NOTATION

For a locally compact space with a countable base, T, we shall denote by $C(T)$ the space of all real continuous functions and by $C_o(T)$, $C_c(T)$, $C_b(T)$ the subspaces of functions vannishing to infinity, of functions of compact support, of bounded functions. The space of all real Borel functions on T will be denoted by $\mathcal{B}(T)$ and the subspace of bounded Borel functions by $\mathcal{B}_b(T)$.

A kernel on T will be a positive linear operator V from $\mathcal{B}_b(T)$ into $\mathcal{B}(T)$ such that for each $x \in T$ the map $f \longrightarrow Vf(x)$ defines a Radon measure. The measure associated to x is denoted by V^x, i.e. $V^x(f)=$ $=Vf(x)$.

All terminology and notation on Markov processes will be that of [6]. Particularly if $(\Omega, M, M_t, X_t, \theta_t, P^x)$ is a standard process with state space $(E,\mathcal{E})$, f is a nearly Borel positive function and A is a nearly Borel set we use the notation $T_A=\inf\{ t>0 / X_t \in A\}$, $P_A^\lambda f(x)=$ $=E^x[\exp(-\lambda T_A).f(X_{T_A}), T_A<\infty]$ and $P_A=P_A^0$.

We say that a standard process is continuous if $t \longrightarrow X_t$ is a.s. continuous on $[0,\zeta)$.

For the terminology and notation from the theory of harmonic spaces which is not specifically explained here we refer to [13].

I. LOCAL OPERATORS

1. General Properties

1.1. A sheaf of vector spaces of real continuous functions on a locally compact space, X, is a family $\{\mathcal{A}(U)/U \text{ open set}\}$ such that:

1^o For each open set U, $\mathcal{A}(U)$ is a vector space of real continuous functions on U;

2^o If $U_1 \subset U_2$ are open sets and $f \in \mathcal{A}(U_2)$ then $f_{|U_1} \in \mathcal{A}(U_1)$;

3^o If $\{U_i / i \in I\}$ is a family of open sets, $U=\bigcup_{i\in I} U_i$ and $f \in C(U)$ satisfies $f_{|U_i} \in \mathcal{A}(U_i)$, then $f \in \mathcal{A}(U)$.

1.2. A local operator, L, on a locally compact space, X, is a pair $(\{D(U,L)/U \text{ open set}\}, \{(L,U)/U \text{ open set}\})$, where $\{D(U,L)/U$ open set$\}$ is a sheaf of vector spaces of real continuous functions on X and $\{(L,U)/U \text{ open set}\}$ is a family of linear operators such that:

1^o $(L,U) : D(U,L) \longrightarrow C(U)$ is a linear operator.