Semicomputability and Nonlocality

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Abstract

This paper introduces the first nonlocal physical properties since EPR entanglement in 1935. The algorithmic entropies of any two closed and isolated systems anywhere in the universe are asymptotically correlated. Two systems evolving over time cannot have algorithmic entropies that are synchronized. For any two systems evolving over time, their joint algorithmic entropy oscillates in a highly controlled manner. The dynamics need not be computable. Thus there are deep connections between semicomputability and nonlocality. These results imply classical physics itself is highly nonlocal.