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## How to Grow Schemata out of Interviews

Michael H. Agar and Jerry R. Hobbs

A core problem for ethnographic research is the management of large amounts of qualitative data whose form and content are primarily under informant control. A particular tension in the analysis of this type of material lies in the desire to attend to detail while at the same time offering more global statements about group life (Geertz 1976). In research over the last year on an extensive anthropological life history, we have tried different ways to resolve this tension. We would like to report on and demonstrate part of a proposed solution.

The approach draws on recent work in both cognitive anthropology and natural language processing in artificial intelligence, and therefore participates in the new interdisciplinary field of cognitive science. At the same time, it also emphasizes the emergent nature of text interpretation by researchers who bring their own background understandings to the task. Because of this, some peculiar things happen to the term "cognitive." However, this and other issues are deferred until later.

The life history analyzed here was conducted over an 18-month period with an older career heroin addict whom we call "Jack." At the time of the interviews in the early 1970s, Jack was about 60 years old, enrolled in a methadone program in New York City. The specific interview used for this discussion centers around Jack's story of how he became a burglar. In other papers we have looked at portions of this interview to develop our approach. Now we would like to consider the interview as a whole to show the interaction between detailed microanalysis of a portion of text and the validation and enrichment of that analysis across the text as a whole. Eventually, we hope to use the approach to treat the entire life history.

## Methodology

Our goal is to relate schemata developed in the analysis of a small fragment of text to the interview as a whole. Although the broad outline of our approach was given in an earlier article (Agar and Hobbs 1981), we would like to specify the more detailed application of it that we have used in our recent work. As described elsewhere (Agar and Hobbs 1983), we begin with an effort to get a sense of the overall organization of the interview. Our assumption is that the interview, analyzed as a completed act, can be understood as the expression of an informant's plan. We make no assumption that the plan is a representation of what the informant "really" thought, nor do we assume that a plan was consciously worked out in detail before the interview. On the contrary, our earlier paper shows that viewing the completed interview as an expression of a plan forces on us assumptions that highlight the creative emergence of Jack's story.

At the same time, the planning view gives us a sense of the global coherence of the interview, an understanding of how different pieces of the interview hang together to produce a coherent whole. To get a sense of these "pieces," we first do a high-level segmentation of the interview that makes cuts using major shifts in content as the guideline. Though this process is hardly foolproof (as discussed in Hobbs and Agar 1981b), most of the spots for cuts seem intuitively obvious. Although we have not tested it out, it is likely that members of Jack's subculture would mark major segment boundaries in similar ways. Further, segmenting is made easier still by the fact that we are working with data produced by another speaker of American English.

Once the segments are marked, the problem is to infer the plan of which they are interrelated expressions. As will be shown in the next section, some of the high-level goals for an interview are in fact explicitly negotiated in the segments themselves. Where such explicit discussion is not available, we are forced to infer goals and subgoals whose interrelationships provide a coherent account of the interview as a whole. Like most students of phenomena—natural or human—we assume there is an implicit order that it is our task to bring to light.

The results of this part of the analysis leave us with a sense of the major segments of the interview together with the goals and subgoals that show them to be coherently linked. The next step is to pick a segment and look for coherence at a lower level—what we call local coherence. This "microanalysis" begins by specifying what it is that each utterance has to do with the ones that immediately precede and follow it. The analysis presupposes that we have a sense of utterance

content, a presupposition that is again facilitated by the fact that we are working with another speaker of American English. The microanalysis in terms of local coherence requires us to specify the relations between utterances such that they are seen as parts of a connected discourse.

The local coherence relationships lead us to the next step in the analysis. If two utterances are related because one "elaborates" on another, we must now make explicit the propositions that justify our claim. If two sequences of utterances in a segment are said to "contrast," we must show the knowledge in terms of which that contrast can be seen. The local coherence analysis of a segment forces us to develop explicit inferences that make sensible those relations. As will be seen shortly, some of these inferences bunch together through their interlinked predicates and arguments. This "bunching" of inferences, so characteristic of human knowledge, was the reason for the development of the notion of "schema" in AI and psychology. "Schema" is simply a convenient term to characterize some related inferences.

Schemata are of particular interest to ethnographers because they are potentially useful in understanding not just the segment that motivated their construction but other segments as well. High-level schemata that offer such understanding of a variety of acts have been a traditional goal of cultural anthropology, whether called "patterns," "themes," or "value orientations." However, ethnographers typically construct the high-level schemata and demonstrate the resulting understanding anecdotally. It is this gap that the more detailed local coherence analysis can help fill.

At the same time, a local coherence analysis of every segment to which the schema is applied would be too time-consuming and leave us buried in a mass of detail. To solve this problem in the sample analysis of one interview presented here, we have developed the following strategy. We picked a particularly interesting schema from the microanalyzed segment and specified some conditions under which it should apply to other segments. In the analysis done here, we were interested in an "arrest" schema, so we decided that any segment that concerned itself with illegal acts would qualify.

The "concern" might be reflected in a single utterance, or it might be the focus of an entire segment. It might be semantically encoded in the utterance, or it might be understood only through inferences connected to that surface semantic content. Any segment that satisfied these conditions was then examined for its schematic relevance. As will be seen shortly, this process led to a generalization of the schema, a richer understanding of its details, a better sense of its relation to

other schemata, and validation through its use in understanding other segments of the interview.

However, the examination of the range of application of the schema will not contain the detail of the microanalysis that produced it. We will stop the discussion at the point where we feel that the connection is obvious. At the same time, there is an assumption that such a detailed analysis is possible for each segment; in principle an analysis of local coherence could be done that would explicitly show the connections. In other words, we will trade off detail for breadth of coverage, without abandoning the obligation to fill in the detail should it be required.

This careful use of different levels of description in different analytical contexts will, we hope, resolve the tension between detailed analysis and breadth of coverage. The strategy is hardly unique to our approach. Learning often works like that—the beginner attends to low-level detail, gradually builds higher-level knowledge of what he is doing, and eventually develops a global sense of whatever he is learning and forgets the details unless some problem forces him to return to that level to solve it. We are simply trying to learn to understand an interview in a way that points to strategies for learning to understand even broader ranges of human action.

Our approach is not “objective” in the traditional positivist sense. We agree with the common wisdom that text understanding involves active inferencing and schema construction on the part of the understander, where those schemata emerge in a dialectic way in interaction with the text. As Hutchins (1980) argues, the schemata are not necessarily contained in the text; rather, an ethnographer draws on his/her sense of group life to construct understandings of a bit of material. The emphasis shifts from “discovery procedures” to a concern with explicit representation and validation (see also Quinn this volume).

However, the approach is “cognitive,” though in a different sort of way than indicated by the traditional use of the term in cognitive anthropology. The schemata that we construct are cognitive in the sense that they are knowledge structures to enable understanding of the interview. It is unproductive to argue over whether they are resident in Jack’s head or in ours. They serve as an interpretive bridge between partially distinct traditions. It is not necessary to claim that they are models of anyone’s mind.

In the next section we will begin the analysis by developing the global plan of the burglary interview. Following that, we will microanalyze a segment to show the construction of some schemata related to arrest. Then we will look at the schema as it recurs thematically

in other segments of the interview to modify and enrich it. Finally, we will conclude with some thoughts on the approach in the context of broader issues of anthropological interest.

### The Interview Plan

The interview dealt with here, taken as completed act, has a reconstructed plan shown in Figure 1. As often happens in the interviews, the first segment (marked “S” in the figure) contains an explicit negotiation of the interview goal between the ethnographer (Agar) and Jack. The interview is to be about “how I became a burglar.” In Figure 1 this is represented by the arrow from the first segment upward to the interview goal. This part of the interview is organized into three major subgoals—describe the setting, explain how Johnny (the person who teaches Jack burglary) was first encountered, and then describe the burglary.

The structure of this part of the interview is further detailed by interview segments as shown in Figure 1. Jack describes the setting for the story in segment (2). (Numbers in parentheses refer to segment numbers shown in Figure 1.) He talks about the time at which the story took place, his social isolation, and the general kind of life he was leading. Since he is confused about both the time and the reasons for his isolation, he slides around all three topics at the same time, making it impossible to divide any of that discussion clearly into individual segments. Finally he remembers the details, and then begins an account of how he met Johnny, the young man who eventually teaches him burglary.

First we learn about the network of subway tunnels and train stations that Jack was using to move around the city and keep warm at the same time (3). A young kid leaves his luggage with Jack while

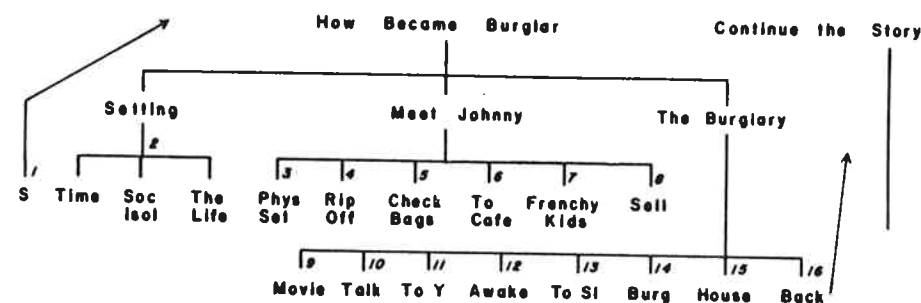


Figure 1. The Interview Plan

he is sitting in a train station, and he steals it (4). He goes through the bags and, though there is little of value, he does find some things that he can sell to a fence (5). He describes his walk to a cafeteria (6) where he finds a fence talking with two young kids, one of whom is Johnny (7). The kids are noisily discussing a mugging they did, so Jack tells them to be cool, sells his goods, and leaves (8).

Now that Johnny has been introduced, Jack tells the story of how their relationship was established and how that eventually led to the burglary. He goes to a movie to get out of the cold and Johnny follows him there (9). They talk in the movie, and Johnny convinces Jack to be his partner (10). He gives Jack some money for heroin, and they then go to a YMCA, get a room, and sleep for some time (11). They get up and Johnny gives Jack some clothes to wear (12), and after eating breakfast they go to Staten Island (13). Johnny suddenly announces that they are going to break into a house, and after a discussion he goes in and Jack follows (14). Jack describes the burglary as they work their way through the house (15), and then describes the trip back to the YMCA (16).

Now, as often happens in the interviews, there is a problem: the original goal is satisfied—Jack has described how he became a burglar—but the interview isn't over. The lower time limit on an acceptable interview hasn't yet been reached. Jack has to keep talking. Since the chronological ordering of events is a theme of the life history, it is not surprising that the rest of the interview can be seen as a description of what happened next, a description that continues until Jack can explain how the relationship with Johnny ended. The structure of this segment of the interview is indicated as a continuation of the story in Figure 1.

Now, this account doesn't give the richness of detail in the interview; the purpose is to give a sense of the global coherence. Though some of the segmentations and groupings under subgoals may be arguable, the overall structure gives a sense of how the story was organized. To begin to probe into the details, we selected segment (8) for a more careful microanalysis of local coherence, utterance by utterance. In the preceding segment (7) Jack introduces the fence, named "Frenchy," and describes the kids, one of whom is Johnny. We now turn to the microanalysis.

### Local Coherence

The segment is presented in its entirety in Figure 2. Notice that it is divided into utterances. The division was made using both linguistic and paralinguistic cues, although the process is far from a

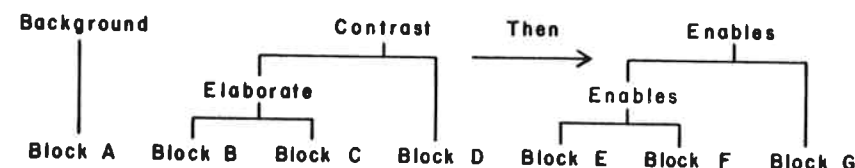


Figure 2. Microanalysis of Segment 8

#### BLOCK A

1. meanwhile Frenchy's called me to come over and sit at the table with him
- 2a. so you know I looked at these two kids
- 2b. and I—I sat down at the table
- 2c. and I was just in no mood to listen to a lot of bullshit

#### BLOCK B

3. so I turned to the kids
4. I said hey look you guys why don't you just soft peddle it
- 5a. I said I don't know what your story is
- 5b. and I care less
6. but you're making a general display of yourself
7. this place is loaded with rats
8. it's only going to be a matter of time until a cop comes in here and busts the whole table.

#### BLOCK C

9. I told Frenchy I said Frenchy what the fuck is the matter with you you know
10. I says why don't you tell these dudes to—to shut up
11. but Jack they've got blah blah blah you know
12. and I want to get this stuff

#### BLOCK D

- 13a. I said well look I said you guys may not care if you go to jail
- 13b. but I do
14. I said I spend 75 percent of my time trying to stay out of jail
15. and I don't want anybody to come up here and bother us

#### BLOCK E

- 16a. meanwhile I flashed the—the gloves
- 16b. and I don't know—
17. I—I wish I could remember what—
18. I guess it was a cheap watch

#### BLOCK F

19. and I said Frenchy I said give me anything at all

- 20a. give me enough to get to the movies
- 20b. and get out of the scene
- 21. well I can't give you very much
- 22. they're not worth anything
- 23. and he tried the gloves on
- 24. the gloves fit him
- 25. alright he said I'll give you a couple of dollars for the works
- 26. I said ok
- 27a. just give it to me
- 27b. and let me get out of here

## BLOCK G

- 28a. so I took the two dollars
- 28b. and I didn't even say goodbye to these guys
- 29. and I split

determinate one (Labov and Fanshel 1977, Coulthardt 1981). Some of the utterances contain more than one proposition. Where that is the case, they are further divided in the figure. For example, "2a, 2b, and 2c" in the figure are three propositions that were grouped together given the cues of language and intonation, while "3" was both a single proposition and a single utterance according to the cues. The only exception to this procedure in the segment are the utterances with conjoined verbs that encode change in location followed by an act which the change occasions. Examples are no. 1, "come over and sit," or no. 8, "comes in here and busts."

The microanalysis leads to a consideration of the following question: given our intuitions that this is coherent discourse rather than a list of unrelated utterances, how can we make explicit our sense of its texture? At the lowest level we look for relationships between any two contiguous utterances. However, there will also be relations between blocks of utterances as well. For convenience of presentation, we begin with a more global view of the segment and then move into the detailed utterance-by-utterance account. In Figure 2 this high-level coherence is represented. We will introduce the specific coherence relations as we go along, drawing from Hobbs's (1978) work.

Hobbs, in the spirit of work in discourse analysis by Longacre (1976) and Grimes (1975), developed and formally defined a small number of relations to show the logical connection between any two utterances or larger pieces of discourse. We will not fully recapitulate those definitions here, though some informal comments will be offered in the discussion to come. At this point in our work we are still developing

guidelines for the use of the relations in analyzing the text. Fortunately, most of the applications to follow are straightforward.

As will soon become apparent, the relations do not apply in some mechanical way to the text. Their use presupposes both an understanding of the utterances' semantic content as well as intuitions about the relationship between those utterances. The coherence relations help give those intuitions more precise form, so that they can be examined against subsequent portions of the text in a way that makes the interpretation explicit and grounded enough to be vulnerable to criticism.

The first block of utterances, Block A, marks the beginning of the segment in one of the typical ways—a change in location is specified which introduces an account of the activities to occur in that location. It serves as BACKGROUND for the segment, since it describes people and acts who will be involved in it. In Block B Jack lectures the kids about their attention-getting behavior, and then in Block C he ELABORATES on the issue by asking Frenchy why he would allow such a situation to come about. (The two segments are related by elaboration because they are both about the same thing—the kids' noisy display.) Block D CONTRASTS with the contents of B and C as Jack explains why, unlike the group at the table, he worries about going to jail. (Two segments contrast when they imply contradictory predications about similar entities.)

This part of the segment introduces Johnny and portrays him in an uncomplimentary way from a street point of view. The next part of the segment takes care of Jack's official reason for being there—fencing stolen goods. In Block E he reminds us of the stolen goods, and this ENABLES him to deal with Frenchy and sell them, as reported in Block F. (One segment enables another when it sets up preconditions for the actions in the second.) The activities in these blocks, in turn, ENABLE him to leave the cafeteria, which he does in Block G, and with this the segment ends. In short, on a global level the segment does two jobs. Jack wants to introduce Johnny and show him to be a certain type of person, while at the same time giving an account of the activities in which the meeting occurs. Now we can push into the different blocks and do an utterance-by-utterance analysis along the same lines.

In Block A in Figure 2 there is a straightforward action sequence, indicated by the THEN link in Figure 3. (In this and the following figures the local coherence structure is coded with the proposition numbers from Figure 2, together with a mnemonic word from that proposition.) This act sequence serves as background for two utter-

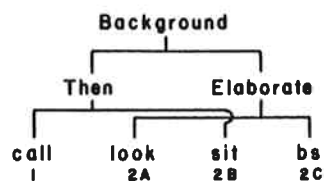


Figure 3. Block A

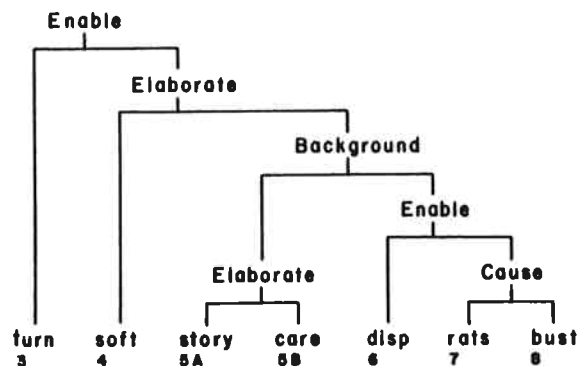


Figure 4. Block B

ances that ELABORATE Jack's attitude toward the kids. Now examine the analysis of the last segment, G, and notice that it has a similar structure—an act sequence that is BACKGROUND for a comment on the kids. The first and last blocks both combine an account of the acts that are the context with a comment on the actor—Johnny—who is being introduced. In fact, the organization of these two blocks mirrors the segment as a whole.

In Block B, shown in Figure 4, Jack lectures the kids. He turns to them, which ENABLES him to tell them to "soft peddle" it. (We say ENABLE rather than CAUSE, since the turning doesn't cause the telling but, rather, establishes a missing precondition.) This is ELABORATED by first giving as BACKGROUND the comment that he doesn't know their story, ELABORATED by noting that he could care less what it might be. This in turn is BACKGROUND for the next utterances, where he explicitly states that making a "display" of themselves ENABLES a "rat" to CAUSE a "bust" to occur.

In Block C, shown in Figure 5, Jack ELABORATES on this state of affairs by holding Frenchy accountable for it. Jack first addresses Frenchy, then SPECIFIES his accusation by noting that Frenchy should

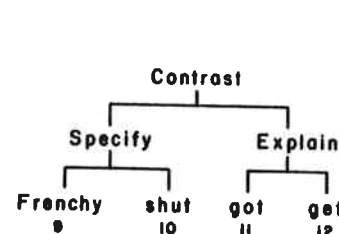


Figure 5. Block C

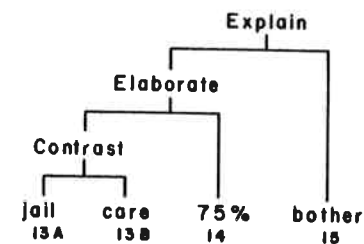


Figure 6. Block D

tell the kids to "shut up." (SPECIFY indicates that the right branch further specifies the more general left branch.) Frenchy disagrees with this (the CONTRAST relation) by saying that the kids have some stolen goods, which EXPLAINS why he tolerates them. In Block D (Figure 6) Jack tells them all that, in CONTRAST to them, he wants to stay out of jail. He ELABORATES by saying that he spends "75 percent" of his time worrying about it, which EXPLAINS why he doesn't want anyone to "bother" them.

In Block E Jack lists the items he has for sale. (These utterances exemplify the PARALLEL relation, since they make the same predication about similar entities.) In this segment he also notes that he can't remember exactly what they were, which is ELABORATED by saying that he wishes he could remember better. This may be interpreted as an EXPLANATION of "I guess it was a cheap watch." Another way to treat the "remember" utterances might be to argue that they are on another level—a metalevel where Jack comments on the story rather than tells it. However, we are more interested for the moment in a view of the text that emphasizes the interrelationships of utterances rather than a partitioning of them to reflect different levels.

The penultimate Block F describes the dealing between Frenchy and Jack. Jack asks for "anything," which he SPECIFIES by asking for enough to get him into the movies and ENABLE him to get out of the scene. In CONTRAST, Frenchy says he can't give him much, SPECIFICALLY because the goods aren't worth much. In CONTRAST, Frenchy tries on the gloves, BACKGROUND for the statement that they fit him, which EXPLAINS why he offers Jack a "couple of dollars." This ENABLES Jack to agree, which he SPECIFIES by requesting the money so that he can (ENABLES again) get out. Then comes the closing block, which was discussed earlier.

The local coherence analysis is not an end in itself. It makes explicit our intuitions as a first step toward constructing an understanding of



the world expressed in the segment. As argued elsewhere (Hobbs and Agar 1981a, Polanyi 1978), stories are constructed so that parts of that world are highlighted. In Hobbs's terms the "strong temporal" relations (THEN, ENABLE, CAUSE) set out the structure of the world within which the story takes place. "Linkage" relations (BACKGROUND, EXPLANATION) bring out those aspects of the world where a "reason" for something in the story is called for. The "expansion" relations (ELABORATION, SPECIFICATION, CONTRAST, PARALLEL) repeat the key propositions that are significant parts of that world for the story. The coherence relations, in short, lay out some of the texture of the world that the schemata must account for.

From the previous segment (see Agar 1980 for a transcript of a larger segment of the interview), we know that the kids are making a lot of noise, talking about a mugging, and flashing stolen goods above the table, and we also know that there's something improper about this from the comments in Jack's description. From the initial and final blocks we learn that in this context the kids are doing something wrong. This is a case of what Holland (this volume) calls a "symbolic encounter"—one learns about a person through his/her violation of expectations in a conventional context.

In Block B Jack lays out the problem by lecturing the kids. They are making a display of themselves, which can attract an informant's attention and lead to arrest. The importance of this schema is indicated in several ways. In 5a and 5b Jack says there is no situation that justifies ignoring the schema; in Block C Frenchy is held accountable for ignoring it and explains this through his goal of getting the stolen goods; in Block D Jack shows why the schema is important—arrest, in turn, can lead to jail, something Jack spends "75 percent" of his time avoiding. Through the account of the kids and Frenchy, then, we see a link between this "arrest schema" and street competence. The kids are not competent because their actions in the fencing situation set up the preconditions for arrest. Frenchy's action is questionable because he allows the "display" to occur.

The patterning of the relations in the microanalysis leads us to posit a more general schema—illegal acts ENABLE arrest ENABLE jail. One way for illegal acts to lead to arrest is for a "rat" or informant to get some information about them and pass it on to the police. Action that is bound to this schema is cause for strong negative evaluation and an indication of street incompetence. The arrest schema plays a central role in articulating some higher-level knowledge that is pointed to by, and in turn justifies, the microanalysis.

The ethnographic question of interest is whether or not the schema, so plausibly central in understanding this segment, plays a role in

understanding other segments as well. Such recurrently useful schemata have often been the quest of American cultural anthropology. Though they have been characterized under a variety of labels, we prefer Opler's term "themes" (1959). In some earlier work (1979, 1980) Agar used the notion of "theme" to guide a search for pattern in interviews much like the one discussed here. The problem in that work was that themes were not adequately grounded in the text. The microanalysis in terms of coherence relations helps fill in that gap, though as noted earlier some problems in their application remain to be worked out. However, the coherence analysis so far analytically reduces the text into its parts and shows their interrelations, but it does not capture the cross-cutting themes that give one a sense of its unity. In order to maintain the parallel with the global and local coherence analysis, we call this patterning "thematic" coherence. The schema that we grew out of the local coherence analysis looks like a possible candidate for a theme. In the next section we set out to explore this possibility.

### Thematic Analysis

In order to explore the thematic status of the schema, we first draw on our knowledge of junkie life and note that "illegal acts" or "hustles" connect it with those situations where it is relevant. Therefore, we decided to go through the interview and lift out portions of text where illegal acts were mentioned. Fifteen portions were identified and abstracted for examination. In some cases the portions are parts of segments, in some they are an entire segment, and in one case a portion spans three segments. The process allows us to preserve the relationship between abstracted portion and interview context, a feature lacking in Agar's earlier work with themes. We get two major enrichments through the analysis of these portions. First, we learn the intricate relationship between competence at a particular illegal act and avoiding the attention that might lead to arrest. Second, we learn some of the details of what goes into competence for a house burglar. Let's deal with the first issue first.

Two portions mention two hustles—buying heroin and breaking into cars—that are routine for Jack at the time of the story. In fact, he explicitly mentions his familiarity with breaking into cars. These hustles, in short, are practiced skills. The arrest schema is noteworthy by its absence. We begin to get a sense that the arrest schema is less salient when one knows what he is doing.

This point is made more obvious by considering the different accounts Jack gives of burglaries. Jack reports the first burglary that

Johnny led him into. He describes much personal anxiety, giving as explanations his lack of knowledge on how to do burglary and his fear of attracting attention. As in the microanalysis, we again infer a relationship between competence and risk of arrest. The kids didn't know how to sell stolen goods in a public setting, and this came with concern for arrest. Jack doesn't know how to burgle, and this occasions the same concern. The schema generalizes to cover both instances.

As the interview progresses, Jack gives examples of other burglaries. The tone changes dramatically from the first description. Though he again mentions anxiety about attracting attention, we also see an account of some of the details of a burglary schema (to be discussed shortly). Another burglary story further shows competence in the details, and ends with a matter-of-fact account of how Jack and Johnny left through one door while the occupants came in another. In contrast to the first burglary, anxiety about arrest is striking by its absence. In yet another burglary story details are again described, but the story ends with Jack and Johnny running out through the returning occupants. What in the first burglary would have led Jack to panic is now seen as the climax to a "funny" story.

The comments on scoring heroin and breaking into cars, together with the decline in anxiety about arrest in the different descriptions of burglaries, further support the schema developed in the microanalysis. Now let's focus more on the "attention" issue. Recall that the kids' making a "display" of themselves was a concern in the microanalysis. Now we see attention explicitly remarked on in a number of portions.

Jack comments on how much less attentive people are than he expected; he talks about how proper use of the car helps avoid attention, as does dressing in a way so that one does not stand out. So we learn that first of all Jack was overconcerned, but also we see that there are particular things to do to help minimize it. Now we get into an interesting link between risk of arrest through attention and the details of the burglary schema as Jack reports them.

Jack lays out more details in other parts of the interview. It is noted that one picks a house because it is isolated (on top of a hill, surrounded by trees). One also works at certain times, when people are unlikely to return home and one can expect neighbors to be busy. Finally, one breaks in using proper techniques that are quiet. One must learn what the best things are to take—easily portable, high-value items. We learn of the importance of a good partner, somebody who will help keep an eye out for the police. And we also learn of the importance of a "second exit" to use in an emergency. In the description of another burglary the importance of house selection is again mentioned

(isolated, surrounded by trees, vacant lot next door). Proper appearance and a good car are brought up again. Since they now have a woman working with them, she goes up to the house and rings the doorbell to check if anybody is home. We again learn the importance of knowing what to take and of having two exits.

In short, in these portions Jack lays out some of the details of the burglary schema. The interesting issue for the moment is the number of those details that in fact specify how to avoid attention or how to set up strategies to deal with it if it should arise. This further supports our original schema link between arrest and competence. As we see Jack's growing competence as a burglar, reflected in his articulation of the details of different instances, we also see that part of that competence is in fact knowledge about avoiding attention or about strategies to avoid arrest if it should occur.

The schema is related to the other portions as well, in a variety of ways. For example, fences are evaluated negatively just because they profit from the illegal acts of others without the risk of arrest that they endured to obtain the stolen goods. The use of a room at the Y by two people when only one paid motivates a "then/now" comment, as Jack explains that in those days this involved no risk of getting caught.

More interesting is the elaborate (three-segment) account of Jack's eventual arrest. The story first of all justifies the core concern represented in the schema because the story shows in detail the difficulties that ensue on arrest and conviction. Second, the story shows how there is one problem that the schema does not represent—Johnny is busted after his return to Detroit, and under police pressure he tells the whole story. This leads to Jack's arrest for burglary when he is picked up in connection with another illegal act in which, in fact, he was not directly involved. Plea bargaining with arrested people in return for information that leads to other arrests is a well-known police strategy, and the story in this interview begins to show how it relates to the schema developed in the microanalysis. However, the relationships are not developed fully for the present.

By iterating through the interview and applying the schema to all mentions of illegal acts, we at the same time validate and enrich it. We wind up with a simple core to the schema—illegal activities ("hustles") ENABLE arrest ENABLES conviction and incarceration. However, arrest has as a precondition information and/or evidence of some sort, obtained either by the police directly, through an informer ("rat" or "snitch"), or from the victim, like the occupant of a burgled house. Therefore, a major problem for the hustler is to block the precondition by preventing information from reaching the police, or, as we



have been saying in this discussion, by avoiding attention. We see in Jack's story that failure to do so is occasion for comment, argument, and lecture. From a street point of view, one who violates the expectations represented in these schematic relationships is not competent.

Even more interesting, the schema points to some important details that are likely to be found in the schema for any hustle. Not only does one minimize attention by knowing the hustle and carrying it out smoothly. In addition, a schema for any hustle will contain within it knowledge about ways to avoid attention that are specific to the activities it represents. Further, we expect that the schemata will also contain strategies to use should the hustle in fact attract attention from people who may serve as information conduits to the police.

We can summarize the schema so far. Suppose  $x$  is a hustle and  $a$ ,  $b$  are persons. Then:

Let  $(\text{Do}(a,x)$  or  $\text{Talk-about}(a,x)$  be chunked as  $\text{Draw-Attention-to}(a,x)$ .

$\text{Draw-Attention-to}(a,x)$  and  $\text{Observe}(b,a)$  and  $\text{Inform}(b,\text{police},a)$  causes  $\text{Arrest}(\text{police},a)$ .

If  $b$  is the police, then the schema shortens to:

$\text{Draw-Attention-to}(a,x)$  and  $\text{Observe}(b,a)$  cause  $\text{Arrest}(b,a)$ .

The schema then suggests that to maintain his goal of avoiding arrest, a hustler can avoid talking about or doing hustles. If he hustles or talks about it, then he can try to avoid observation. If he is observed, he can try to prevent the information from reaching the police.

We also expect a more general schema link between the arrest schema and any hustle. It will contain a number of actions one can take to avoid attention and a number of ways to fix things up if one does. To summarize, we can say that for any hustle  $H$  for some actor  $x$ , it will contain plausible inferences of the following form:

1. Act 1

·  
· cause Not Draw-Attention-to( $x,H$ )  
·

Act  $n$

2. Act 1

·  
 $\text{Draw-Attention-to}(x,H)$  cause ·  
·  
Act  $n$

In this interview we learned how this schema was in part filled out for one kind of hustle—burglary of private residences. We also saw how it worked for selling stolen goods to a fence in a public place.

Other hustles, of which there are many in junkie life, will carry different strategies, but we expect this general arrest schema to be relevant to any hustle.

## Conclusion

In this analysis we have illustrated how a general schema can be constructed through detailed microanalysis of an interview segment and then applied to other segments to validate and enrich it. Though we have restricted ourselves to a limited schema and have done the iterative application in only one interview, we hope we have shown that the strategy of combining detailed analysis with more global coverage is a reasonable one.

In the context of general ethnographic work, the schemata could be applied over a much wider range than just a single interview. The same schema might guide observations as an ethnographer moved through situations that constituted daily life for a group. Alternately, he/she might design systematic questions based on the inferences encoded in it, and ask a sample of group members to respond to them. Our analysis was drawn from our ongoing work with Jack's life history, but our intention is to come up with a perspective that applies to whatever combinations of talk and action ethnographers choose to regard as data.

Our work fits into a recent trend in cognitive anthropology that blends in with the interdisciplinary field of cognitive science. As described elsewhere (Agar 1982), the trend is characterized by concerns with schemata and discourse rather than categories and lexemes. It is less focused on mechanical discovery procedures and more on explicit representation of knowledge. Finally, when compared to earlier cognitive work, it is more concerned with broader cultural patterns and relations between group conventions and intentional action.

Besides this general fit, however, there are some other aspects of the approach that should be mentioned. First, it is interpretive, in the sense that the understandings of the analyst and the semantic content of the text mutually inform each other in an emergent, dialectic way. We actively "grow" the schemata, rather than claiming to shake the text and watch them fall out. The various kinds of coherence analysis serve to clarify and refine intuitions through iteration in a way that puts the argument "on the streets" for inspection.

Second, the approach is cognitive, in the sense that we are concerned with the representation of knowledge needed to understand the expression of one tradition through the eyes of another. However, we do not claim that it is "psychologically real" or that we have

arrived inside Jack's head. Whatever the internal cognitive and affective processes were that constituted Jack's "lived experience" of the interview, the coherence analysis only sets out to understand the results of those processes from a particular point of view.

The point of our analysis is not just to develop higher-level schemata out of detailed analyses; it is also to demonstrate the power of the schemata through their recurrent use in making sense of a variety of situations and through the richness of their links with other, equally central schemata. The differences between street and straight life are not primarily in abstract schema content but more in such elusive areas as pervasiveness, salience, and frequency of use. The only way to document those differences is to demonstrate the relevance of the schemata in a variety of expressions of group life, showing their repeated value in understanding them. The schemata alone are inadequate to the ethnographic goal.

The difference between straights and junkies is not that junkies know about hustles, attention, and arrest and straights don't. The difference is in the centrality and elaboration of such knowledge for a junkie, as shown by a tour through numerous situations with which he/she routinely contends. An outsider gets a sense of the schema through its repeated application to junkie life, not through an appreciation of a statement of it in isolation. The proper ethnographic bridge doesn't just show that junkies worry about arrest; rather, it shows what it is like to worry about it most of the time. Jack said he spent 75 percent of his time trying to stay out of jail. The analysis shows that he meant it.

#### NOTE

The support of a Research Career Development Award (DA-00055) is gratefully acknowledged.

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**Edited by Janet W. D. Dougherty**

**University of Illinois Press  
Urbana and Chicago**