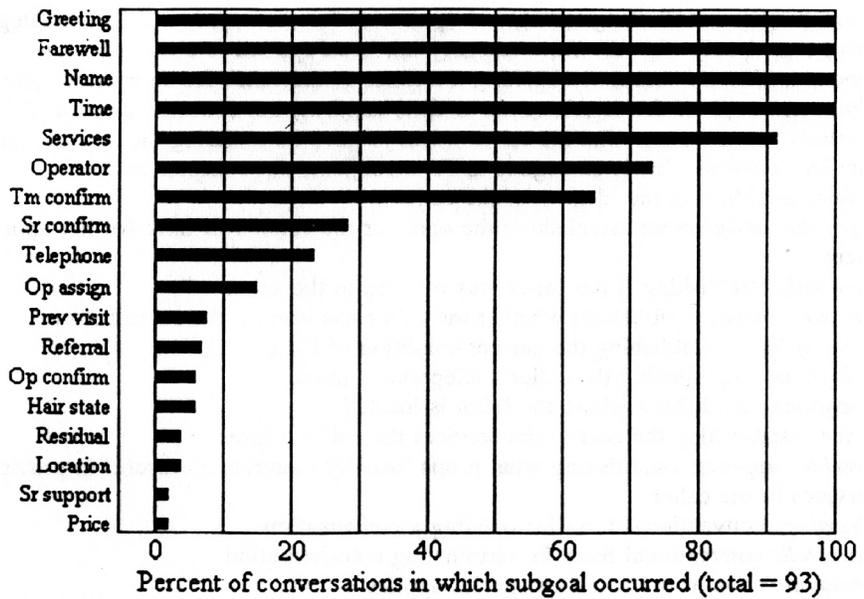


Figure 1. Subgoals: Frequency of occurrence. Tm = time; Sr = service; Op = operator; Prev = previous. Note: Name and Time were required for inclusion (see text).

occurred less often than expected by chance. (Because openings were equal to closings, this distinction is ignored in Fig. 1).

While a nonrandom distribution of subgoals indicates that orderliness exists, it does not make structure explicit. This issue was examined using event-based lag sequential analyses (Jose, 1988; Russell & Czogalik, 1989). Such analyses yield the conditional probabilities that certain subgoals follow other, specified, subgoals. They also assess whether these conditional probabilities differ significantly from chance (Bakeman & Gottman, 1986; Roberts & Schill, 1991). Following Sackett (1979) and Bakeman and Gottman, a sequence of events (for example, A-B-C-D) is considered significant only if all possible lag analyses are significant. (In our example, these would be the lag 1 connections A-B, B-C, C-D; the lag 2 connections A-C and B-D; and the lag 3 connection, A-D.) In addition, the sequence as a whole must occur more frequently than expected on the basis of the lag 1 probabilities (Sackett, 1979).

Lag sequential analyses indicated a high degree of orderliness. For instance, at the first lag position (following *Greeting*) it was possible to predict what would happen 97% of the time. Half of all conversations began with *Time*. Forty-seven percent began

with either *Services* or *Operator determination*. Conversations were significantly unlikely to begin with *Name* ($z = -3.26, p < .01$).

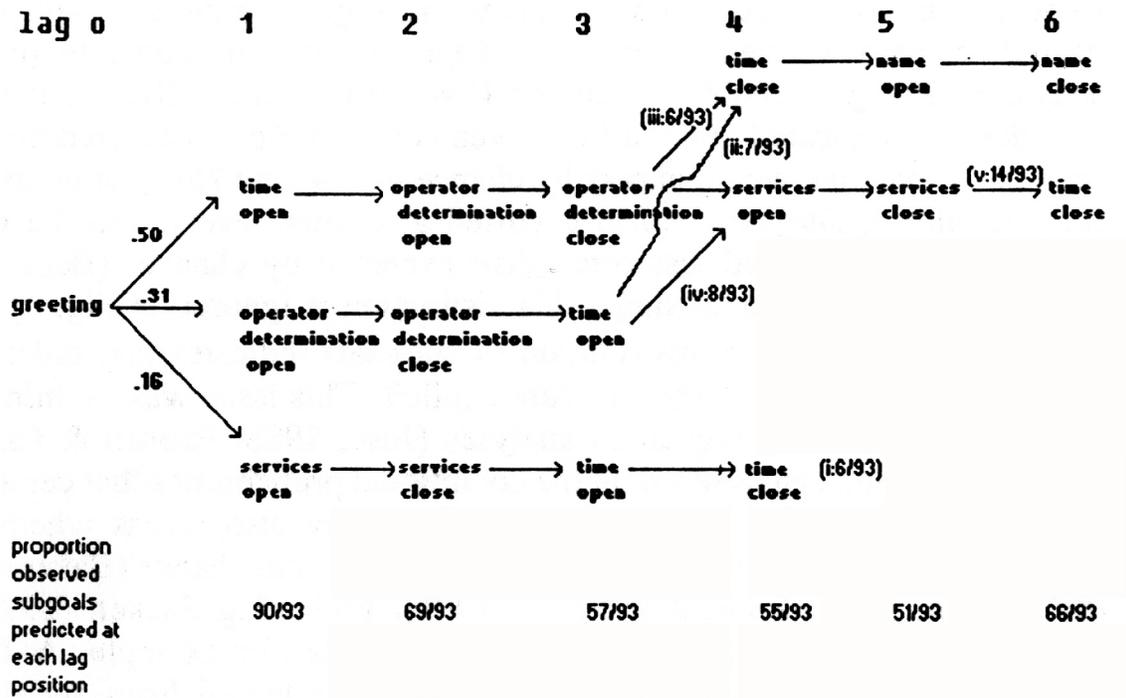


Figure 2. Significant transitional probabilities between subgoal categories.

As shown in Fig. 2, five distinct patterns were found (i-v), involving five of the most frequently occurring codes. These patterns differed chiefly in whether and how embedding (Merritt, 1976) occurred for *Time*. Thus, in two patterns, no embedding occurred, while in the others either *Operator determination* or *Services* or both were established before the time for the appointment was finalized.

The patterns illustrated in Fig. 2 occurred in 41 of the 93 conversations. Across the entire data set (93 conversations), *Operator determination* was embedded in *Time* in 10% of all conversations, *Services* was embedded in *Time* in 15% of all conversations, and both were embedded together in another 15%. Embedding occurred in a further 20% of all conversations, but in no regular pattern. *Time* was the only code for which significant embedding was found.

At a higher level of generality, in 92% of 93 conversations, *Time* did not close until either *Operator determination* or *Services* or both had finished. These were conversations with embedding or ones in which *Operator determination* or *Services* or both finished ahead of *Time* opening.

DISCUSSION

This paper contributes further evidence for the existence of pragmatic structure in conversations with an overall purpose. This is an important finding for three reasons:

Generality and Robustness

We found that conversationalists did the same things at particular points in appointment-making conversations. This serves to reemphasize the importance of supplementing syntactic and semantic analyses of language and language comprehension with pragmatic analyses. It also extends the generality of Merritt's (1976) and Jose's (1988) findings. The implication is that conversational structure is a robust phenomenon.

Merritt's (1976) work, like other linguists', used an observational and analytic method based on speaker intuition, but it was less quantitative than the methods employed in the present study. In addition, the conversations she studied were not for the purpose of appointment making. It is noteworthy that pragmatic structure, including embedding, emerges in conversations despite variation in conversational type and methodology.

Like the present study, Jose's was quasi-naturalistic and used lag sequential analysis. However, he applied a different coding scheme to conversations held for a different purpose from the one in the present study. In addition, unlike the present study, there was a variable acquaintance relationship between the conversationalists, one of whom was always a child (compared with two adults in the present study). Nevertheless, although his longest sequences were shorter than the ones reported here, he did find pragmatic structure in conversations.

Implications for Comprehension

Whatever characterizes language in a general way is likely to have implications

for models of language comprehension. For instance, there are data consistent with the view that, among children and adults, the interpretation and production of linguistic and nonlinguistic activity with overall goals is based partly on subgoal-directed aspects of the activity (Barker & Wright, 1971; Dickman, 1963; Goldman, 1982; Omanson *et al.*, 1978; Rumelhart, 1976). It is reasonable to begin to address the role that pragmatic conversational structure might play in comprehension models. A plausible start would be to suggest that people who participate in appointment-making conversations possess implicit knowledge about their subgoal structure. For instance, if *Services* has just opened, a conversational participant trying to make an appointment for a haircut would have reason to believe (implicitly) that what is likely to happen next is that *Services* will close (refer to Fig. 2). This knowledge could be used to facilitate conceptually driven comprehension processing of utterances occurring later in the conversation.

Among information-processing theorists in psychology, the top-down deployment of knowledge structures plays a prominent role in the interpretation of diverse cognitive phenomena (for instance, Fiske & Taylor, 1984; Schank & Abelson, 1977). The implications being drawn here from the present study fall within that tradition.

In addition, the present study supplies indirect empirical support to language production and comprehension models in artificial intelligence that attribute subgoal-based knowledge structures to conversational participants (Allen & Perrault, 1978, 1980; Bunt, 1989; Carberry, 1990; Cohen & Perrault, 1979; Good, 1989; Grosz & Sidner, 1986; Levin & Moore, 1976, 1977; Shadbolt, 1989).

The Role of Organizational and Social Factors

Subgoal structural details are likely to be motivated by social variables that influence appointment-making conversations (Brown & Levinson, 1978; Levinson, 1979; Sacks *et al.*, 1974). If this is so, variables such as politeness, status, role, mutual knowledge, negotiation, commitment, and agreement should become more prominent in models of language comprehension (Clark, 1985). Organizational variables such as planning, efficiency, and resource allocation might also become

important.

It is worth considering why appointment-making conversations might have the particular structure that has been found in this sample. If conversations such as these, which are repetitive, routine, and for a single purpose, are responsive to social and organizational factors, then some speculative explanations follow.

For example, we found that only four of the 18 subgoal categories entered any significant patterns of events. This suggests that assigning a time (*Time*) to a person (*Name*) for services (*Services*) provided by a server (*Operator determination*) is the essence of appointment making. On the other hand, finding out the condition of the caller's hair (*State of hair*) is not a necessary part of appointment making in this study. The subgoal frequency data support this interpretation.

It is noteworthy that in 92% of 93 conversations *Time* did not close until some other business had been concluded – *Operator determination*, *Services*, or both. The allocation of an appointment time seems to be dependent on knowing at least who is to provide services or what those services are. Sometimes both must be known.

The fact that conversations were significantly unlikely to start with *Name* may be attributable to either organizational or social factors. Because receptionists must at some point write down the caller's name in a day and time slot, it is probably more efficient and easier on the receptionist's memory to determine the time, services, and operator first. In addition, an imaginary conversation for an appointment that begins with the receptionist saying “Your name, please” (or “Who's calling?” or “Who is this?”) is intuitively impolite.

These three implications of the results presented in this paper suggest that future research in this area should focus on (1) looking for pragmatic structural commonalities across two-party conversations with ostensibly related overall goals (for instance, conversations for getting a doctor's appointment or for getting a reservation at a restaurant would be expected to resemble conversations for getting an appointment with a hairdresser); (2) finding evidence that conversationalists know (implicitly) about subgoal structure; (3) showing that conversational subgoal structure is a consequence of social and organizational factors.

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