

Your TA, Adam Mekrut, recounted to me a question that came up in his section on Friday, January 11, 2013. Thinking about this problem was productive for me. I want to share with all of you my response to the question.

Adam noted,

The tricky part was when we started talking about things like decision-making. Someone specifically used the oatmeal example asking whether or not it would be appropriate to talk about deciding on a larger or smaller pan in the description or analysis.

The very short answer is that talk about deciding belongs in the analysis, not in the description.

A more complete answer goes like this:

In our everyday, non-scientific, reasoning about psychological processes, names for prototypical high-level cognitive processes such as decision-making, problem solving, planning, reasoning, and memory are generally taken to refer to processes that happen inside people's heads.

However, what happens in the brain may not be distinctive of each category. Are the internal processes that are involved in decision-making distinct from the internal processes involved in problem solving? Are those processes distinct from the internal processes involved in planning, or in reasoning, or in memory? The way these categories are actually differentiated from one another by cognitive scientists is NOT on the basis of the internal processes underwriting each. The categories are differentiated on the basis of how actions are situated in activity. Experimentation on any of these topics arranges experimental activities that elicit actions by subjects that are situated in the experimental activity in a way that is characteristic of the labeled process. For example, experiments on decision-making involve the presentation of alternatives and elicit subject attention to alternatives followed by subject selection of one (or a subset) of the presented alternatives. Experiments on problem solving involve the presentation of a current state and some indication of goal state that the subject is supposed to achieve. The actions taken by the subject to transform the starting state into the goal state are taken to be instances of problem solving. Experiments on planning seem very much like experiments on problem solving? Are planning and problem solving different cognitive activities? (Note: This is Neisser's question again, this time about some categories of cognitive activity other than memory.) Does anyone believe that the brain processes underlying planning are different from the processes involved in problem solving? And are decision-making, problem solving, planning, and memory all forms of reasoning? Or is reasoning a separate category that contrasts with those other categories?

The way out of this muddle is to notice that it is not possible to claim that some event is an instance of any of these categories without referring to the way some action is situated with respect to an activity. What makes something an instance of decision-making? A decision implies the existence of alternatives. Decision-making is the process of attending to two or more alternatives and then selecting some subset of the alternatives while rejecting the others.

Certainly, something happens in the brain of a person engaged in decision-making. However, as cognitive ethnographers we have NO ACCESS to brain processes. Even if we did have such access, it would not help us choose the name for the cognitive process. Furthermore, it is NOT NECESSARY to have access to brain processes to identify instances of cognitive activities. Think of what experimental psychologists do. They do not use signatures of brain activity to decide they are studying, say, decision-making as opposed to memory. The topic of study of an experiment is determined by the way the actions of the subject are situated with respect to the structure of the experimental activity. In an experiment on memory, subjects are exposed to some materials and then later are asked to behave in ways that could have been affected by the prior exposure to the materials.

As cognitive ethnographers, we will make a similar move, but instead of constructing an experimental activity and eliciting subject actions in the context of that activity, we OBSERVE NATURALLY OCCURRING ACTIVITIES and we OBSERVE HOW THE ACTIONS OF PARTICIPANTS ARE SITUATED IN THOSE ACTIVITIES. The cognitive process category label we apply to an observed action is determined by the way the observed action is situated in an activity. As cognitive ethnographers, we support our claims about category labels (that's *analysis*) by providing clear *descriptions* of the activity structure and the way observed actions are situated in a larger activity.

Returning to the question above concerning the example of making oatmeal, "[W]ould [it] be appropriate to talk about deciding on a larger or smaller pan in the description or analysis?" The way the question is framed is already in the form of analysis and is in a form that short circuits the description. The question presupposes that an act of deciding has taken place. How do we know that deciding has or has not occurred? The answer depends on how an action is situated in an activity. That is a matter of what the data are. So this turns out to be a great example of why it is necessary to slow down and describe WHAT ACTUALLY HAPPENED in some real instance of behavior. Not only can you not do a proper description and analysis of an event that you imagined rather than one you observed, you cannot even work out how to do the description and analysis on the basis of an imagined example. The reason is that it is extremely difficult to imagine the world they way it actually presents itself to you.

As I said in class, one MUST begin with the observable behavior, so let's begin with that which an observer other than the actor could see.

*The cook opened a cabinet containing cooking pots and pans. The cook reached into the cabinet.*

(Before we go any further we are already missing a lot of relevant description. Are there other cabinets in the kitchen? Did the cook open any other cabinets before opening the one containing pots and pans? How many pots and pans were in the cabinet. How were they organized in space? Were the pans stacked on or nested inside one another? Was there sufficient light to see all of the pans? How was the line of sight? Did the cook have to crouch down in order to see or reach into the cabinet? This is all observable and relevant to the determination of whether or not deciding took place. )

Here are two alternatives for the description of the next step that are different in a way that may be relevant to the question about a decision:

- a) *The cook's hand hovered momentarily over and touched the handle of a large pan before grasping and removing a small pan.*
- b) *The cook grabbed a small pan and removed it from the cabinet.*

Observation A could be taken as evidence of attention to the large pan before attending to the small pan. That would indicate that a decision had been made. Observation B is consistent with no decision because it does not situate the action of grabbing the small pan in an activity that includes attention to other alternatives. If there are no alternatives, then there is no decision.

We can get that far on the basis of what could have been observed by a person other than the cook. Notice that in many cases this will be enough. We will be able to determine the sort of cognitive event an action is, on the basis of what could be observed or recorded on video. However, since the cook is observing his own behavior, he might be able to observe things that would not be captured by a videotape of his activity. It is possible for the cook to have NOTICED that he momentarily considered the large pan – even if this noticing did not result in any visible effect in the observable motion of the cook's body. In that case, the cook, describing his own behavior, could report having noticed the fact that he considered the large pan before choosing the small one. This observation should be added to the description, but ONLY if the cook actually did attend to the large pan and noticed that attending action. If the cook did notice this, then he could include it in his description. That would provide the data needed to support a claim in the analysis that removing the small pan from the cabinet is an example of a decision.

A decision implies selection from a field of alternatives. So, the claim that some particular aspect of the activity IS A DECISION will be made *in the analysis* and it will be supported by specific elements of the *description* that show that the action of grabbing the small pan was a *selection from a field of alternatives*.

This is why cognitive ethnographers report in their descriptions only those events that could be observed by someone watching the person, OR “simple internal events such as remembering, noticing, imagining only if they are directly linked to observable behavior or observable external resources.”

The way I have written up the example here, I do not claim that the decision was a cognitive state or process inside the cook's head that was formed before the action and led to the behavior that was observed. Rather, "decision" is a label for the action of taking the small pot (rather than the large pot) from the cabinet. Decision is a cognitive interpretation of the observed behavior, not a cognitive cause of the observed behavior. This is a difficult way for people to learn to think because our folk psychology makes such a powerful commitment to the identification of cognitive causes of behavior. However, there is plenty of evidence that actions are not caused by internal states that are fully formed before the action takes place. Rather, whatever the internal states and processes are, they come into being in coordination with the emergence of meaningful actions. Thus, we could at best say that decisions (and other cognitive processes) have a visible part and an invisible part that emerge simultaneously. As cognitive ethnographers we have access only to the visible parts, so that is what we will study.

A new perspective on *action as a form of cognition* is required in order to see the visible parts of cognitive processes. The development of that perspective is a goal of the Cognitive Ethnography course.