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On selfadjoint extensions of semigroups of partial isometries

Let $\mathcal{S}$ be a semigroup of partial isometries acting on a complex, infinite-dimensional, separable Hilbert space. We shall discuss criteria which will guarantee that the selfadjoint semigroup $\mathcal{T}$ generated by $\mathcal{S}$ consists of partial isometries as well. Amongst other things, we show that this is the case when the set $\mathcal{Q}(\mathcal{S})$ of final projections of elements of $\mathcal{S}$ generates an abelian von Neumann algebra of uniform finite multiplicity.