$$\mathsf{E}[\mathbf{x}_{ij}|T] = 2\mathbf{p}_i^T,$$

$$\begin{aligned} & \mathsf{Var}(\mathbf{x}_{ij}|T) = 2p_i^T \left(1 - p_i^T\right) \left(1 + f_j^T\right), \\ & \mathsf{Cov}(\mathbf{x}_{ij}, \mathbf{x}_{ik}|T) = 4p_i^T \left(1 - p_i^T\right) \varphi_{ik}^T, \end{aligned}$$

$$egin{aligned} \mathbf{x}_{ij}, \mathbf{x}_{ik} | T) &= 4 p_i^{\ \prime} \left(1 - p_i^{\ \prime} \right) \varphi_{jk}^{\ \prime}, \\ (1 - F_{\mathsf{IT}}) &= (1 - F_{\mathsf{IS}}) \left(1 - F_{\mathsf{ST}} \right), \end{aligned}$$

$$\left(1-f_{j}^{T}
ight)=\left(1-f_{j}^{L_{j}}
ight)\left(1-f_{L_{j}}^{T}
ight),$$

$$F_{\mathsf{ST}} = \sum_{j=1}^{n} w_j f_{L_j}^{\mathsf{T}},$$

$$\hat{\boldsymbol{\rho}}_{i}^{T} = \frac{1}{2} \sum_{i=1}^{n} w_{i} \boldsymbol{x}_{ij},$$

$$\hat{\varphi}_{jk}^{T,\text{new}} \xrightarrow[m \to \infty]{\text{a.s.}} \varphi_{jk}^{T}.$$

E, Var, Cov, round, sgn, logit, $\xrightarrow[m\to\infty]{\text{a.s.}}$, $\xrightarrow[n\to\infty]{}$, $\xrightarrow[n,m\to\infty]{\text{a.s.}}$, x_{ij} , p_i^T , \hat{p}_i^T , F_{ST} , F_{IT} , F_{IS} , f_{B}^{A} , f_{i}^{T} , $f_{i}^{L_{j}}$, $f_{L_{i}}^{T}$, φ_{ik}^T , $\varphi_{ik}^{L_{jk}}$, $f_{L_{ik}}^T$, $f_{L_i}^{L_{jk}}$, R_{ST} , ϕ_{ST} , G_{ST} , G'_{ST} , \hat{F}_{ST}^{sample} , \hat{F}_{ST} , \hat{F}_{ST}^{indep} , \hat{F}_{ST}^{WC} , \hat{F}_{ST}^{Hudson} $\hat{F}_{ST}^{HudsonK}$, $\hat{\varphi}_{ik}^{T}$, \hat{f}_{i}^{T} , $\hat{\varphi}_{ik}^{T,std}$, $\hat{f}_i^{T,\text{std}}, \hat{f}_i^{T,\text{stdII}}, \hat{f}_i^{T,\text{stdIII}},$ $\hat{F}_{\mathrm{ST}}^{\mathrm{std}}$, $\hat{F}_{\mathrm{ST}}^{\prime}$, $\hat{F}_{\mathrm{ST}}^{\prime\prime}$, $\hat{\varphi}_{ik}^{T,\mathrm{new}}$, $\hat{\varphi}_{\min}^{T,\text{new}}$, $\hat{f}_{i}^{T,\text{new}}$, $\hat{F}_{\text{ST}}^{\text{new}}$, $\hat{\varphi}_{jk}^{L_{jk}, \text{beagle}}, \hat{f}_i^{L_j, \text{beagle}}$ $\overline{p(1-p)}'$, A_{ik} , \hat{A}_{min} .