

Science, Cybernetics and ‘Knowing’

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Abstract

To discuss science, I choose to focus attention on the doings of its practitioners. Many choose the root as *scio*, translated as ‘I know’, but that choice of a singular first-person form ignores an essential social aspect of the practice of science, namely the custom that failure to disconfirm by one’s peers plays a major role in deciding what we will accept as ‘scientific’.

To address the topic of cybernetics, I paraphrase Wiener to speak of the art and science of designing purposeful, goal-directed—self-steering— systems. He also considered the field to extend to such learning phenomena as gestalt-formation.

Though we sometimes speak of a teacher or mentor as imparting ‘knowledge’, I lodge here an objection to the arrogance of that terminology.

Anyone’s claim to ‘know’ any asserted ‘fact’ carries with it—states directly, rather than implies—a degree of god-like certainty that, I maintain, should arouse profound doubt and suspicion in the wise or prudent reader or listener. In the present paper, I shall address each of these areas in more detail.

Key Words: tested guesses, learning, gestalt, abstracting

Conventions

I offer the views presented in this paper not as assertions of ‘truth’, whatever that might mean to a reader, but merely as my perspective. Indeed, I assert that that reflects the most any human can responsibly claim. Also, in order to diminish somewhat the risk of confusing a word with the non-verbal thing, ‘happening’ or ‘doing’ that it points at, I here follow Bourland (1965/66) in avoiding any use, in any inflection, of the verb ‘to be’. He designated this dialect of English as E-Prime.

At stages of the development of mathematics from the times of the Greeks and Babylonians until around 1930, most mathematicians would have asserted that, at least in mathematics a competent speaker could reasonably claim **certainty**—the ‘truth’ of their ‘proofs’. But, as Kline (1980) describes it, the work of the non-Euclidian geometers had already threatened that claim, and the sabot (wooden shoe) which Kurt Gödel (1932) threw into it would have done the Luddites and their Dutch counterparts proud. Indeed, Kline used the subtitle ‘The Loss of Certainty’ for his 1980 book. Gödel had introduced, and proved theorems showing incompleteness and unprovability as underlying the whole of mathematics.

I begin with a somewhat familiar distinction. We generally distinguish between ‘teachings’ and ‘learnings.’ When using the former, I will refer mainly to associations among words or ideas conveyed to us, generally through words (verbal teachings) by mentors. I see this territory, though, as also embracing the non-verbal kinds of doings a craftsman or a gym teacher may perform for a student to attempt to emulate or follow.

I will use ‘learnings.’ to speak of abstractings (which we may generate at non-verbal or at verbal levels) that we achieve for ourselves, either from our own immediate

experiencings, or by adopting (and perhaps then experiencing) portions of the teachings of others. We may observe such emulating occurring at both verbal and non-verbal levels in, for example, the learnings achieved by an apprentice.

By the term 'teachings', I refer to the imparting of some portions of the intellectual or cultural heritage into which a human gets born and nurtured. Korzybski (1921) refers to the acquisition of such heritage as 'time-binding'. The process begins in infancy, and continues throughout the interactions of a lifetime. Sometimes these occur with the intention of a 'teacher', and at other times quite independent of any such purpose. For example, we often consider ourselves as taught by observing the outcomes of mistakes made by others.

Neither of these paths, I maintain, can support us in any claim to certainty. Indeed, I will insist that no means of study, of rationalization, or of experience can justify such a claim.

To me, the process of abstracting refers to attending to some selected aspects of a perceiving as well as concurrent omission of some others, deemed of less immediate (central) significance or importance to the task at hand.

Other Distinctions

Some cultures, and some language families require keeping track of the distinction between what I experienced or saw and what someone else told me or wrote.

Verb forms used among Algonquian languages (Whorf, 1956) require any speaker to distinguish whether s/he speaks of a report or of an experience (or first-hand observation), and, in the former case, whether the report came first hand or from another report. The structure of these languages requires each speaker to convey the degree of immediacy.

Among the Hadiths (Muslim writings describing the doings and sayings of the Prophet Mohammad) we see great pains taken to account for the veracity of any given attribution by listing the chain of tellers from the time of the writings back to someone present when the cited doing or saying allegedly occurred.

Thus, among speakers of some native-American language families studied by Whorf, the grammar itself mandates the process; it defines what gets accepted as a 'well-formed' statement in those tongues. In contrast, the Muslim case merely calls for the writer to follow a socially-approved convention.

The languages of the Western Indo-European (WIE) families share a disadvantage in this regard. These languages render difficult preserving, or reporting about, the distinction between the (verbal) **name** of a thing, happening, or doing and the (non-verbal) actual item or event. Some authors (Korzybski, 1933, 1951 and 1990 and Hilgartner et al.1991) speak in terms of a failure, inherent in these languages, to distinguish a map from the territory it allegedly points at.

Science

"We think of science as the study of natural laws which once grasped will enable man to predict the course of any comparable sequence provided the conditions can be kept constant. But in real-life situations, we always have to come to terms with sequences of events which are outside the limited little set of conditions within which we have

learned to predict. . . .”(Mead, 2001, p. 99). Dr. Mead here continues with an assumption (which I doubt one could actually support) of “understand[ing] perfectly the nature of the steel” etc., though not of other contingencies that might impair a project of building a bridge in New Guinea.

The word *science*, from the Latin *scientia*, generally translated as ‘knowledge’, shows in English as early as 1340, but no one seems to have used the term *scientist* until its introduction by William Whewell in an 1840 book ‘The Philosophy of Inductive Sciences’, where he stated “We need very much a name to describe a cultivator of science in general. I should incline to call him a Scientist.”

I prefer to describe ‘science’ as referring to a body of lore not yet rejected by scientists. These doings consist of a sequence of *tested guesses* the outcomes of which its most widely heard practitioners have as yet not found strongly enough disconfirmed to reject or to seek to replace. Most who designate themselves as ‘scientists’ give at least lip-service to such a provisional character of their constructs.

In certain assertions of the verb ‘to know’ we acknowledge them as statements of belief based solely on an act of faith, as in “I know that my redeemer liveth.”

Gestalt

As I conceptualize the process, when a human makes an observation of doings or happenings within reach of her/his perception, s/he unavoidably generates one or more abstractions. We may look upon this abstracting as a process of forming gestalten: the bringing of some part of the perceived toward central attention while relegating other parts to one or more levels of background status. As described by Perls, Hefferline and Goodman (1951), and elaborated by Polanyi (1964), in such a nested sequence of gestalten, each successive focal perceptions can thereafter become the ground against which the next assumes the status of figure.

Above, I mentioned that the process of abstracting entails omission of some aspects of a perceiving in favor of some others, deemed of more immediate (focal) significance or importance. A man fleeing a predatory animal probably ignores details of the fur covering the animal, unless he guesses that it might inform him as to the safety he might gain by climbing the nearest tree, as opposed to, for example, getting inside the nearest shelter and securing the door.

‘Knowing’

When we verbalize (speak, write, sign, etc.) about an observed item or event in a WIE language, the means we use in our attempt to report generally interferes with the comprehension of our intended content by the recipient; it often leads even to misperception on the part of the reporter, the original observer.

As long as the only languages we can find to use render well nigh impossible any reporting about or commenting concerning the distinction between the (verbal) **name** of a thing, happening, or doing and the (non-verbal) actual item or event, we run the risk of mistaking our perceptions, or at least our reportings—our verbalizings—as precise, fully accurate accounts. Our grammar renders it awkward—cumbersome—to keep that distinction in our awareness. We run at least as severe a risk of inducing such mistakes in our audiences.

Based on these and related considerations, I have concluded that I must treat the construct of 'knowing' (along with its cousin 'knowledge'), to whatever extent it represents a claim to CERTAINTY, as an oxymoron—a term having no corresponding entity to which it legitimately can refer.

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