

Appendix A: Excerpt from "Navajo Linguistics", Kenneth Hale,

Massachusetts Institute of Technology. Unpublished manuscript, 1975.

One might well ask why it is useful to study a language which one already knows. The answer to this question is a rather long story, but it is the same as the answer to the question "why do we study biology, chemistry, and physics?" "Why do we study science at all?" The reason is that we wish to find explanations for the things that we observe. We observe, for example, that water freezes at a certain temperature, and it boils at another temperature. Gasoline is also a liquid -- it flows like water -- but it doesn't freeze at the same temperature as water. Also, unlike water, it burns if you touch a lighted match to it. We are not satisfied with just noting these facts; we want to know why they act differently. Whenever we look beyond the things we observe and try to explain them, we are engaged in science. The scientist looks deeper into the structures of water and gasoline in order to discover what properties they have that make them behave the way they do.

The study of language -- i.e., linguistics -- is also a science. We know that people are able to speak languages, but we know very little about what that really means -- a person knows his native language (and some people know several languages), but what exactly is that knowledge like? We observe that a person can understand the sentences of his language and that he can speak the sentences of his language. The question is: why is he able to do this? The linguist tries to answer this question. He tries to construct a theory which will account for this ability.

Now, in any science, no matter how concrete it is, we are involved in theory-building -- i.e., in the formulation of statements which will best account for the facts we observe. In fact, we are involved in this activity all the time, whether we call ourselves scientists or not. Everything we feel relatively sure is true of the world is a theory. If we are told, for example, that there is a crow sitting on a fencepost outside, and if we have seen crows before, we do not wonder what color the crow on the fencepost is. We predict that it is black -- because we have a theory that all crows are black. But it is only a theory; we haven't seen all of the crows in the world, nor have we seen all the crows that went before and all of those as yet unborn. We have developed a theory that all crows are black on the basis of our observations -- i.e., all the crows we have ever seen have been black. On the basis of this theory, we are relatively sure the crow on the fencepost will be black.

The theory about crows is not a very startling one, to be sure. It is so commonplace that it is uninteresting. Nonetheless, it is like

a scientific theory, in that it permits us to make predictions. Theories become interesting to us intellectually when they are less obvious. Thus, when we try to explain why all crows are black we are forced to construct a theory which is more abstract. One such theory is that there are genetic laws which determine the physical characteristics of animals -- it is part of the genetic make-up of crows that their feathers are black. This theory is more interesting because it attempts to explain much more than the color of crows; it explains why the young of any animal resembles its parents. Recent work in the field of genetics has added a great deal of detail to this theory and has actually isolated the material in which the genetic code is carried. When the theory was first proposed, however, it was highly abstract -- it was the best explanation that could be suggested to explain the observation that certain physical characteristics are transmitted from parent to offspring.

I have strayed some distance from the topic of linguistics and the study of language. I have done so merely to point out that any serious science is concerned with theories. Linguistics is not a physical or biological science; rather, it is the study of a certain aspect of the human mind. We know that a person's knowledge of his language is stored in his brain, but we cannot observe it directly. What we do observe is his speech -- on the basis of this, we try to construct a theory of what is in the brain. This is exactly what is done in other sciences -- if some object is not directly observable, a theory, or model, is constructed which can duplicate the observable behavior of the object. The theory is correct to the extent that it can accurately duplicate this observable behavior.

The linguist is in one respect better situated than other scientists. He does not need a lot of equipment to observe the data he studies -- he has in his head a knowledge of his own language; he can therefore observe his own speech. ... If done properly, such an endeavor will serve as a means of introducing the scientific method to students and will, thereby, contribute significantly to their educational development. It has the advantage over the other sciences that it makes use of material which is thoroughly familiar to the students -- i.e., their own speech behavior.