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Authors

Hobbs, Jerry R.

Agar, Michael H.

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GROWING SCHEMAS OUT OF INTERVIEWS

Jerry R. Hobbs (SRI International) and Michael H. Agar (Univ. of Maryland)

Ethnography faces complex worlds with no explicit theory. AI, in contrast, carries complex formal theories into encounters with simple worlds. Our work is an effort to find a middle-ground, noting along the way the modifications in both fields required for a synthesis to occur. In this paper we report on our current version of this synthesis by analyzing a fragment of a life history interview with a career heroin addict.

A core problem for ethnographic research is the management of large amounts of qualitative data whose form and content were primarily under informant control. A particular tension in the analysis of this type of material lies in an ethnographer's desire to attend to detail while at the same time offering more global statements about group life. In research over the last year with 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 life history analyzed here was conducted over an eighteen month period with an older career heroin addict whom we call "Jack." At the time of the interviews in the early 70's, 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 pieces of this interview to develop our approach. Now we would like to take 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.

Our goal here is to tackle the issue of relating schemas developed in the analysis of a small segment of text to the interview as a whole. 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 seen 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, an 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, a sense of how different pieces hang together to produce an understanding of the interview as a whole. To get at 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, most of the spots for cuts seem intuitively obvious. There is an assumption here that members would mark major segment boundaries in the same way, but we have not tested it out. Further, the ease of segmenting is made easier still by the fact that we are working with data produced by another speaker of American English.

At any rate, once the segments are marked, the problem is to infer the plan of which they are interrelated expressions. 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 an implicit order that it is our task to bring to light.

The results of the global 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 here by working with another speaker of American English. The microanalysis in terms of local coherence forces us to specify the logical relations between utterances such that they are seen as coparticipants in connected discourse.

Hobbs has explored the adequacy of a fairly small number of relations to serve in this analysis. The coherence relations, which first organize the utterance by utterance structure in a segment, are then also used to show relations across groups of utterances in that same segment. The coherence relations, in short, are used to show us the ties among the utterances within a segment.

However, explicating the relationships forces on us 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 now 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. In short, our analysis in terms of local coherence leads us to construct schemas that justify that analysis.

Now, schemas 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 schemas 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 schemas and demonstrate the resulting understanding in a coarse-grained way. It is this gap that the more detailed local coherence analysis can fill.

At the same time, a local coherence analysis of every segment to which the schema is applied would be too time-consuming. To solve this problem in the sample analysis of one interview presented here, we have developed the following strategy. We pick a particularly interesting schema from the microanalyzed segment and set up some conditions under which it should apply to other segments. In the analysis done here, we are interested in the "arrest" schema, so we decide that any segment that concerns itself with illegal acts will 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. The segments that satisfy these conditions are then examined for their schematic relevance. As we will show, this process leads to a richer understanding of the details of the schema, a better sense of its relation to other schemas, 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 this--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.

In the presentation, we will begin by displaying the global plan of the burglary interview. Following that, we will show a microanalysis of a segment to demonstrate the construction of some schemas related to arrest. Then we will look at the schema as it thematically recurs in other segments of the interview and modify and enrich it. Finally, we will conclude with some thoughts on the potential of the method for wider application.