134. *Propagation of Chaos for Certain Markov Processes of Jump Type with Nonlinear Generators.* II

By Hiroshi TANAKA
University of Tokyo

(Comm. by Kunihiko KODAIRA, M. J. A., Sept. 12, 1969)

This is a continuation of the previous paper [3], and treats a generalization of Wild's sum for $\{H_p^t\}$ and the propagation of chaos for the nonlinear equation (1.1). All the notations are preserved; §§1, 2 and numbered formulas which are quoted here are in [3].

3. A generalization of Wild's sum. The expression (2.1) defining the linear semigroup $\{H_p^t\}$ associated with the equation (1.1) leads naturally to a generalization of Wild's sum [1] as will be explained here. Denote by τ^k, $k\geq 1$, the tree with only one branching point which is k-fold, and give a number j $(1\leq j\leq k)$ to each extreme point (or top) of the tree τ^k as in Fig. 1. We define the set T_n, $n\geq 1$, of trees with n extreme points and also the numbering to extreme points of each tree in T_n, inductively as follows.

i) $T_1=\{\tau^1\}$, $T_2=\{\tau^2\}$.

ii) $\tau\in T_n$, $n\geq 2$, is either a) $\tau=\tau^n$ or b) $\tau=(\tau', i, j)$ with $\tau'\in T_{n-j+1}$, $1\leq i\leq n-j+1$, $2\leq j\leq n$, where $(\tau'\ i,\ j)$ denotes the tree which is obtained by connecting τ^j at the i-th top of τ'. In particular, $(\tau^1, 1, n)$ is τ^n itself. In the case $\tau=(\tau', i, j)$, those extreme points of τ which are also extreme points of τ^j have the numbers $i, n-j+2, n-j+3, \cdots, n$, while other extreme points of τ have the same numbers as τ' (see Fig. 2).

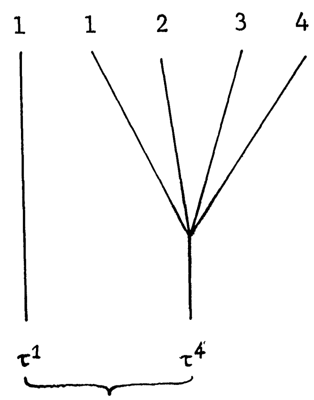

Fig. 1

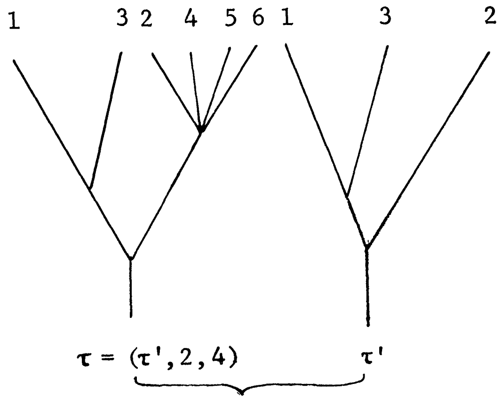

Fig. 2

Next, we set $T=\bigcup_{n=1}^{\infty} T_n$, $N(\tau)=n$ for $\tau\in T_n$, and $T_1'=T$,