Review of *Language in Thought and Action*

by **S. I. Hayakawa**

This is not a "book review." It is not even a review but a proposed adaptation of some points of view which may be gained by studying the Mathematical Philosophy of Bertrand Russell and more especially Cassius Keyser. One regrets that the semantic movements have failed to take into account either the friendship between Alfred Korzybski and Cassius Keyser, or the outlooks presented in the basic works on Mathematical Philosophy to relate them to the new Language-Arts or to modern Linguistics. There may be some suggestions here which could prove fruitful fields for research or papers, but even that is not the purpose of this article.

Lord Snow has presented his "two cultures" which may be roughly referred to as "scientific" and "literary humanist," but only roughly. The term "science" is generally defined pragmatically rather than rigorously and here one presents the Russell-Keyser view that Science deals with categorical propositions and Mathematics with prepositional functions.

No doubt a good deal of Russell and more of Keyser appears in "Science and Sanity" but on the whole these portions of the great work are by-passed or only superficially treated. The result is that many persons use the words "Science" and "Mathematics" without distinct definitions or referents. And also they seem unable to grasp the import of Russell's "confusion of types."

We can reword this also to indicate that Mathematics, along with Logistics, deals with measurers and matrices rather than what are usually called "realities." We utilize measurers, matrices, etc. in order to comprehend things and phenomena.

The turn "logistics" is used because too often Logic refers to the special system of Aristotle. Traditionally there are at least two other systems of Logic which have affected men's minds but which Western scholars have overlooked, i.e. the Nyaya Logics of India and the Buddhist Logics, or Logistics. Briefly speaking Nyaya is nearer pure Semantics for it differs from Aristotelian Logic in demanding referents.

Buddhist Logics, especially that of Dignaga holds that when syllogisms differ from human experience there is something wrong with the syllogisms. This system would not have suffered by the discovery of Radio-activity, or the potential acceptance of Parapsychology, etc. (This is not to uphold Parapsychology, merely to indicate it would fall well within Buddhist Logistics, or could apply Buddhist Logics.)

We thus find traditionally three systems of Logics corresponding with some analogies to the doctrines of Euclid, Lobachevski and Riemann. Meta-mathematics began when it found mankind could not be limited by either a system of Logic or Geometry but would manipulate them to explain some experiences of mankind; that all the "space" and other experiences were not always explained by one of these doctrinal Geometries.

Actually East and West came closer with the presentation of Relativity, for the Logic of Dignaga's Buddhist presentations ended with a strong defense of Relativity rather than a solution. And there is some question whether any system of traditional Logic or Mathematics alone could uphold a solution, but instead would fall within the errors pointed out by Russell's "confusion of types."

In other words each system of Mathematics and each system of Logic (until modern Polish systems were devised) could be used to explain phenomena and/or thought. Thus the conclusion is that both Logic and Mathematics, dealing with prepositional functions, have a definite place in human culture, coordinate but different from what is known as "Science."

The suggestion here is that "Language in Thought and Action" belongs in this field, a field itself perhaps not thoroughly studied. Therefore any analytical or "book review" of Hayakawa's work could be self-defeating. We cannot expose Euclid though we can criticize his theory of parallels. Yet Euclid was long used.

Surveying has resulted in quite different pragmatic parallels from E-geometric parallels; parallels of Longitude meet, parallels of Latitude do not meet. Therefore there must be some adjustment either as Einstein did in his work on relativity and use of Minkowski or as Hayakawa has done there.

In other words, the test of "Language in Thought and Action" must come in application and its success or failure in the solution of problems. But it is proposed here that if there are any shortcomings in "Language in Thought and Action," these can only be corrected by further work in the same or related fields.

The first physicists no doubt used balances and foot-rules. The veneer, the caliper, the slide-rule, the pump, etc. came along later. The use of complicated instruments did not invalidate the simpler ones; they helped to perfect the science and art of measurement. Therefore if there are any short-comings in the views of Dr. Hayakawa as to "prepositional function" etc. which are the subject of this work, they would be uncovered or discovered later. This is what one hopes.