

Abstract Submitted
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Shannon's entropy decreases spontaneously in certain isolated systems SATORU SATO, Dept. of Network and Multi-Media Engineering, Kanto Gakuin University — In this study, we present an isolated system in which the Shannon's entropy decreases spontaneously. Of course physical entropy must increase in an isolated system according to the second law of thermodynamics. But Shannon's entropy which depends on the view point of an observer can decrease in certain isolated systems entailed by the increase of the physical entropy. As Shrödinger said in his famous book "entropy, taken with the negative sign, is itself a measure of order"[1]. However, the order of living organisms is not just the decrease of the physical entropy itself, but something in larger scale, for example proteins. This fact suggests that the formation of order does not necessarily involve the emission of physical entropy from the view point of information theory.

[1] E. Shrödinger, WHAT IS LIFE?, first published 1944

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