Bridging global and local quantum quenches in conformal field theories XUEDA WEN, UIUC — Entanglement evolutions after a global quantum quench and a local quantum quench in 1+1 dimensional conformal field theories (CFTs) show qualitatively different behaviors, and are studied within two different setups. In this work, we bridge global and local quantum quenches in (1+1)-d CFTs in the same setup, by studying the entanglement evolution from a specific inhomogeneous initial state. By utilizing conformal mappings, this inhomogeneous quantum quench is analytically solvable. It is found that the entanglement evolution shows a global quantum quench feature in the short time limit, and a local quantum quench feature in the long time limit. The same features are observed in single-point correlation functions of primary fields. We provide a clear physical picture for the underlying reason.

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