$$\det\begin{pmatrix} c(t,t) & c(t,s) & c(t,r) \\ c(s,t) & c(s,s) & c(s,r) \\ c(r,t) & c(r,s) & c(r,r) \end{pmatrix}$$

$$= c(t,t)\left((s-r)^2 \det\left(f'(s), f'(r)\right) + o((s-r)^3)\right)$$

$$- c(t,s)\left(c(s,t)c(r,r) - c(r,t)c(s,r)\right)$$

$$+ c(t,r)\left(c(s,t)c(r,s) - c(s,s)c(r,t)\right)$$

$$c(s,t)c(r,r) - c(r,t)c(s,r)$$

$$= c(r,r)\Big(c(t,t) + \mathbb{E}[f'(t)f'(t)](s-t) + \mathbb{E}f'(t)f'(t)(s-t)^2$$

$$- c(r,t)\left(c(r,t) + \mathbb{E}[f'(t)f'(r)](s-t)\right.$$

$$\left. + \mathbb{E}[f'(t)f'(r)](s-t)^2 + \cdots\right.$$