

Critical Review – Whorf, B.L. “An American Indian Model of the Universe”

In "An American Indian Model of the Universe," B. L. Whorf argues that the Hopi Indians do not think of or perceive time as linear and perpetually in motion. As the Hopi language has no word or concept for "time," the Hopi perceive the world in an entirely different manner from what we would call the "normal" way. However, the Hopi can describe phenomena and events in the world fluently. This implies that there are many possible, legitimate ways of perceiving the universe, rather than a "normal" view.

The article first explains the unusual and potentially controversial concept that the Hopi do not perceive time as flowing. A Hopi who has been raised exclusively among the Hopi language and culture does not have a clear sense of past, present and future. Whorf conjectures this from the fact that the Hopi language has no words or grammatical constructions that describe a linear flow of time. This is a difficult concept to grasp, as most people feel that a sense of time and its motion is intuitive, rather than learned. The Hopi Indian does not even have a "general notion... of time as a smooth flowing continuum" (Whorf, 57). The idea, far from being hardwired into the human brain, does not even occur to the typical Hopi that Whorf has studied.

The Hopi language and way of thought implies the existence of what Whorf calls a metaphysics, which could also be described as a framework through which one interprets the world. This is a concept of relative metaphysics, in which there can exist many different frameworks through which humans perceive the universe. Whorf uses this to supplement his argument that Hopi do not have a sense of time implied in their language. They instead use a completely different framework. I agree with Whorf that there is no reason that a sense of time must exist in every framework, but I find his

argument in this instance weak. Whorf compares the Hopi metaphysics to the conventional metaphysics by claiming that they have the same relation as Euclidean geometry has to the theory of relativity: as both Euclidian geometry and relativity are wildly different but equally valid ways of interpreting the universe, so the two metaphysics can describe the universe without the need to share such concepts as time. I find a flaw in the analogy in that the two metaphysics describe the same events, but the two theories do not. Relativity describes physics where Euclidian geometry and Newtonian physics break down. Relativity explains more than the other theories: it is more complete and more powerful. The normal metaphysics does not describe more than the Hopi's; Whorf argues that they interpret the same universe in a different manner but with equal validity.

Whorf next attempts to describe the way Hopis perceive reality in terms of our own framework, so that we may understand it (I refer to "we" as the collection of people who think in the manner of the "ordinary" framework). This is a difficult proposition, as one of the main claims of the paper is that the Hopi do not think in a manner recognizable to us. Whorf writes "I find it gratuitous to assume... that the intuition of a Hopi gives him [a concept of "time"] as one of its data" (58). It seems counterintuitive to claim that one can translate and understand another framework that is so radically different. It is not a matter, to extend Whorf's analogy, of describing Euclidian geometry in terms of relativistic mathematics. Perhaps it is more similar to describing color to one who is colorblind, thus impossible. A scientist who has been colorblind from birth can understand the function of rods and cones on the cornea and how different wavelengths of light affect them, but having developed since birth without a concept of color, her

brain does not have the structures necessary code different colors and thus intuitively understand the experience of color. If Whorf successfully presents a description of the Hopi metaphysics that we can understand somewhat, it may be an indication that his statements concerning the level of difference in the metaphysics are exaggerated. As the Hopi have no concept of "time," there is no combination of words in the Hopi language that could adequately describe to a Hopi our concept. Similarly, Whorf implies that most, or at least Western, languages do not have the tools necessary to convey the Hopi point of view, no matter how elaborately it is described.

Whorf translates the Hopi metaphysics by describing it as mystical. However, he stresses he does not refer to mystical in an occult manner, but in the same sense of "our own metaphysics, which are... equally mystical" (59). These metaphysics are mystical in terms of their relation to any absolute truth of perception, as metaphysics are inherently arbitrary: if it is the case that humans such as the Hopi have a different metaphysics, then they are constructed by the observer. The Hopi metaphysics is in fact equal to all others, as their "postulates equally account for all phenomena and their interrelation" (59). It would be interesting to find out whether such a metaphysics could support positivist science, which is based on observation and experiments on interactions through our view of space and time. I will address this further after more background on the Hopi concept of space.

Whorf claims that the Hopi metaphysics is as legitimate as the "normal" metaphysics. I wonder if it would be possible to evaluate the legitimacy of a metaphysics by judging it in terms of its ability to support a positivist science. Whorf writes "the Hopian metaphysics are... justified pragmatically and experientially" (59), but are they

justified experimentally? Is it possible to maintain a fact and observation based form of science, based on experimentation, without time as a measure? Is there another type of science that could be invented other than positivist, without using time as a benchmark, in the Hopi metaphysics? It would be a useful to see if such a society as the Hopi's could develop technology, and thereby gauge whether it is legitimate or merely deviant (though one could argue whether the ability to produce results from science is a proper measure of legitimacy). Furthermore, could the Hopi account for such phenomena as red shift in distant stars without incorporating discussion of time? If they could, it would indicate that our interpretation of time works for our framework but is not an absolute description of the order of the universe. As a further thought, I wonder if the transformation of the Hopi language into a more technical language necessary to run science would change the metaphysics as well. This is an unanswerable question, however, as Hopi society is no longer isolated, having been thoroughly penetrated and relocated by the American culture and government, and cannot develop on its own.

The article expands on the differences in perception that result from different metaphysics. Both the Hopi and conventional metaphysics divide the universe into two components, or "cosmic forms." Ours are space and time, the Hopi's approximated as manifested/objective and manifesting/subjective. Space is static, three-dimensional and infinite, and time is one dimensional, uniform and flowing continually, split into past, present and future. The two cosmic forms are totally independent (Whorf speaks of the everyday interpretation of space and time, rather than in relation to the theory of relativity, which joins them [59]). The objective/manifested comprises all that is and has been and is/has been accessible to the senses. The subjective/manifesting includes all

events of the future and the entire realm that we call "mental," everything intuitive and within the mind, as well as the spirit of everything in nature, including plants and inanimate objects (59).

This is the connection to the mystical that Whorf explained. The Hopi metaphysics is highly spiritual. As there is no proper sense of the future as we would describe it, the universe is to some extent predetermined. Events do not arrive from the future but always exist and manifest themselves when, as we would describe, the future becomes the present. The events of the future are "already with us in vital and mental form" (60). Though Whorf does not explicitly explain it, the connection to the animistic aspect of the Hopi metaphysics is suggested. If all events, including those involving inanimate objects, already exist and are merely waiting to emerge and are connected to the Hopi, the inanimate objects must have a spirit that allows such a connection.

Whorf does not discuss the source of this sense of predetermination, which could provide much information on the origin and development of the Hopi metaphysics. For instance, did Hopi society begin with the normal metaphysics which transformed once the Hopi split off and formed their own society? It seems unlikely that Hopi society has been separate from the rest of humanity from the time when metaphysics were first being developed throughout the human race. That being the case, what caused this different development? Perhaps a strong cultural belief in predetermination and animism developed into a new metaphysics. Alternately, the environmental conditions of the Hopi society's development could have formed the metaphysics which in turn reinforced the animism and mysticism. This knowledge would be useful in examining the metaphysics

of other isolated or widely disparate societies, and ultimately the trends of universal metaphysics.

Whorf argues that as a result of the mysticism, the Hopi metaphysics is tightly bound to their religion. The manifesting/subjective realm is "intensely real and quivering with life, power and potency," rather than an abstract interpretation of the mystical aspect of the metaphysics, as we would interpret it. The Hopi framework has interconnectedness and animism as foundations, "so charge is the idea with religious and magical awareness" (60). In this sense the Hopi religion is part of their metaphysics, as opposed to most systems in which religion is independent of metaphysics. Even in radical cases in which citizenship is bound to religion, for example, in Saudi Arabia where one must be Muslim to be a citizen, it is possible to not follow the religion. Whorf seems to imply that to have been raised and live in Hopi society is to ascribe to their religion, as it part of the structure of their minds.

It would be interesting to examine the physical structure of the Hopi brain. A true lack of a concept of time should be reflected in the development of structures in the brain that process temporal events. A corresponding heightened development in other areas could indicate the manner in which the Hopi interpret the world. This leads to a fascinating question: does being raised in a fundamentally different society and metaphysics cause a significant change in the physical development of the brain? Therefore, is metaphysics a structural phenomenon? What would be the effect on a child raised in both Hopi and Western culture? Would one metaphysics dominate? Would a Hopi who learned English and learned (if this is possible) to conceive of the normal metaphysics undergo physical changes in the brain (and vice versa - could a Westerner

learn Hopi and their metaphysics) and how would this change their perception of their native metaphysics?

The separation of time from the Hopi metaphysics is less clear in Whorf's description of the transition from subjective to objective, from manifesting to has manifested. The Hopi distinguish between the future and the past/present, as previously described, but it is difficult to understand the transition without referring to a sense of time that flows. An event in the future does not eventually happen so much as emerge from its dormant state. This is described by "the expective form of Hopi grammar," the state of being in which something is manifesting "but is not yet in full operation" (60). Manifesting events are not yet in full operation, but in some part cut across the subjective into the objective. While subjective (in the realm of the future) they are also in the present and therefore also indistinguishable from the past. The inceptive verb form indicates the end of the manifesting process, when the action has become fully objective - causation has ceased. However, this does not necessarily imply that there is a sense of time in the operation. Whorf describes the Hopi perception of emergences as "two aspects of one reality" (62). Hopi society and religion are tightly bound by their constant prayer, their "hoping," for things to emerge into their reality. Instead of happening as time passes, an event straddles the boundary between what is possible and what has happened, and moves over this boundary into the objective - it has come true (62).

I find it difficult to accept that the Hopi do not perceive any flow of time based on this description. There is no sense of past/present/future, but there does exist a sense of "was/is real" and "not real" (the future). It may not be necessary for all three of past/present/future to be referred to in order to constitute flowing time. The Hopi are

aware of a separation between the past and the future - even if they do not refer to events happening as such, they recede into the past. One element, that of the past, may constitute a flow of time. Though it seems likely that there is no flow of time, Whorf does not present a decisive proof.

However, the Hopi can distinguish between events and the relative times at which they occurred. Events recede into the past in "a purely operational sense - a matter of the complexity and magnitude of operations connecting events" (63). What we would classify as two events separated by time, the Hopi distinguish the separation between the events as the number and complexity of other events that have occurred between them. The passage of time, as we would call it, is tracked in relation to other events, but not according to an absolute scale. Whorf discusses how the Hopi perceive events that happen at the same time in different place. The events can be known to a distant observer only in the objective sense. Thus to a Hopi, events that occur at the same time are not both "'at this time'; it happens at 'that' place at 'that' time" (63). The distance between two simultaneous results in an increased magnitude of events between them, thus events cannot be simultaneous unless they the observer experiences both. The lack of a concept for distant events that occur simultaneously is further proof that the Hopi do not perceive a kind of time that flows universally for the entire world.

The Hopi concept of space is also different at the extremes of time and distance. The concepts of objective and subjective merge as events recede into the distant past, as the details of events fade and become unknowable and mythical. They are conceived of as far down the vertical inner axis that extends from every objective event, to the point where they are consigned to a different Earth, known by the Hopi as Palatwapi, or "at the

Red Mountains." Myths, though objective in that they are in the past, are known to be of a different sort of reality as more "recent" events (64).

One is tempted to fit the Hopi into the sliding scale presented in class of metaphysical realism/idealism and intuitive humanism/positivist science. On the methodology axis, the Hopi would be strongly intuitive humanist, as there is no way to conduct positivist science without observation based experiments, which as far as we can tell requires measuring time. Where the Hopi are on the metaphysics axis and what their existence indicates are both significant. According to Whorf's description, the Hopi conceive of the physical universe as an ordered realm, though in a different way from our concept of three-dimensional space moving along a continuum of time. However, the subjective realm is that which is "possible," but it is also "real," indicating that the underlying order to reality can be influenced by Hopi collective desire and is thus somewhat fluid, not completely independent of human perception (61). They would be both - the objective realm is concrete reality that has come to pass - it is fixed. The subjective realm is to some extent discovered (all things are with us always) and partly invented (the Hopi can help determine which events become objective).

The existence of Hopi metaphysics, if it is as dramatically different as Whorf argues, constitutes strong evidence for metaphysical idealism. A concept so fundamental and intuitive as time cannot be absent from a metaphysics if the underlying order of reality is fixed and independent of human observers. Hopi metaphysics imply that time is a human construction instead of a principle structure of the universe. One is skeptical of Whorf's dramatic conclusions, however, as the Hopi are an isolated case. Metaphysics that do not have a concept of time, indeed deviant metaphysics at all, are not widespread

in different societies despite the existence of thousands of isolated and far-flung communities. What is it that make the Hopi unique, and does this not imply that they are psychologically deviant rather than representatives of legitimate metaphysics? It is possible that the different metaphysics such as the Hopi's were not so rare, but that colonization and domination by Western powers eradicated the metaphysics before psychology had the means and inclination to notice them, in the same way that native "heathen" religions were destroyed. The manuscript for this article was release after Whorf's death. Perhaps Whorf would have offered greater proof of his claims for the final draft for publication. Without detailed historical records of the metaphysics of tribes throughout the world, it may be impossible to experimentally verify whether the current conventional metaphysics is a reflection of an ordered universe or merely the dominant interpretation among the many possible.