Definition (Bounded lattice homomorphism)
Given two bounded lattices $\mathbf{P}, \mathbf{Q}$, a *bounded lattice homomorphism* is a lattice homomorphism $f : \mathbf{P} \to \mathbf{Q}$ which also preserves top and bottom:

$$f(\bot_{\mathbf{P}}) = \bot_{\mathbf{Q}}$$
$$f(\top_{\mathbf{P}}) = \top_{\mathbf{Q}}$$