

Unitary equivalence of weighted shifts

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Abstract

Let \mathcal{H} be a nonzero Hilbert space and $\mathbf{B}(\mathcal{H})$ be the algebra of bounded operators defined on \mathcal{H} . Let $\{S_n\}_{n \in \mathbb{Z}} \subseteq \mathbf{B}(\mathcal{H})$ be a two-sided sequence of bounded nonzero operators such that $\{\|S_n\|\}_{n \in \mathbb{Z}}$ is bounded. We say that an operator $S: \oplus_{n \in \mathbb{Z}} \mathcal{H} \rightarrow \oplus_{n \in \mathbb{Z}} \mathcal{H}$ is a *bilateral operator valued weighted shift* defined on \mathcal{H} if for all $x \in \oplus_{n \in \mathbb{Z}} \mathcal{H}$ it holds that

$$Sx = (\dots, S_{-1}x_{-2}, \boxed{S_0x_{-1}}, S_1x_0, \dots),$$

where $x = (\dots, x_{-1}, \boxed{x_0}, x_1, \dots)$ and $\boxed{x_0}$ denotes the central element of x .

This talk is based on my recent work regarding unitary equivalence of bilateral operator valued weighted shifts.