

```

QZip $\xi s$ _List,simp_ @ $\mathbb{E}[L_, Q_, P_]$  :=

Module[{ $\xi$ , z, zs, c, ys,  $\eta s$ , qt, zrule, Q1, Q2},
zs = Table[ $\xi^*$ , { $\xi$ ,  $\xi s$ }];
c = Q /. Alternatives @@ ( $\xi s \cup$  zs)  $\rightarrow$  0;
ys = Table[ $\partial_{\xi}(Q /.$  Alternatives @@ zs  $\rightarrow$  0), { $\xi$ ,  $\xi s$ }];
 $\eta s$  = Table[ $\partial_z(Q /.$  Alternatives @@  $\xi s \rightarrow$  0), {z, zs}];
qt = Inverse@Table[K $\delta_{z,\xi^*} - \partial_{z,\xi}Q$ , { $\xi$ ,  $\xi s$ }, {z, zs}];
zrule = Thread[zs  $\rightarrow$  qt.(zs + ys)];
Q2 = (Q1 = c +  $\eta s.zs /.$  zrule) /. Alternatives @@ zs  $\rightarrow$  0;
simp /@  $\mathbb{E}[L, Q2, \text{Det}[qt] e^{-Q2} \text{Zip}_{\xi s}[e^{Q1} (P /.$  zrule)] ]];

QZip $\xi s$ _List := QZip $\xi s$ ,CF;

```