We present a general driving protocol for many-body systems to generate a sequence of prethermal regimes, each exhibiting a lower symmetry than the preceding one. We provide an explicit construction of effective Hamiltonians exhibiting these symmetries. This imprints emergent quasiconservation laws hierarchically, enabling us to engineer the respective symmetries and concomitant orders in nonequilibrium matter. We provide explicit examples, including spatiotemporal and topological phenomena, as well as a spin chain realizing the symmetry ladder $SU(2) \to U(1) \to Z2 \to E$.

Reference: arXiv:2402.13519