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Erik M Bolt* (bolttem@clarkson.edu), Clarkson University, Department of Mathematics,
Potsdam, NY 13676. *SYNCHRONIZATION AS A PROCESS OF SHARING AND
TRANSFERRING INFORMATION.*

Synchronization of chaotic oscillators has become well characterized by errors which shrink relative to a synchronization manifold. This manifold is the identity function in the case of identical systems, or some other slow manifold in the case of generalized synchronization in the case of nonidentical components. On the other hand, since many decades beginning with the Smale horseshoe, chaotic oscillators can be well understood in terms of symbolic dynamics as information producing processes. We study here the synchronization of a pair of chaotic oscillators as a process of their sharing information bearing bits transferred between each other, by measuring the transfer entropy tracked as the global systems transitions to the synchronization state. Further, we present for the first time the notion of transfer entropy in the measure theoretic setting of transfer operators. (Received June 13, 2011)