

INFORMATION- THEORETIC COMPUTATIONAL COMPLEXITY

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This paper attempts to describe, in non-technical language, some of the concepts and methods of one school of thought regarding computational complexity. It applies the viewpoint of information theory to computers. This will first lead us to a definition of the degree of randomness of individual binary strings, and then to an information-theoretic version of Gödel's theorem on the limitations of the axiomatic method. Finally, we will examine in the light of these ideas the scientific method and von Neumann's views on the basic conceptual problems of

biology.