

| Type | Mean | Variance |
|--------------------------------------|--|---|
| $\mathcal{N}(0, 1) - \mathbf{d_M}$ | $\frac{2p}{\sqrt{\pi}}$ | $\frac{2p(\pi - 2)}{\pi}$ |
| $\mathcal{N}(0, 1) - \mathbf{d_M^*}$ | <div>$\frac{p}{\sqrt{\pi}\mu(m)}$</div> <div>where $\mu(m) = \frac{\log(\log(2))}{\Phi^{-1}\left(\frac{1}{m}\right)} - \Phi^{-1}\left(\frac{1}{m}\right)$</div> | <div>$\frac{p(\pi - 2)}{2\pi\mu^2(m)}$</div> <div>where $\mu(m) = \frac{\log(\log(2))}{\Phi^{-1}\left(\frac{1}{m}\right)} - \Phi^{-1}\left(\frac{1}{m}\right)$</div> |
| $\mathcal{N}(0, 1) - \mathbf{d_E}$ | $\sqrt{2p - 1}$ | 1 |
| $\mathcal{N}(0, 1) - \mathbf{d_E^*}$ | <div>$\frac{\sqrt{2p - 1}}{2\mu(m)}$</div> <div>where $\mu(m) = \frac{\log(\log(2))}{\Phi^{-1}\left(\frac{1}{m}\right)} - \Phi^{-1}\left(\frac{1}{m}\right)$</div> | <div>$\frac{2\log(m)}{\pi^2 + 12\mu^2(m)\log(m)}$</div> <div>where $\mu(m) = \frac{\log(\log(2))}{\Phi^{-1}\left(\frac{1}{m}\right)} - \Phi^{-1}\left(\frac{1}{m}\right)$</div> |
| $\mathcal{U}(0, 1) - \mathbf{d_M}$ | $\frac{p}{3}$ | $\frac{p}{18}$ |
| $\mathcal{U}(0, 1) - \mathbf{d_M^*}$ | $\frac{(m + 1)p}{3(m - 1)}$ | $\frac{(m^3 - 18m^2 - 5m + 2)p}{18(m^3 + m^2 + 2)(m - 1)^2}$ |
| $\mathcal{U}(0, 1) - \mathbf{d_E}$ | $\sqrt{\frac{p}{6} - \frac{7}{120}}$ | $\frac{7}{120}$ |
| $\mathcal{U}(0, 1) - \mathbf{d_E^*}$ | $\sqrt{\frac{p}{6} - \frac{7}{120}}\left(\frac{m + 1}{m - 1}\right)$ | $\frac{7(m + 1)^2(m + 2)}{120(m^3 + m^2 + 2)}$ |
| rs-fMRI ($\mathbf{d_{ROI}}$) | $\frac{2p(p - 1)}{\sqrt{\pi(p - 3)}}$ | $\frac{4(\pi - 2)p(p - 1)}{\pi(p - 3)}$ |
| rs-fMRI ($\mathbf{d_{ROI}^*}$) | <div>$\frac{2p(p - 1)}{\mu(m, p)\sqrt{\pi(p - 3)}}$</div> <div>where $\mu(m, p) = \frac{1}{\sqrt{p - 3}}\Phi^{-1}\left(1 - \frac{1}{m(p - 1)}\right)$</div> | <div>$\frac{2[6(p - 3)\mu^2(m, p)\log[m(p - 1)](\pi - 2) - \pi^2]p(p - 1)}{\pi(p - 3)\mu^2(m, p)(\pi^2 + 12(p - 3)\mu^2(m, p)\log[m(p - 1)])}$</div> <div>where $\mu(m, p) = \frac{1}{\sqrt{p - 3}}\Phi^{-1}\left(1 - \frac{1}{m(p - 1)}\right)$</div> |
| GWAS ($\mathbf{d_{GM}}$) | <div>$2\sum_{a=1}^p F(a)$</div> <div>where $F(a) = [2(1 - f_a)^3 f_a + 2f_a^3(1 - f_a) + (1 - f_a)^2 f_a^2]$, and f_a is the probability of a minor allele at locus a.</div> | <div>$2\sum_{a=1}^p F(a)[1 - 2F(a)]$</div> <div>where $F(a) = [2(1 - f_a)^3 f_a + 2f_a^3(1 - f_a) + (1 - f_a)^2 f_a^2]$, and f_a is the probability of a minor allele at locus a.</div> |
| GWAS ($\mathbf{d_{AM}}$) | <div>$2\sum_{a=1}^p F(a)$</div> <div>where $F(a) = [(1 - f_a)^3 f_a + f_a^3(1 - f_a) + (1 - f_a)^2 f_a^2]$, and f_a is the probability of a minor allele at locus a.</div> | <div>$\sum_{a=1}^p [G(a) - 4F^2(a)]$</div> <div>where $F(a) = [(1 - f_a)^3 f_a + f_a^3(1 - f_a) + f_a^3(1 - f_a) + (1 - f_a)^2 f_a^2]$, $G(a) = [(1 - f_a)^3 f_a + f_a^3(1 - f_a) + 2(1 - f_a)^2 f_a^2]$, and f_a is the probability of a minor allele at locus a.</div> |
| GWAS ($\mathbf{d_{TriTv}}$) | <div>$(\gamma_0 + \gamma_2 + 2\gamma_1)\sum_{a=1}^p F(a) + \left[\frac{3}{2}(\gamma_0 + \gamma_2) + 2\gamma_1\right]\sum_{a=1}^p G(a)$</div> <div>where $F(a) = [(1 - f_a)^3 f_a + f_a^3(1 - f_a)]$ and $G(a) = (1 - f_a)^2 f_a^2$, f_a is the probability of a minor allele at locus a, and γ_0, γ_1, and γ_2 are probabilities of PuPu, PuPy, and PyPy, respectively, at locus a.</div> | <div>$\left[\frac{1}{4}(\gamma_0 + \gamma_2) + \gamma_1\right]\sum_{a=1}^p F(a) + \left[\frac{9}{8}(\gamma_0 + \gamma_2) + 2\gamma_1\right]\sum_{a=1}^p G(a) + \sum_{a=1}^p \left[(\gamma_0 + \gamma_2 + 2\gamma_1)F(a) + \left[\frac{3}{2}(\gamma_0 + \gamma_2) + 2\gamma_1\right]G(a)\right]^2$</div> <div>where $F(a) = [(1 - f_a)^3 f_a + f_a^3(1 - f_a)]$ and $G(a) = (1 - f_a)^2 f_a^2$, f_a is the probability of a minor allele at locus a, and γ_0, γ_1, and γ_2 are probabilities of PuPu, PuPy, and PyPy, respectively, at locus a.</div> |