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School of Economic Sciences and Business Articles

1971

# On the synthesis of general systems

Weintraub, Roy E.

Society for General Systems Research

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| **Title:** | ON THE SYNTHESIS OF GENERAL SYSTEMS |
| **Year:** | 1971 |
| **Author:** | Weintraub, Roy E. ; Makridakis, Spyros |
| **Abstract:** | In Part I, we extended the work of Ashby [1,2] to develop an analytical framework for determining the relation betweén system size and system stability. It was established that, for linear dynamic systems, as the number of state variables increased, the probability that the system would be stable decreased exponentially. For particular classes of systems, with entries (of the matrices) randomly sampled from a universe of entries described by a distribution, the probability of stability of a system of size z could be explicitly obtained; that is, we could make statements like "x% of the matrices representing a system S with characteristics [Aklk e I will be stable matrices." |

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