$$C(y_c) = -\frac{{U_1'}^2(y_c)}{\pi^2 H_1^2(y_c) Q_1'(y_c) \left(C_{\mathrm{II}r}^2(y_c) + C_{\mathrm{II}i}^2(y_c)\right)}$$
$$\times \int \left(u_1(y) h_c^*(y; y_c) + h_1(y) u_c^*(y; y_c) - \frac{H_1^2(y) q_1(y) q_c^*(y; y_c)}{Q_1'(y)} \right) dy$$