















	Coalescent event	
$ \begin{aligned} 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] \\ & + \frac{n_c - i_c}{N} P_s \left[\frac{i_o}{n_o - 1} \middle \frac{i_c}{n_c} \right] \\ & + \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] \\ & + \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] \\ & + \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] \\ & + \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] \\ \\ & + \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] \\ & + \frac{i_c}{N} (1 - s) P_s \left[\frac{i_o - 1}{n_o - 1} \middle \frac{i_c}{n_c} \right] \\ & + \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] \\ & + \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] \\ & + \frac{i_c}{N} s \left(1 - \frac{n_c - 1}{N} \right) \frac{i_c - 1}{n_c} P_s \left[\frac{i_o - 1}{n_o - 1} \middle \frac{i_c - 1}{n_c - 1} \right] \\ & + \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] \\ \\ & + \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] \\ & + \left(\frac{i_c}{N} \right) s \frac{1}{N} P_s \left[\frac{i_o - 1}{n_o - 1} \middle \frac{i_c}{n_c} \right] \end{aligned} $	<div>       </div> <div>       </div> <div>   </div>	<div> Last offspring is ancestral </div> <div> Last offspring is derived </div> <div> Derived, resample </div>