THE NEW PSYCHOLOGY OF LANGUAGE

Cognitive and Functional Approaches to Language Structure

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Chapter 4

Language and the Flow of Thought

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It is a curious fact that efforts to understand the human mind have never taken very much account of how people actually talk. It is not that there has been a neglect of language—far from it—but that studies relating language and the mind have largely ignored insights that can be derived from a close and systematic examination of ordinary speech, the kind of talk that all of us produce and hear around us constantly in our daily lives. There is still no widespread appreciation of what ordinary talk can tell us about the mind, or even of how one can go about exploiting it as a valuable source of understanding. The study of natural conversation has been left largely to sociologists, whose interests have led them more in the direction of studying social interaction (e.g., Atkinson & Heritage, 1984; Goodwin, 1981; Gumperz, 1982).

There are various reasons for this neglect. For one thing, speech is evanescent. The sounds people make as they talk, and even many of the thoughts expressed by those sounds, quickly fade away. The methods of Western science depend fundamentally on an ability to pin down what one observes, usually in visual form, and to return to it again and again. Speech itself does not allow that kind of storage and manipulation. It is true that the invention of writing provided a way to convert sounds and ideas into something visible. It is thus easy to understand why most systematic studies of language through the ages have been based on written language. But visual representations of language always leave out much that is present in actual speech; when we speak of "reducing" language to writing, the implications of the word "reducing" are cogent.

By the early years of the 20th century, there were some linguistic scholars who had begun to recognize the special importance of spoken language, and some went to great trouble to reproduce the sounds of language in writing as faithfully as possible. Particularly in studies of exotic languages, linguists would sit with "native speakers" and carefully transcribe what was dictated. Much was learned in that way, but not only was transcription limited as a way of capturing the total richness of the language, the language itself had to be less than completely natural, its normal flow impeded by the slow pace of the transcription process. The transcriptions, furthermore, were usually limited to folktales and other types of "oral literature" that are remembered and repeated in ways that ordinary conversational language is not.

By the middle of the 20th century, the commercial availability of tape recorders made it possible, for the first time in human history, to preserve ordinary speech in a form that allowed repeated listening and manipulation, to enrich thereby the detail of transcriptions, and to perform electronic analyses whose sophistication continues to develop. Although language itself remains evanescent, its sounds at least can be preserved and studied in ways that were never before possible.

Every language provides ways not only of organizing sounds, but also thoughts, along with ways of relating these two disparate phenomena. There are two great benefits. Most obviously, associating thoughts with sounds makes it possible for thoughts to be communicated. Sounds can be produced by one individual and received by another, and through this process, the first person can give the second some idea of what he or she is thinking. The reproduction of one person's thoughts in another person's mind can obviously never be complete; one can never fully know what another is thinking. Nevertheless, the sounds of language allow exchanges of thoughts among humans in ways that far surpass the abilities of other creatures.

The other benefit of language lies in the organization of the thoughts themselves. In order for them to be communicated, they must first be associated somehow with configurations of sounds that are already familiar to the listener. Otherwise the sounds would "make no sense." But because the number of possible thoughts is infinite in the sense that every individual's ongoing experiences are unique, it would be impossible for every particular thought to be associated with a particular configuration of sounds that was already known to a listener. As Franz Boas (1911) commented in the early years of the 20th century:

> Since the total range of personal experience which language serves to express is infinitely varied, and its whole scope must be expressed by a limited number of phonetic groups, it is obvious that an extended classification of experiences must underlie all articulate speech. (p. 22)

This "extended classification of experiences" amounts to the interpretation of particular, unique events and objects as instances of already familiar categories (Lakoff, 1987). Each such category has two benefits, a communicative one and a conceptual one. Communicatively, a category provides language users with what Boas called a "phonetic group," a familiar configuration of sounds. The category thus serves to communicate, however partially and imperfectly, the speaker's unique mental experience. If, for example, I am thinking of a particular object I interpret as an instance of the light bulb category, I can make the sound written "light bulb" and thereby give my listener at least a rough idea of what I have in mind. At the same time, my assignment of the object to that category enables me to think about the object in a familiar way and to have certain expectations concerning it; that it can be screwed into a light socket, that it will produce light when the current is turned on, that it will shatter and make a noise if dropped on a cement floor, and so on. In short, this ability to interpret unique experiences as instances of familiar categories makes it possible to communicate them with familiar sound combinations, and at the same time, makes it possible to think of them in familiar ways, and thus to behave toward them in ways that are familiar too.

Modern technology has enhanced the study of language by making its sounds observable in greater detail and with greater accuracy than ever before, but the thoughts associated with those sounds remain problematic. Currently developing techniques of brain imaging are allowing us to observe for the first time which parts of the brain are active in different circumstances. They do not, however, show experiences themselves, which may always remain hidden from public observation. There is a sense in which each of us knows what we are thinking, although we may not always have a good way of verbalizing it. But the only way we can know what someone else is thinking is through what that person says, or through some other overt action—a facial expression or gesture, perhaps—from which that person's thoughts may be inferred, or from imagining what we ourselves would be thinking in similar circumstances. The only direct access we have to thoughts is through introspection, as William James recognized 100 years ago, pointing out that "*introspection is difficult and fallible* . . . The only safeguard is in the final *consensus* of our farther knowledge about the thing in question, later views correcting earlier ones, until at last the harmony of a consistent system is reached" (James, 1890/1950, pp. 191–192). But James emphasized, in a chapter called "The Methods and Snares of Psychology," that "introspective observation is what we have to rely on first and foremost and always" (James, 1890/1950, p. 185).

Not long after he wrote those words, most of psychology set off in quite a different direction, forcefully rejecting introspection altogether as a method of observation, and putting all its money on overt behavior. That

limitation still constrains much work on the nature of the mind, and introspection still fails to be taken very seriously. Much research on the mind thus follows the pattern of the drunk who lost his keys in a dark corner, but was looking for them by a lamppost because the light was better there. The potential for understanding the mind has thus been limited to searches under the bright light of overt behavior. What James called "looking into our own minds and reporting what we there discover" has been dismissed as unusable (James, 1890/1950, p. 185).

Linguistics has been less constrained in this regard. Perhaps because of an ancestry in both anthropology and the humanities, and perhaps also because its 19th-century successes in unraveling some of the mysteries of language change and language relationships gave it less of a need to mimic the physical sciences, linguistics has been more willing to confront introspective evidence. To be sure, American linguistics in the 1920s came under the influence of behaviorist psychology, and in the 1930s of logical positivism, and for a while there were linguists who hoped they could avoid the observation of meanings, to which only introspection provided direct access, by examining the distributions of sound configurations in huge samples of language, ignoring what those configurations meant. Today, however, most linguists are willing to consult their knowledge of the English language to observe, say, that "the boy" conveys the idea of one individual and "the boys" of more than one, or that "he's here" involves a present time and place and "he was there" a location more distant in time and space. In the end, it is important to recognize that language serves both to organize and to communicate thoughts, that when we speak or listen it is in fact the thoughts of which we are ordinarily the most conscious, and that we cannot expect to use linguistic evidence to understand the mind unless we are willing to confront the nature of those thoughts.

Language is used in a variety of ways, each of which affects the shape that language takes. Since the 1970s, ever-increasing attention has been paid to differences between spoken language and written language, and it has become clear that each of these two broad categories allows for diverse uses and forms. Written language, for example, is used in novels and short stories, news reports, encyclopedias, shopping lists, and so forth. Spoken language has its many uses too; speeches, debates, interviews, and so forth. Each use shapes language in ways that are adapted to it (Biber, 1988; Chafe & Tannen, 1987). Ordinary conversational talk, however, occupies a special place as the kind of language that is most natural in both form and function, the kind of language humans must be designed by evolution to produce and comprehend. It requires no special training or skill to be able to talk casually with others, and every normal person acquires this ability as a natural part of maturation. Because conversation is the form of language least influenced by acquired skills, it provides us with the most direct and uncontaminated access to natural mental processes. Every other use people make of language is a skill that has to be deliberately learned.

Why, in the course of human evolution, might this ability to converse have developed as it did? What adaptive value might it have? Although sometimes it may have an obvious and immediate benefit, much of the time conversation serves no clear instrumental purpose. When people get together for a meal, or talk on a bus or plane, there is usually no practical result beyond the satisfaction that comes from interpersonal contact. But people do it all the time, naturally and effectively. It helps to think of casual conversation as a way separate minds are connected into networks of other minds. Individual experiences can be shared and passed on so that they become the second, third, or fourthhand experiences of others. Each experience may be trivial in itself, but the gradual accumulation of experiences within each individual and within a social network builds a fund of shared knowledge that far surpasses what any one person could have acquired if limited to what he or she experienced directly.

AN EXAMPLE

The presentation of linguistic findings usually relies on the citation of examples, samples of language that illustrate the points being made. So long as the findings are restricted to phonology, morphology, or syntax, it is relatively easy to cite enough examples to substantiate whatever general findings are being discussed. Studies of discourse—or longer stretches of talk—are more problematic in this regard. It is impractical to include an example of an entire conversation, but even selected excerpts can be too long to allow more than one or two of them, at best, to be cited in an academic paper. Furthermore, the findings themselves are likely to be many and multifaceted, requiring numerous and lengthy illustrations for adequate confirmation. Although it may be a poor compromise to provide no more than a single sample for discussion, there is some compensation in the fact that every sample of natural speech provides a rich, and in some respects, unique combination of observations. If the discussion has the appearance of an "explication of the text," the fact is that any sample of natural speech illustrates a host of general findings, findings that can be observed in other samples in other combinations. The limitations of discourse presentation, however, mean that their generality has to be taken on faith.

Within these limitations, the discussion to follow is based on a brief excerpt from a conversation between a sister and brother in their retirement years who were reminiscing about things that happened while they

were growing up. The sister was the main speaker here, and the brother's remarks are given in italics. Three dots indicate a measured pause, with the measurement (in seconds) given in parentheses. Two dots show a brief break in timing. The acute accent mark indicates a relatively high pitch and amplitude, the grave accent mark a relatively high pitch without a corresponding amplitude increase. A period at the end of a line shows a falling pitch, a question mark a high-rising pitch, a hyphen a level pitch, and a comma any other phrase-final pitch contour. The down arrows bracket a segment of speech pronounced with lower pitch and amplitude, the up arrows the reverse. Finally, the square brackets in (16) and (17) show a segment of speech that overlapped:

1. ...(2.6) Í can't belíeve,
2. ...(0.5) Yòu knòw Móm was prétty bráve.
3. .. ↓ When you come-
4. .. when it comes right dówn tó it. ↓
5. ...(0.3) ↑ **Did Í téll you what ↑ Vérna tóld me òne tìme-**
6. ...(0.5) that when she líved thère alòne she kept-
7. ...(0.4) òld líght bùlbs-
8. .. up in her béd róom?
9. ...(0.4) and if shé héard a nóise at níght,
10. ...(0.6) she would táke a líght bùlb-
11. .. and thrów it on the cemènt wálk and it'd póp,
12. .. just líke a pìstol gòin' òff.
13. ...(0.2) *Whó.*
14. *Móm díd?*
15. ...(0.2) ↑ **Yéah.** ↑
16. ...(0.6) Shè ùsed to tell Vèrna to sàve [all the líght] bùlbs.
17. [*Óh I knów it.*]
18. ...(0.2) *Yéah I remémber they màde a lòt of nóise,*
19. .. *cause they have-*
20. .. *it's a vácuum in em.*
21. ...(0.3) And the-
22. .. whèn she would thrów them dówn,
23. ...(0.5) théy would póp;
24. .. like a pístol.
25. ...(0.2) Shé was prètty-
26. Hów lòng did she líve thère alòne.
27. ...(2.7) *Wéll,*

The first thing to notice about this sample is its division into separate lines, each of which can be viewed from either a phonetic or a semantic point of view. (From now on, I use the term "phonetic" to refer to the organization of sounds, and "semantic" to refer to the organization of meanings, the components of thoughts.) One thing that can be observed in any sample of spoken language is that its sounds are produced, not in a continuous stream but in segments that are often bounded by pauses, and that terminate in pitch contours perceived as indicating the ends of larger or smaller chunks of content. The separate lines in this transcription reflect such a segmentation, and I refer to the phonetic material in each line as an "intonation unit." Most such units are separated by pauses, although in some cases there is only a break in timing, and between (13) and (14), as well as between (25) and (26), there was no break at all. The coherence of intonation units is sometimes manifested phonetically in other ways—for example, with an accelerated tempo at the beginning and retardation at the end, or a change in voice quality (see Du Bois, Schuetze-Coburn, Cumming, & Paolino, 1993, for a fuller discussion).

Figure 4.1 shows some of the acoustic features of (2), a prototypical intonation unit. It was precèded by a half second of silence, but was separated from what followed by only a break in timing. It ended in a falling pitch, perceived as closure. Also observable is an overall decline in both pitch and amplitude from beginning to end. Many intonation units follow such a pattern, beginning with a vigorous pronunciation that slackens toward the end.

I assume that as a speaker (and reader) of the English language, when you read this entire example you were not primarily conscious of its sounds (or letters), but rather with the thoughts expressed by them. You were probably conscious, for example, of the idea of a woman throwing old light bulbs onto a cement walk and the noise they made, perhaps forming

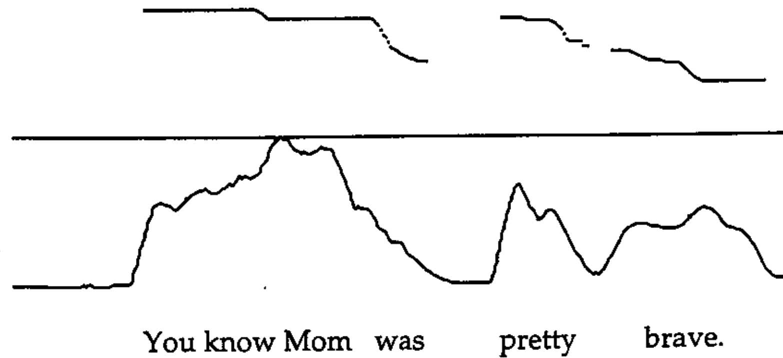

FIG. 4.1. Fundamental frequency (above) and intensity (below) of Intonation Unit (2).

a visual or auditory image of such an event, and perhaps forming an opinion of it, finding it bizarre or interesting. The thoughts that are communicated by language involve experiences with both perceptual and affective components, as I hope are illustrated here.

If we combine the phonetic notion of intonation units with the semantic content of such units, each intonation unit can be viewed as the expression of what may be called a single "focus of consciousness"; a segment of thought on which the speaker's consciousness was focused at the time the intonation unit was uttered (or perhaps just preceding that time), and on which the speaker intended the listener's consciousness to be focused as a result of hearing the sound (Chafe, 1994, pp. 53–70). The flow of language can thus be seen as consisting in part of a sequence of foci of consciousness, each verbalized in an intonation unit. Language shows that each focus is replaced by another at approximately 1- to 2-second intervals. It would be interesting to know whether silent thought or daydreaming, lacking the constraints of overt language production, follows a similar time course.

A focus of consciousness is very limited in the amount of information it can contain, and in fact, language provides good evidence of this limited capacity of active consciousness, the same phenomenon that psychologists have discussed in terms of short-term memory. There are two different ways of viewing what is evidently the same mental phenomenon. The short-term memory view suggests a fixed workspace into which ideas enter and from which they leave. The active consciousness view suggests a restless spotlight that illuminates first one idea and then another. Some ideas may be newly acquired by the speaker at almost the very moment that they are activated and verbalized, but more often they are already stored in the speaker's mind, having been active at some previous time, and are then reactivated in sequence by the spotlight of consciousness as talk proceeds. That is the view on which the following depends.

TOPICS

Up to a point, then, language can be seen as a succession of foci of consciousness, each expressed in an intonation unit. But, of course, the foci are not unrelated thoughts that arise briefly in the speaker's mind in some random fashion, quickly to be replaced by others equally randomly. Each focus is part of some larger thought conglomerate, within which it follows from preceding thoughts and anticipates thoughts to come. A special role in this process is played by a larger thought unit to which it is appropriate to give the label "topic." The excerpt above was chosen to illustrate such a topic.

If each intonation unit expresses what is in the speaker's fully active consciousness during a 1- to 2-second interval, a topic is a unified thought complex that occupies, for a longer period of time, the speaker's *semiactive* consciousness. The capacity of active consciousness is too limited to permit it to focus on a topic all at once, and so a speaker must navigate through it, bringing first one focus and then another under the spotlight of active consciousness. Once a topic has been introduced, it exerts a force that drives thoughts forward until the speaker decides it has been adequately verbalized. Opening a topic is like creating an open parenthesis that calls for eventual closure before the next topic can be opened. William James (1890/1950) recognized the power of this force of topics when he wrote:

> In all our voluntary thinking there is some topic or subject about which all the members of the thought revolve. Half the time this topic is a problem, a gap we cannot yet fill with a definite picture, word, or phrase, but which . . . influences us in an intensely active and determinate psychic way. Whatever may be the images and phrases that pass before us, we feel their relation to this aching gap. To fill it up is our thought's destiny. Some bring us nearer to that consummation. Some the gap negates as quite irrelevant. Each swims in a felt fringe of relations of which the aforesaid gap is the term. (p. 259)

How, then, are topics chosen? A great deal of individual experience is trivial and mundane and not likely to be of value to others. It is from this fact that one of the special properties of conversational language takes its relevance. People, it can be observed, make an effort to talk about things that are *interesting*. The property of being interesting has a strong effect on mental life, and conversations provide a wealth of data on what it entails. Roughly put, a topic of conversation is judged to be interesting when it includes events or situations that are in some way unexpected, that deviate in some way from the mundane knowledge already well established in people's minds. What is interesting depends, of course, on who is talking with whom about what. Topics that are interesting in one group may well be mundane in another. People differ, too, in their ability to judge what is interesting to others. Presumably "good conversationalists" are people who are especially good at judging what will be interesting to their listeners. But the drive to say something interesting appears to be the strongest factor influencing the choice of a conversational topic, and it can be seen as contributing to the value of conversation. From conversations, people are continually acquiring knowledge that, because it is not wholly mundane, changes in some small way their interpretation of the world. This accumulation and integration of new knowledge in tiny increments is a gradual, random, but generally pleasurable process.

The topic illustrated here has the special property of focusing entirely on "generic" knowledge, not on particular, unique events. The speaker did not tell about a single instance of Mom's bravery, but implied that

there were various occasions on which she performed the action described. Memory of a particular event would have been verbalized, perhaps, as "one night she heard a noise, and she took a light bulb and threw it on the cement walk, and it popped." The generic quality of the excerpt given is not a quirk of this example, but something highly characteristic of long-term memories. In examining accounts of things that happened long ago, one finds again and again that memory blurs particulars and leaves behind this generic sort of recall.

Navigation through a topic always follows some sort of path, although the path may not always be well laid out at the beginning and may change as the speaker proceeds, or as interlocutors deflect the topic in other directions. In Chafe (1994, pp. 120–136), I illustrated two patterns of topic development, one involving interaction between several interlocutors, the other following a familiar narrative schema. It is characteristic of many topics that they progress toward a climax, an experience whose departure from mundane reality justifies the introduction of the topic in the first place. In the example here, the climax set forth Mom's unusual practice of frightening intruders by throwing used light bulbs on a cement walk, thus mimicking the sound of a pistol. But speakers lead up to a climax with preparatory information. It will thus be instructive to follow this speaker's progress through the light bulb topic to examine the contribution of each focus of consciousness, considering the manner in which each contributed to building up the totality that was present in her semiactive consciousness.

Speakers frequently open a topic by providing an orientation in time and space, saying things like "Last week, when I was in San Francisco . . ." Language gives evidence that the mind finds it essential to possess such a spatiotemporal orientation, no matter how vague, in order to assimilate properly the events to follow (Chafe, 1994, pp. 128–129). In this particular case, however, a spatiotemporal orientation was unnecessary because the conversation had already established that the participants were talking about their childhood and the place where they grew up, that general orientation forming a kind of "supertopic." Important here instead was a placement of the topic in "epistemological space": the evaluation that what she was about to say was incredible. It was this incredibility that established the interestingness of the topic to come:

1. ...(2.6) Í can't belíeve,

This topic opening was truncated, and the speaker quickly rephrased her thought.

Speakers sometimes provide a summary of a topic before navigating through its details. There may be an encapsulated statement of the events about to be presented, but here there was a statement of what might be called the topic's point:

2. ...(0.5) Yòu knòw Móm was prétty bráve.

This idea remained accessible in the speaker's semiactive consciousness until it she judged it appropriate to verbalize again. The idea of Mom's bravery came to function as a frame for the entire topic—an opening and closing parenthesis. Activated first in (2), it was reactivated at the end in (25) after the topic had been explored in detail:

25. ...(0.2) Shé was prètty-

This was a truncated statement like that in (1).

The idea of Mom's bravery expressed in (2) and repeated in (25) was immediately followed by an evaluation in a sotto voce aside:

3. .. ↓ When you come-
4. .. when it comes right dówn tó it. ↓

The expression "comes (right) down to it" had an idiomatic meaning roughly paraphrasable as "at the essence of the matter." The speaker decided to make the evaluation as impersonal as possible by reformulating it from the "you" in (3) to the "it" in (4). A special affective quality had been conveyed by the pitch contour of (2), as can be seen in Fig. 4.1. The fact that the pitch of "brave" was lower than that of "pretty" gave her statement an attitude of definitiveness—of something that couldn't be argued with. The aside in (3) and (4) then served to reinforce that attitude.

Next came a further orienting statement expressed as a question to the interlocutor, but one that did not expect an answer:

5. ...(0.3) ↑ Did Í téll you what ↑ Vérna tóld me òne tìme-

The question format can be viewed as a way of heightening her brother's involvement in the topic, thus again ensuring that it would be interesting. The up arrows bracket a portion pronounced on a higher pitch and with greater volume than the surrounding talk, thus capturing the extra vigor that often accompanies the beginning of a topic proper. The function of (5), like that of (1), was epistemic, this time specifying that what was to follow had not been observed directly by the speaker, but had been acquired through earlier language produced by Verna. Then came (6), which provided a more specific spatiotemporal orientation than was available from the general context—the period when Mom lived there alone:

6. ...(0.5) that when she líved thère alòne she kept-

Looking back on the entire beginning of this topic, one can identify a nesting of four levels of orientation, from the epistemology of incredibility in (1), to the establishment of a point in (2), to the source of the information in (5), to the spatio-temporal orientation in (6):

1. ...(2.6) Í can't belíeve,
2. ...(0.5) You know Móm was prétty bráve.
5. ...(0.3) ↑ Did Í téll you what ↑ Vérna tóld me òne tìme:
6. ...(0.5) that when she líved thère alòne she kept-

Having thus placed what would follow in epistemic and temporal space, and having thereby satisfied the orientational needs of her listener's consciousness, the speaker now proceeded to the proper content of her topic, already begun at the end of (6), by describing the background situation:

6. she kept-
7. ...(0.4) òld líght bùlbs-
8. .. up in her béd róom?

This was all the preparation she judged necessary, and she was now ready to move ahead to the topic's climax, the event toward which the orientation and background situation had been aimed:

9. ...(0.4) and if shé héard a nóise at níght,
10. ...(0.6) she would táke a líght bùlb-
11. .. and thrów it on the cemènt wálk and it'd póp,
12. .. just líke a pìstol gòin' òff.

Climaxes are typically followed by responses, validating the speaker's judgment that the topic was worth telling. In this case, the initial response was, on the surface, nothing more than a request for clarification, but its insertion at just this point showed the brother's recognition that this was the proper time to say something:

13. ...(0.2) *Whó.*
14. *Móm díd?*

The answer came with a significantly heightened pitch, reflecting the increase in affect usually associated with a climax:

15. ...(0.2) ↑ Yéah. ↑

To drive home a climax, speakers often repeat it, hoping thereby to reinforce its effectiveness. In this case, the speaker began her repetition with a reprise in (16) of what she had said in (5) through (8):

16. ...(0.6) Shè ùsed to tell Vèrna to sàve [àll the líght] bùlbs.

But her brother chimed in again to demonstrate his understanding and appreciation:

17. [*Óh I knów it.*]
18. ...(0.2) *Yéah I remémber they màde a lòt of nóise,*
19. .. *cause they have-*
20. .. *it's a vácuum in em.*

His sister ignored this intervention, and went on with her repetition:

21. ...(0.3) And the-
22. .. whèn she would thrów them dówn,
23. ...(0.5) théy would póp;
24. .. like a pístol.

Finally came the truncated reprise of (2), providing the topic with its closing frame:

25. ...(0.2) Shé was pretty-

The topic had now been fully scanned and verbalized, but the speaker's mind jumped ahead to information that she realized she had lacked as she navigated through the topic, and that she thought her brother could supply:

26. Hów lòng did she líve thère alòne.

Her question functioned as an invitation to her brother to open a new topic. It succeeded, but only after a 2.7-second pause during which he must have been searching for an appropriate answer. He then initiated the next topic with a common topic introducer:

27. ...(2.7) *Wéll,*

As shown by (26), speakers may feel a need to keep a conversation going after they judge a topic to have been concluded. People don't like conversations to die.

INSIDE FOCI OF CONSCIOUSNESS

So far we have looked at the flow of thought as expressed in the sequencing of intonation units within a topic. But other things can be learned from looking inside foci of consciousness and by examining the cognitive functions of what they contain. We can start by returning once again to (2):

2. ...(0.5) Yòu knòw Móm was prétty bráve.

To understand the several roles of the meanings included here, it is important to recognize a fundamental distinction between two types of meanings. On the one hand, there are meanings derived above all from perceptual experiences, or from emotions that are focused on. I refer to them as "ideas," in a technical sense. On the other hand, there are meanings that support and regulate those ideas, forming the "infrastructure" of thought. Ideas can be subdivided into ideas of events and states—of things that happen and the way things are—and ideas of the participants in those events and states. For the latter, I use the term "referents." In (2) there were two ideas. The more encompassing was the idea of a state, of being brave. The other was a referent, the idea of the person who was in that state, the person called Mom.

Belonging to the infrastructure of (2) was the meaning expressed by the words "you know." This "discourse marker" (Schiffrin, 1987) was an attempt to ensure that the speaker was getting through to her listener. In general, *you know* "enlists the hearer's participation as an audience to the storytelling by drawing the hearer's attention to material which is important for his/her understanding of why the story is being told" (Schiffrin, 1987, p. 284), in this case an understanding that the story was an illustration of Mom's bravery. Also contributing to the infrastructure of (2) was the word "pretty," which functioned to intensify the idea of being brave.

Language suggests that ideas, but not elements of the infrastructure, exact what may be called an activation cost. A particular idea may, at any one time, be in any one of three states in a person's mind; fully active, semiactive, or fully inactive. An analogy with vision can be helpful. Active ideas are in the forefront of consciousness, analogous to foveal vision, whereas semiactive ideas are analogous to material in peripheral vision. Inactive ideas are like phenomena that lie outside of the visual field altogether. Some inactive ideas are in long-term memory, having been active at some earlier time, whereas others are activated at this moment for the first time.

In the flow of thought, there is a greater cognitive cost associated with activating and verbalizing an idea that was previously inactive. Such an idea is often called "new information." At the other end of the continuum, an already active idea that is verbalized while it is still active is called "given information." Intermediate between these two is the activation and verbalization of an idea that was previously semiactive, where it is useful to speak of "accessible information." Ideas of these three types—given, accessible, and new—affect differently the shape that language takes and, conversely, by examining language, we are able to make inferences concerning these three cognitive states (Chafe, 1994, pp. 71–81).

Of the two ideas activated in (2), the idea of being brave and of Mom, only the idea of being brave was new. The idea of bravery had not been explicitly talked about before, and the chief purpose of this intonation unit was to activate it, after it had become active in the speaker's mind, in the mind of the listener. The idea of Mom, the person who was in that state, was not fully active just before this point in the conversation, but it had been activated repeatedly before this, and in fact, the preceding topic had dealt with the way Mom used to kill snakes on the farm. The idea of Mom, therefore, was accessible in the minds of both the speaker and the listener prior to the utterance of (2).

Does activation cost, in the sense just described, have to do with the processing of information in the mind of the speaker or in the mind of the listener? Because it is the speaker who produces the language itself, one might conclude that it is the speaker's mind that is involved. However, language works best if the speaker constantly assesses the state of information in the mind of the listener. Language that does not take the listener's mind into account can lead to misunderstandings. When language performs its proper function, a given idea is one already fully active for the speaker, but also one the speaker assumes is already fully active in the listener's mind as well. Similarly, an accessible idea is one previously semiactive for the speaker, but also one the speaker assumes is semiactive for the listener, as with the idea of Mom in (2). Finally, a new idea is one the speaker has activated from a previously inactive state, exacting the greatest cognitive cost, but the speaker assumes that the same process is necessary in the listener's mind too.

Two other factors affected the flow of thought as the present topic was being verbalized. One involved a discourse property of referents that has traditionally been called "definiteness," but that is more accurately called "identifiability." An identifiable referent is one already shared between the speaker and (the speaker assumes) the listener, although the sharing is sometimes indirect and based on inference (Chafe, 1994, pp. 93–107; 1996). But for a referent to be identifiable, it must also be verbalized in such a way that the listener will know which, among the many shared referents, this one is. Obviously, knowledge of Mom was already shared between these two siblings, and its identifiability was assured with the use of the word "Mom." Quite differently, in the following sequence, the idea

of a particular light bulb was not previously shared, as was made explicit with the use of the indefinite article in the phrase "a light bulb":

10. ...(0.6) she would táke a líght bùlb-
11. .. and thrów it on the cemènt wálk and it'd póp,

Once a referent has been made identifiable, as in (10), it may subsequently be expressed with a pronoun like the "it" that occurs twice in (11), so long as it remains given or, if it later recedes in semiactive consciousness and thus becomes accessible rather than given, with the definite article. This speaker might later have reactivated the same idea with the words "the light bulb."

The other factor affecting the flow of thought that is illustrated in (2) was the occurrence of "Mom" as a grammatical "subject," the subject of the phrase "was pretty brave." The verb "was," for example, "agrees with" the third person singular property of this referent: "I am," "you were," "she was." Grammatical subjects function as the "starting points" for the clauses in which they occur. The new information in (2) was "attached to" the idea of Mom as a point of departure. The idea of Mom continued to be verbalized as a subject in intonation units (6) (where it occurred twice in that role), (9), (10), (11) (where it was understood to be the subject of "throw"), (16), (22), (25), and (26). It is typical, in the development of a topic, for one such referent to occur repeatedly as a starting point. A referent in this function has been characterized as "highly topical" (Givón, 1983). It makes sense to say that this topic is "about Mom."

Activation cost (ideas that are given, accessible, or new), identifiability, and status as a starting point are partially independent properties a referent may have, but there is some interaction between them. For example, it is almost always the case that a nonidentifiable referent is new, as with "a light bulb" in (10). It is also usually the case that starting points are given, although in a minority of cases they are accessible, as we saw to be the case with the idea of Mom in (2). Starting points are only rarely new, and when they are, they always perform some specialized function (Chafe, 1994, pp. 90–91). A good example here is the idea of Verna, introduced as a new referent in (5):

5. ...(0.3) ↑ Did Í téll you what ↑ Vérna tóld me òne tìme-

This topic was not at all "about" Verna, who was introduced in (5) simply as the source of the knowledge about to be verbalized; Verna was the one who had told the speaker about it. The phrase "what Verna told me" established the information source for that knowledge, and thus functioned as a kind of "evidential" (Chafe & Nichols, 1986). An information source plays quite a different role in the flow of thought from a "topical" referent like Mom.

It has proved fruitful to hypothesize that a single focus of consciousness can process no more than one new idea—only one event, state, or referent that is activated from a previously inactive state (Chafe, 1994, pp. 108–119). This "one-new-idea" hypothesis helps clarify what it means to be a single idea. It also helps explain how ideas are so frequently apportioned among separate intonation units, as in the case of (6–8):

6. ...(0.5) that when she líved thère alòne she kept-
7. ...(0.4) òld líght bùlbs-
8. .. up in her béd róom?

The speaker must at first have intended to incorporate the new idea expressed by "old light bulbs" in the same intonation unit as the new idea of her mother living alone, but because she could not combine these two ideas without, as it were, taking a cognitive breath, she necessarily broke off (6) and introduced the light bulbs in a separate intonation unit in (7), proceeding to create still another such unit in (8) to introduce the idea of where the light bulbs had been stored.

When the one-new-idea constraint appears to have been violated, it can be rewarding to examine the circumstances under which that can occur. In the present example, there seems to be a violation in (11):

11. .. and thrów it on the cemènt wálk and it'd póp,

Even if the idea of the cement walk may have been accessible to the two interlocutors, it would seem that the ideas of throwing and popping were both new. One might have expected a distribution among two separate intonation units, as in fact happened in the reprise of this material:

22. .. whèn she would thrów them dówn,
23. ...(0.5) théy would póp;

The best explanation of the apparently overloaded (11) may be that the speaker conceptualized the throwing and popping as a single event, one that was for her at this point cognitively inseparable. English provides no resource that would combine both these events in a single verb, and the speaker could only concatenate the two verbs in (11) despite the conceptual unity of the idea.

CONCLUSION

I have tried to show a few ways in which examining ordinary talk can shed light on people's thought processes. Any sample of actual speech can provide a rich mine of information on mental functioning, and here I

could only suggest some of the ways one speaker's illustration of her mother's bravery can help toward an understanding of the workings of the mind. The reader must for the moment take it on faith that what was discussed so briefly here can be reproduced and expanded when one examines further materials of this kind. The only way to confirm provisional understandings is to confront them with further data, in this case with data from larger samples of ordinary talk, but supplemented ultimately with experimental and observational data of other kinds.

Among the findings discussed here is the segmentation of speech and thought into foci of active consciousness that are constantly replaced at 1- to 2-second intervals. Larger segments constitute semiactive topics within which those foci are deployed in accordance with familiar, although labile, patterns of topic development. The elements within each active focus may be, on the one hand, "ideas" of events, states, and the referents that participate in them or, on the other hand, "infrastructural" elements that regulate and support those ideas. Prior to the activation of a focus of consciousness, the ideas within it may have already been active, semiactive, or inactive, and varying amounts of cognitive cost are associated with activation from those three states. Each focus may be constrained in such a way that it can activate no more than one new idea, a hypothesis that helps shed light on what it means for an idea to be unitary.

The exploitation of natural speech as evidence for the nature of the human mind has hardly begun, and it can offer exciting discoveries to those who are willing to explore it with their own minds open.

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