CYBERNETICS AND ARTIFICIAL INTELLIGENCE

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Twenty years ago the terms "Cybernetics" and "Artificial Intelligence" were almost synonymous; since then they have come to have rather different connotations. Reasons will be given for believing that the focus of AI interest will return to the "Cybernetic Approach", and that progress will be made by explicity considering feedback pathways which permit multi-level adaptation in networks. Results from computer simulations of networks embodying a principle of "significance feedback" will be presented.

The study of feedback pathways permitting adaptation in complex networks constitutes an approach which bridges a conceptual gap within Cybernetics itself, since different difinitions of the subject-area have stressed either the complex-system aspect or the feedback-regulation aspect. The assertion that the approach is appropriate to the study of natural systems requires justification, and this will be attempted.