95. *A Class of Purely Discontinuous Markov Processes with Interactions. II*[1)]

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1. Consider a branching model as follows. Let b_0 be a trivial branch or a pole, and let (b_0, b_0) be as in Fig. 1. T is the set of all branches which grow downward with binary branching points.

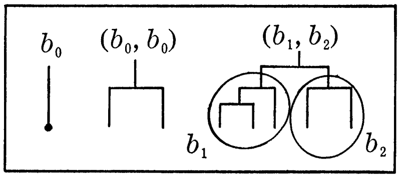

Fig. 1

$b=(b_1, b_2)$ is the branch which have b_1 and b_2 on the left and the right hand of the highest branching point, respectively. Length $l(b)$ and a number $\sharp(b)$ are defined by

$$l(b_0)=0, \quad l(b)=1+\max(l(b_1), l(b_2)),$$
$$\sharp(b_0)=1, \quad \sharp(b)=\sharp(b_1)+\sharp(b_2), \quad \text{for } b=(b_1, b_2).$$

T_n denotes the set of all branches with length at most n. $b_0(x)$ is the trivial branch with variable $x \in R$ at the bottom, and $b(x)$ is the branch b with variable x at the bottom of the left extreme point. The correspondence $b \rightleftarrows b(x)$ is clearly one to one. $T(x)$, $l(b(x))$, $\sharp(b(x))$, $T_n(x)$ $(b_1(x), b_2)$, for $b_1(x) \in T(x)$ and $b_2 \in T$, are defined similarly. The following is clear by induction:

$$T_0=\{b_0\}, \quad T_{n+1}=\{b_0\} \cup \{(b_1, b_2), b_1, b_2 \in T_n\}$$
$$(1) \quad T_0(x)=\{b_0(x)\}, \quad T_{n+1}(x)=\{b_0(x)\} \cup \{(b_1(x), b_2), b_1(x) \in T_n(x), b_2 \in T_n\}$$
$$T=\bigcup_{n=0}^{\infty} T_n, \quad T(x)=\bigcup_{n=0}^{\infty} T_n(x).$$

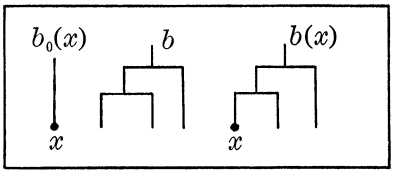

Fig. 2

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