

$$P_s \left[ \frac{i_o}{n_o} \middle| \frac{i_c}{n_c} \right] = \left( 1 - \frac{(n_c - 1)}{N} \right) \frac{n_c - i_c}{n_c} P_s \left[ \frac{i_o}{n_o - 1} \middle| \frac{i_c}{n_c - 1} \right] \quad (1a)$$

$$+ \frac{n_c - i_c}{N} P_s \left[ \frac{i_o}{n_o - 1} \middle| \frac{i_c}{n_c} \right] \quad (2a)$$

$$+ \left( 1 - \frac{n_c - 2}{N} \right) \frac{i_c}{n_c} s \left( 1 - \frac{n_c - 1}{N} \right) \frac{n_c - i_c}{n_c - 1} P_s \left[ \frac{i_o}{n_o - 1} \middle| \frac{i_c - 1}{n_c - 2} \right] \quad (3a)$$

$$+ \frac{i_c}{N} s \frac{n_c - i_c}{N} P_s \left[ \frac{i_o}{n_o - 1} \middle| \frac{i_c}{n_c} \right] \quad (4a)$$

$$+ \frac{i_c}{N} s \left( 1 - \frac{n_c - 1}{N} \right) \frac{n_c - i_c}{n_c} P_s \left[ \frac{i_o}{n_o - 1} \middle| \frac{i_c}{n_c - 1} \right] \quad (5a)$$

$$+ \left( 1 - \frac{n_c - 1}{N} \right) \frac{i_c}{n_c} s \left( \frac{n_c - i_c}{N} \right) P_s \left[ \frac{i_o}{n_o - 1} \middle| \frac{i_c - 1}{n_c - 1} \right] \quad (6a)$$

$$+ \left( 1 - \frac{(n_c - 1)}{N} \right) \frac{i_c}{n_c} (1 - s) P_s \left[ \frac{i_o - 1}{n_o - 1} \middle| \frac{i_c - 1}{n_c - 1} \right] \quad (1d)$$

$$+ \frac{i_c}{N} (1 - s) P_s \left[ \frac{i_o - 1}{n_o - 1} \middle| \frac{i_c}{n_c} \right] \quad (2d)$$

$$+ \left( 1 - \frac{n_c - 2}{N} \right) \frac{i_c}{n_c} s \left( 1 - \frac{n_c - 1}{N} \right) \frac{i_c - 1}{n_c - 1} P_s \left[ \frac{i_o - 1}{n_o - 1} \middle| \frac{i_c - 2}{n_c - 2} \right] \quad (3d)$$

$$+ \frac{i_c}{N} s \frac{i_c - 1}{N} P_s \left[ \frac{i_o - 1}{n_o - 1} \middle| \frac{i_c}{n_c} \right] \quad (4d)$$

$$+ \frac{i_c - 1}{N} s \left( 1 - \frac{n_c - 1}{N} \right) \frac{i_c}{n_c} P_s \left[ \frac{i_o - 1}{n_o - 1} \middle| \frac{i_c - 1}{n_c - 1} \right] \quad (5d)$$

$$+ \left( 1 - \frac{n_c - 1}{N} \right) \frac{i_c}{n_c} s \frac{i_c - 1}{N} P_s \left[ \frac{i_o - 1}{n_o - 1} \middle| \frac{i_c - 1}{n_c - 1} \right] \quad (6d)$$

$$+ \left( 1 - \frac{n_c - 1}{N} \right) \frac{i_c}{n_c} s \frac{1}{N} P_s \left[ \frac{i_o - 1}{n_o - 1} \middle| \frac{i_c - 1}{n_c - 1} \right] \quad (7d)$$

$$+ \left( \frac{i_c}{N} \right) \frac{i_c - 1}{N} s \frac{1}{N} P_s \left[ \frac{i_o - 1}{n_o - 1} \middle| \frac{i_c}{n_c} \right] \quad (8d)$$