EQUIVALENCE CLASSES OF LINEAR MAPPINGS ON $\mathcal{B}(\mathcal{M})$

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ABSTRACT. Let $\mathcal{M}$ be a Hilbert C^*-module over the C^*-algebra $\mathcal{A}$, $\mathcal{B}(\mathcal{M})$ the C^*-algebra of all adjointable operators on $\mathcal{M}$, $\mathcal{L}(\mathcal{B}(\mathcal{M}))$ the algebra of all linear operators on $\mathcal{B}(\mathcal{M})$. For a property $\mathcal{P}$ on $\mathcal{B}(\mathcal{M})$ and $\phi_1, \phi_2 \in \mathcal{L}(\mathcal{B}(\mathcal{M}))$ we say that $\phi_1 \sim_{\mathcal{P}} \phi_2$, whenever for every $T \in \mathcal{B}(\mathcal{M})$, $\phi_1(T)$ has property $\mathcal{P}$ if and only if $\phi_2(T)$ has this property. Each property $\mathcal{P}$ produces an equivalence relation on $\mathcal{L}(\mathcal{B}(\mathcal{M}))$. If $\mathcal{I}$ denotes the identity map on $\mathcal{B}(\mathcal{M})$ it is clear that $\phi \sim_{\mathcal{P}} \mathcal{I}$ means that ϕ preserves and reflects property $\mathcal{P}$. We are going to study the equivalence classes with respect to different properties such as being $\mathcal{A}$-Fredholm, semi-$\mathcal{A}$-Fredholm, compact and generalized invertible.

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