Letters

Editor:
Having worked on real-time expert systems for several years, I read with interest the survey article "Real-Time Knowledge-Based Systems" by Thomas Laffey, et al. in the recent edition of AI Magazine. Indeed, the work of myself and my colleagues was mentioned, but the description of YES/L1 in the article was incorrect in several ways.

Laffey and his coauthors incorrectly describe YES/L1 as being "implemented in OPS5 and MacLisp " They seem to be confusing YES/L1, the shell, with YES/MVS was written in OPS5.

YES/L1 is a compiled, data-driven language and an environment for developing interactive and real-time expert systems. The YES/L1 language is an integration of procedural and rule-based techniques. Condition-action rules in YES/L1 are driven by a RETElike algorithm. In this regard, YES/L1 can be characterized as a descendant of OPS5. The procedural subset of YES/L1 is PL/I, and the YES/L1 run-time library is implemented in PL/I YES/L1 supports subroutines and begin blocks of rules, as well as blocks of procedural code. Thus developers of YES/L1 applications may use structured programming techniques to organize their design and may intermix rule-based and procedural blocks as appropriate for the problem at hand

YES/L1 has been successfully used in the development of several major expert systems including IBM's configurator for its 9370, mid-sized computing systems, and including later versions of YES/MVS There is a commercially available product, IBM KnowledgeTool, that is a YES/L1 derivative. KnowledgeTool runs on IBM mainframe computers under the standard IBM operating systems and sub-systems, and it provides access to IBM databases.

YES/L1 has been a successful tool for expert system development, and the record should be corrected.

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Editor:
I would like to comment on Jon Doyle's "Big Problems for Artificial Intelligence" (Spring 1988). One can readily agree with the idea that the larger context in which AI finds itself enhances the work being done The term "AI winter" is due more to the "AI neurosis (neurosis here means that the concept of self is disjoint from reality; psychosis then is neurosis to the extent that the victim becomes incapacitated and cannot function normally in society) than the state of the art. Contrary to the idea of "winter," AI is solving more and more real-world problems The resulting research money and corporate support of AI is an advantage to the field. The worst thing that could happen is that AI becomes irrelevant.

The AI neurosis is embodied in the writer's indirect question, "where, the old hands ask, have the big ideas gone?" The big ideas are AI's own version of Herman Hesse's The Glass Bead Game In this novel, set in the future, there is a game that is played whose intellectual refinement is so exquisite and fascinating that all of society supports it and those who play it. Few in society are so skilled as to master it But as fascinating as it is, for anything in the real world it is utterly useless.

As long as a given AI problem remains intractable, it is embraced by its adherents. If it is no longer intractable, it is abandoned in favor of a "bigger idea." Some have even suggested that something as AI as expert systems are no longer AI problems. Is it because they have been "mastered," or have become "trivial?" Indeed, many new problems for these applications add to the complexity of the solutions rater than trivialize them. Furthermore, using analogous reasoning to such an assertion, building a fusion reactor removes nuclear fusion from the study of atomic physics, or Newton's calculus, when trivialized by being offered as freshman college course, is no longer mathematics.

There is no need to go through a recitation of the well-known AI systems today or to review an endless list of corporations who are supporting more and more work in this field The point to be made is that the applications of artificial intelligence is at a plateau from which it can rise or fall It can rise by solving the problems of people and corporations and real-world problems in new and innovative ways. It can fall by giving expectations which cannot be attained or by making promises which it cannot keep.

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Editor·
Bruce David's letter (Summer 1988) irritates me enough to reply to it, even against my better judgement The issue of computer creativity is one fraught with flakiness on both sides In the blue corner there are the Luddites who believe that there is something morally wrong with the concept of a thinking machine, while in the red corner there are the space cadets who believe that not only personkind but the entire universe is a machine (whose activities must therefore be thoroughly predictable).

Both sides are wrong, of course, and it remains for serious scientists, engineers, and thinkers of all persuasions (and origins) to trace a delicate path through the underbrush of misapprehension and wild conjecture with which the AI endeavor is fraught.

It seems to Mr. David that "it is the nature of creativity to be unpredictable " He follows this with an insubstantial argument in which he

uses John Cage's "3' 33"" as an example. He seems to consider the notion that we might be able to describe the parameters of what constitutes music to be a brave and unusual one. Believe me, Bruce, there are many people at large who believe they know what the nature of music is, and that they can describe it, and to whom John Cage's concept did not come as a shock. One's capacity for predicting behavior depends on one's acuity and perseverance in observing it, given the limits that Heisenberg noted for us.

Mr. David's concept of a machine is also somewhat limited. Anyone who has dabbled in electronic engineering knows that machines are not perfectly predictable. We do not live in a perfect world. The errors a machine produces are perceived as errors by fallible human engineers who lack total control over matter. However, as G K. Chesterton remarked, there is no reason to marvel at a train leaving Victoria Station and arriving in Timbuktu or some other romantic and adventurous destination, but there is every reason to marvel in the achievements of the engineers who have contrived to make it arrive on time at its appointed destination. Achieving order out of chaos is a more marvellous feat than creating a mystical miasma to surround everyday events like thinking. Creative thinking is something that engineers do everyday. Just because we don't understand how to represent that creative process well, there is no reason to assume some nonmaterial basis for its existence.

Mr. David's argument is in the New Age style which elevates obscurantism to a virtue, as spirituality, while decrying the technology that permits the luxury of such sloppy thinking I recommend a few good books for enlightenment. *Brains, Machines, and Mathematics,* by Michael Arbib, Paul Churchland's *Matter and Consciousness,* Gregory Lakoff's *Women, Fire, and Dangerous Things,* and James Glieck's *Chaos* will do for a start.

If I were foolish enough to be convinced by Mr. David's reasoning, I would feel as if I have been privileged to see a brief Golden Age of secular humanist enlightenment which is doomed to be "crushed by the weight of its failure to achieve the impossible." However, I remain unconvinced, as I am sure many of my fellow readers will be, and look forward to many more happy hours contemplating the miracle by which my fellow beings make sense of the world, and trying to capture, in a consensual discourse, some of the commonality of our experience. (Talking about AI, that is.)

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