$$P_{ik}(\tau-h,t)=\sum_{\nu}P_{i\nu}(\tau-h,\tau)\,P_{\nu k}(\tau,t)$$

$$\frac{P_{ik}(\tau-h,t)-P_{ik}(\tau,t)}{h}=$$

$$=-c_i(\tau)\,P_{ik}(\tau,t)+\frac{1}{h}\sum_{\nu\neq i}P_{i\nu}(\tau-h,t)\cdot P_{\nu k}(\tau,t)+\frac{o(h)}{h}$$

$$\frac{1}{h}P_{i\nu}(\tau-h,t)\to c_i(\tau)\,p_{i\nu}(\tau)$$

$$\frac{\partial P_{ik}(\tau,t)}{\partial\tau}=+c_i(\tau)\,P_{ik}(\tau,t)$$

$$-c_i(\tau)\sum_{\nu}p_{i\nu}(\tau)\,P_{\nu k}(\tau,t)$$

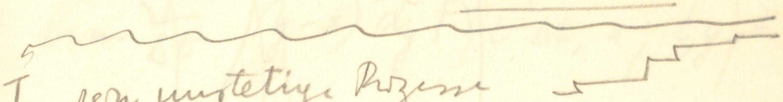
backward equation

$$P_{ik}(t,t)=\begin{cases}1 & i=k\\ 0 & i\neq k\end{cases}$$

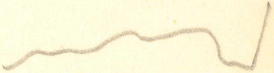
forward u. backward haben identische Lösung

ÜBGRABwahlber : Beliebige

reelle Werte



I. rein unstetige Prozesse



II. rein stetige Prozesse

Rein Unstetig: Feller-Kolmogoroff

$$F(\tau,x;t,y)=$$

$$(1-c_x(\tau)(t-\tau))\,E(x,y)+$$

$$+(t-\tau)\,c_x(\tau)\,p_{xy}(\tau)+o(t-\tau)$$

backward equation

$$\frac{\partial F(\tau,x;t,y)}{\partial\tau}=c_x(\tau)\Big[F(\tau,x;t,y)-\int F(\tau,x;t,y)\,d_z p_{xz}(\tau)\Big]$$

forward equation

$$\frac{\partial F(\tau,x;t,y)}{\partial t}=-\int_{-\infty}^{y}c_z(t)\,d_z F(\tau,x;t,y)+$$

$$+\int c_z(t)\,p_{zy}(t)\,d_z F(\tau,x;t,z)$$