Individuals

 $E[x_{ii}|T]=2p_i^T$

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

$$egin{aligned} \left(1-F_{\mathsf{IT}}
ight) &= \left(1-F_{\mathsf{IS}}
ight)\left(1-F_{\mathsf{ST}}
ight), \ \left(1-f_{j}^{T}
ight) &= \left(1-f_{j}^{L_{j}}
ight)\left(1-f_{L_{j}}^{T}
ight), \ F_{\mathsf{ST}} &= \sum_{i=1}^{n} w_{j} f_{L_{j}}^{T}, \end{aligned}$$

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

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

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} .

E, Var, Cov, round, sgn,