

ABSTRACT. This paper concerns the structure of strongly continuous one parameter semigroups of completely positive contractions of $\mathfrak{B}(\mathfrak{H}) = \mathfrak{B}(\mathfrak{K} \otimes L^2(0, \infty))$ which are intertwined by translation. These are called CP-flows over \mathfrak{K} . Using Bhat's dilation result each unital CP-flow over \mathfrak{K} dilates to an E_o -semigroup of $\mathfrak{B}(\mathfrak{H}_1)$ where \mathfrak{H}_1 can be considered to contain $\mathfrak{B}(\mathfrak{K} \otimes L^2(0, \infty))$. Every spatial E_o -semigroup is cocycle conjugate to one dilated from a CP-flow. Each CP-flow is determined by its associated boundary weight map which determines the generalized boundary representation. The index of the E_o -semigroup dilated from a CP-flow is calculated. Machinery for determining whether two CP-flow dilate to cocycle conjugate E_o -semigroups is developed.