Corrections to "A Critical Look at the PMHT"

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In the above paper [1], a constant was missing from equation (100) for $\pi_m(n)$, the simplified form of equation (97) for the prior association probabilities involving hypergeometric functions. Without this constant, the resulting probabilities can be invalid, i.e., negative. This mistake carried through to equation (19) in the body of the text and into the formulation of $\bar{\pi}$, the ratio of π_0 to $\pi_{m\neq 0}$ in equation (102). It also led to incorrect entries results in Table II.

Equation (97) of [1] is

$$\pi_m(n)|_{m\neq 0} = \frac{\sum_{k=1}^{\min(n,M)} \frac{k}{(\lambda V)^k (n-k)!}\binom{M}{k} P_D^k (1-P_D)^{M-k}}{Mn\sum_{i=0}^{\min(n,M)} \frac{1}{(\lambda V)^i (n-i)!}\binom{M}{i} P_D^i (1-P_D)^{M-i}}. \tag{1}$$

The instructions for rewriting the types of sums given in the numerator and denominator are given in [2]. The correct form of equations (19) and (100) in [1] is thus

$$\pi_m(n) = \begin{cases} 1 - M\pi_1(n) & m = 0 \\ \left(\frac{P_D}{(1-P_D)\lambda V}\right) \frac{{}_2F_0\left[1-M, 1-n; \frac{P_D}{(1-P_D)\lambda V}\right]}{{}_2F_0\left[-M, -n; \frac{P_D}{(1-P_D)\lambda V}\right]} & m \neq 0 \end{cases}. \tag{2}$$

The ratio $\pi_0/\pi_{m\neq 0}$ in equation (102) should consequently be

$$\bar{\pi} = -M + \left(\frac{(1-P_D)\lambda V}{P_D}\right) \times \frac{{}_2F_0\left[-M, -n; \frac{P_D}{(1-P_D)\lambda V}\right]}{{}_2F_0\left[1-M, 1-n; \frac{P_D}{(1-P_D)\lambda V}\right]} \tag{3}$$

and the corrected form of Table II is given in Table I of this note

TABLE I
Corrected Form of Table II from [1]

M	$\pi_m(n)\|_{m\neq 0}$
1	$\frac{P_D}{nP_D + (1-P_D)\lambda V}$
2	$\frac{P_D^2(n-1-\lambda V) + P_D\lambda V}{P_D^2 n(n-1) - 2nP_D(P_D-1)\lambda V + (\lambda V)^2(P_D-1)^2}$
M	$\bar{\pi}$
1	$\left(\frac{1}{P_D} - 1\right)\lambda V + n - 1$
2	$\frac{(\lambda V)^2(1-P_D)^2 - 2\lambda V(n-1)(P_D-1)P_D + (n-2)(n-1)P_D^2}{P_D\lambda V - P_D^2(1+\lambda V - n)}$

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$A = B$.
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