**Concept Question 3-12:** What role do zeros of transfer functions play in system invertibility?

The zeros of transfer function $\mathbf{H}(\mathbf{s})$ are the poles of the transfer function of the inverse system $\mathbf{G}(\mathbf{s}) = 1/\mathbf{H}(\mathbf{s})$. So a stable inverse system exists only if the zeros of $\mathbf{H}(\mathbf{s})$ are all in the left half-plane.