∇ ∇^*

g

Dual connection ∇^* coupled to (∇, g):
$Xg(Y,Z) = g\left(\nabla_X Y, Z\right) + g\left(Y, \nabla^*_X Z\right)$

Statistical structure (∇, g): torsion-free connection ∇
$\left(\nabla_X g\right)(Y,Z) - \left(\nabla_Y g\right)(X,Z) = -g\left(T^{\nabla}(X,Y), Z\right)$

Statistical structure of constant curvature κ:
$^{\nabla}R(X,Y)Z = \kappa\left(g(Y,Z)X - g(X,Z)Y\right)$

Hessian structure of constant curvature c:
$\left(\nabla_X K^{(\nabla,g)}\right)(Y,Z) := \left(\nabla K^{(\nabla,g)}\right)(Y,Z;X) = -\frac{c}{2}\{g(X,Y)Z + g(X,Z)Y\}$

Difference tensor field:
$K(X,Y) := \nabla_X Y - \nabla^g_X Y$