

**Supplementary Materials:**  
**Ordinal partition transition network based complexity measures for inferring coupling**  
**direction and delay from time series**

(Dated: March 1, 2019)

**SM-I. SAMPLE SIZE EFFECTS ON  $\sigma_{X \rightarrow Y}$**

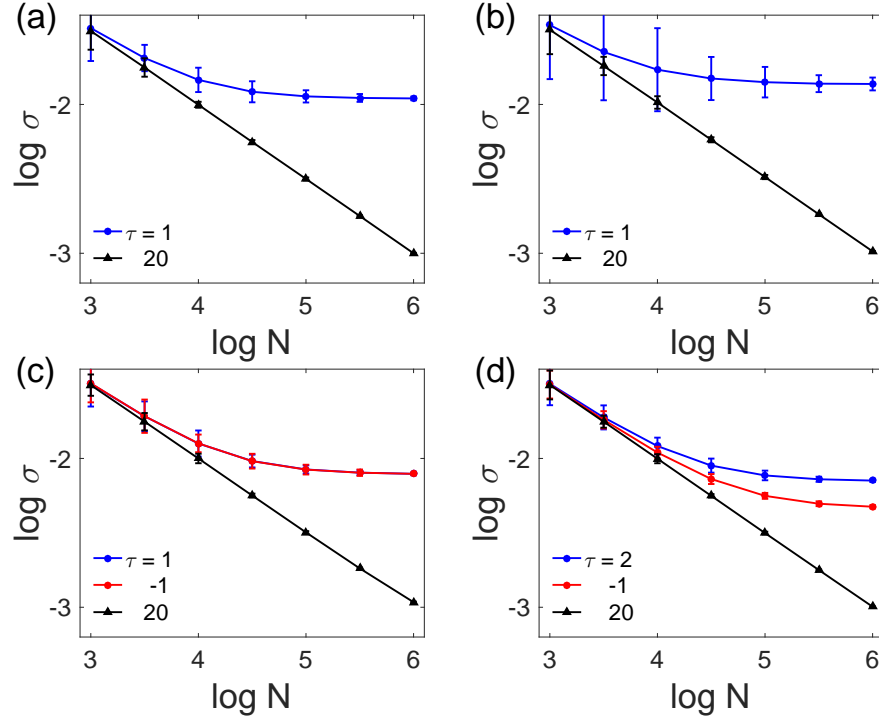


FIG. S1: (Color online) Double logarithmic plot of the dependence of  $\sigma_{X \rightarrow Y}(\tau)$  on the sample size  $N$  for the optimal (causal) lags (blue/red) and some non-causal lag (black) for the four cases of coupled linear-stochastic systems: (a) Eq. (??) (unidirectional), (b) Eq. (??) (unidirectional), (c) Eq. (??) (symmetric bidirectional), (d) Eq. (??) (asymmetric bidirectional). In (c,d), the values for both causal delays are shown. Errorbars correspond to the standard deviation (linear scale) over 20 independent realizations.

**SM-II. SAMPLE SIZE EFFECTS ON CO-OCCURRENCE ENTROPY  $H_{X \rightarrow Y}$**

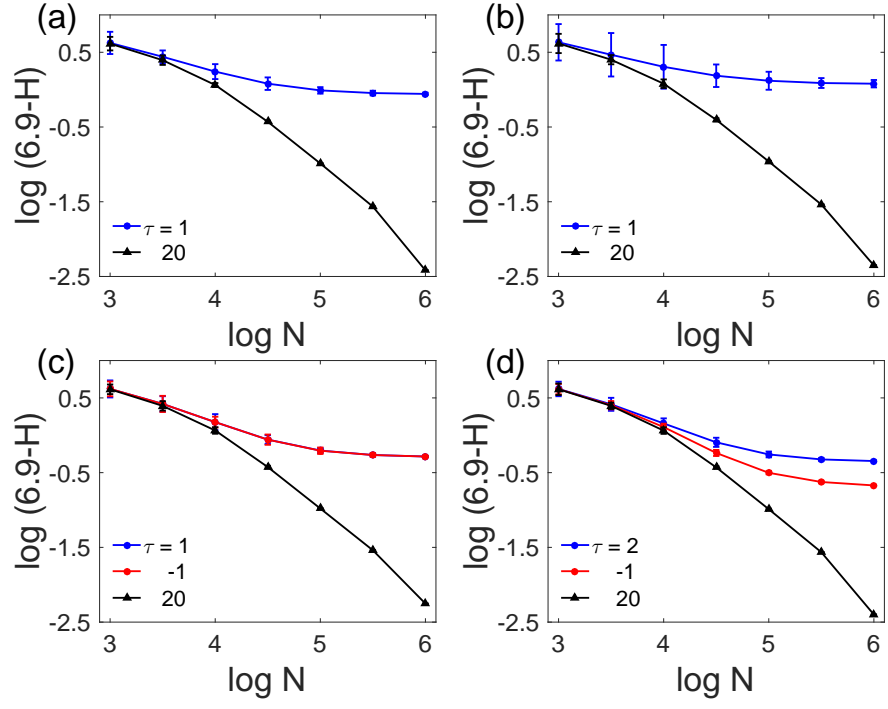


FIG. S2: (Color online) The caption is the same as Fig. S1, but for the co-occurrence entropy  $H_{X \rightarrow Y}(\tau)$ .