

$$\begin{aligned}
W(T_t q', t) &= W(T_t q + T_t \delta q, t) = W(T_t q, t) + \int_{\mathbb{R}} \mathrm{d}\sigma \frac{\delta W(T_t q, t)}{\delta q(\sigma)} \delta q(\sigma) \\
&= W(T_t q, t)
\end{aligned}$$