$$\frac{\partial}{\partial a}\ln f_{a,\sigma^2}(\xi_1)=\frac{(\xi_1-a)}{\sigma^2}\,f_{a,\sigma^2}(\xi_1)=\frac{1}{\sqrt{2\pi}\sigma}\exp\left(-\frac{(\xi_1-a)^2}{2\sigma^2}\right)$$

$$\int_{R_n} T(x)\cdot\frac{\partial}{\partial\theta}f(x,\theta)dx=\mathrm{M}\left(T(\xi)\cdot\frac{\partial}{\partial\theta}\ln L(\xi,\theta)\right)$$

$$\int_{R_n} T(x)\cdot\left(\frac{\partial}{\partial\theta}\ln L(x,\theta)\right)\cdot f(x,\theta)dx=\int_{R_n} T(x)\cdot\left(\frac{\frac{\partial}{\partial\theta}f(x,\theta)}{f(x,\theta)}\right)$$