

Letters

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method of "dichotomy," as more thorough consideration of the article would reveal. However, as described in the article, the logical computations involved are of necessity far more complicated than the simple example Kunin gives in his letter. The references to Kemeny, Ashby, and Culbertson noted by Kunin are exceedingly superficial remarks which, in essence, claim that logic is good and useful. In our article

we attempted to go somewhat further, to present an introduction to the means by which logic can be utilized and integrated with other mathematical disciplines into a multistage decision process. Kunin's remark is analogous to telling a physicist that mechanics is based on Newton's laws. This we know; the problem is how to apply them. Algorithms for the more complicated logical computations are given in references 5, 6, and 7 of our article. [See, for example, R. S. Ledley, *Digital Computer and Control Engineering*, McGraw-Hill, New York, in press.]

Note however that in its simplest form the "conditional probability or learning device" described in the article is in a sense a "logic machine" as well as a probability machine.

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Struggle and Stimulus

The recent editorial by Warren Weaver, "Dither" [*Science* 130, 301 (7 Aug. 1959)] is highly interesting and perhaps reflective of something deeply significant.

It is common to look at situations like the complete absence of friction, or the complete absence of invasion of the human body by afflictions of any sort, as the optimum toward which to work. The heaven of which one dreams is one devoid of all adversity—a place where wants are fully and constantly satisfied.

But can it be so? Weaver points out a function of irritation. Some evidence persists that optimum "health" is a state of successful struggle against organisms; that from such struggle the body gains a quality it would not otherwise attain. Economic endeavor, a persistent battle against want which can never be completely won, may be useful therapy against a sense of futility. A life totally devoid of need and struggle and choice, in other words, describes a hell rather than a heaven.

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Warren Weaver's editorial pleases me because it seems to go along with my own ideas on overspecialization in this world of ours. It is useful to see the woods sometimes as well as the trees.

I should like to go even farther than he does and say that some town ought to invest more money in training and hiring its teachers for the first four grades of elementary schools than it does for its high schools. The young mind, stimulated by the exciting new ideas of our present world, ought to be trained to work and think efficiently during the enthusiastic days of its first discoveries. Years of wasted time could be saved for many of our coming scientists.

Our fabulously rich foundations give millions to colleges. This is to be commended, but they could be missing their great chance. Whatever our children accomplish in their lives, their accomplishments will be greater if they learn to think at 6 instead of 16.

URANA CLARKE

Barrington, Rhode Island

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