$$P(D=+d\,|+a,-c,+e,+f) = \alpha_D P(D,+a,-c,+e,+f) = \alpha_D \sum_B \sum_H \sum_G P(D,B,H,G,+a,-c,+e,+f)$$

$$= \alpha_D \sum_B \sum_H \sum_G P(D|B)P(B)P(H|B,D)P(G|D,-c)P(+a)P(-c|+a,B,D)P(+e|+a,-c)P(+f|-c)$$

$$= \alpha_D\, P(+a)P(+e|+a,-c)P(+f|-c) \sum_B P(D|B)P(B)P(-c|+a,B,D) \sum_H P(H|B,D) \sum_G P(G|D,-c)$$

$$= \alpha_D P(+a)P(+e|+a,-c)P(+f|-c) \sum_B P(B)\langle P(+d|B),\,P(-d|B)\rangle\,\langle P(-c|+a,B,+d),\,P(-c|+a,B,-d)\rangle \sum_H \langle P(H|B,+d),\,P(H|B,-d)\rangle$$

$$\sum_G \langle P(G|+d,-c),\,P(G|-d,-c)\rangle$$

$$= \alpha_D P(+a)P(+e|+a,-c)P(+f|-c) \sum_B \begin{cases} B=+b:\ P(+b)\langle P(+d|+b),P(-d|+b)\rangle\langle P(-c|+a,+b,+d),\,P(-c|+a,+b,-d)\rangle \\[4pt] B=-b:\ P(-b)\langle P(+d|-b),P(-d|-b)\rangle\langle P(-c|+a,-b,+d),\,P(-c|+a,-b,-d)\rangle \end{cases}$$

$$\sum_H \langle P(H|+b,+d),\,P(H|+b,-d)\rangle \sum_G \langle P(G|+d,-c),\,P(G|-d,-c)\rangle$$

$$\sum_H \langle P(H|-b,+d),\,P(H|-b,-d)\rangle \sum_G \langle P(G|+d,-c),\,P(G|-d,-c)\rangle$$

$$= \alpha_D P(+a)P(+e|+a,-c)P(+f|-c) \sum_B \begin{cases} B=+b:\ P(+b)\langle P(+d|+b),P(-d|+b)\rangle\langle P(-c|+a,+b,+d),\,P(-c|+a,+b,-d)\rangle \\[4pt] B=-b:\ P(-b)\langle P(+d|-b),P(-d|-b)\rangle\langle P(-c|+a,-b,+d),\,P(-c|+a,-b,-d)\rangle \end{cases}$$

$$\sum_H \begin{cases} H=+h:\ \langle P(+h|+b,+d),\,P(+h|+b,-d)\rangle \sum_G \langle P(G|+d,-c),P(G|-d,-c)\rangle \\[4pt] H=-h:\ \langle P(-h|+b,+d),\,P(-h|+b,-d)\rangle \sum_G \langle P(G|+d,-c),P(G|-d,-c)\rangle \end{cases}$$

$$\sum_H \begin{cases} H=+h:\ \langle P(+h|-b,+d),\,P(+h|-b,-d)\rangle \sum_G \langle P(G|+d,-c),P(G|-d,-c)\rangle \\[4pt] H=-h:\ \langle P(-h|-b,+d),\,P(-h|-b,-d)\rangle \sum_G \langle P(G|+d,-c),P(G|-d,-c)\rangle \end{cases}$$

$$= \alpha_D \, P(+a)\, P(+e|+a,-c)\, P(+f|-c) \sum_B$$

$B=+b$: $\quad P(+b) \langle P(+d|+b),\, P(-d|+b)\rangle \langle P(-c|+a,+b,+d),\, P(-c|+a,+b,-d)\rangle$

$B=-b$: $\quad P(-b) \langle P(+d|-b),\, P(-d|-b)\rangle \langle P(-c|+a,-b,+d),\, P(-c|+a,-b,-d)\rangle$

$$\sum_H \begin{cases} H=+h : \langle P(+h|+b,+d),\, P(+h|+b,-d)\rangle \\ H=-h : \langle P(-h|+b,+d),\, P(-h|+b,-d)\rangle \end{cases} \sum_G \begin{cases} G=+g : \langle P(+g|+d,-c),\, P(+g|+d,-c)\rangle \\ G=-g : \langle P(-g|+d,-c),\, P(-g|+d,-c)\rangle \\ G=+g : \langle P(+g|+d,-c),\, P(+g|+d,-c)\rangle \\ G=-g : \langle P(-g|+d,-c),\, P(-g|+d,-c)\rangle \end{cases}$$

$$\sum_H \begin{cases} H=+h : \langle P(+h|+b,+d),\, P(+h|+b,-d)\rangle \\ H=-h : \langle P(-h|+b,+d),\, P(-h|+b,-d)\rangle \end{cases} \sum_G \begin{cases} G=+g : \langle P(+g|+d,-c),\, P(+g|+d,-c)\rangle \\ G=-g : \langle P(-g|+d,-c),\, P(-g|+d,-c)\rangle \\ G=+g : \langle P(+g|+d,-c),\, P(+g|+d,-c)\rangle \\ G=-g : \langle P(-g|+d,-c),\, P(-g|+d,-c)\rangle \end{cases}$$

$$= \alpha_D \underset{0.001}{P(+a)} \underset{0.64}{P(+e|+a,-c)} \underset{0.04}{P(+f|-c)} \sum_B$$

$B=+b$: $\quad P(+b) \langle P(+d|+b),\, P(-d|+b)\rangle \langle P(-c|+a,+b,+d),\, P(-c|+a,+b,-d)\rangle$

$\qquad 0.002 \quad \langle 0.9,\ 0.1\rangle \qquad \langle 0.15,\ 0.14\rangle$

$B=-b$: $\quad 0.998 \quad \langle 0.05, 0.95\rangle \qquad \langle 0.61,\ 0.9988\rangle$

$\qquad\qquad\qquad P(-b) \langle P(+d|-b),\, P(-d|-b)\rangle \langle P(-c|+a,-b,+d),\, P(-c|+a,-b,-d)\rangle$

$\langle 0.030709,\ 0.94699028\rangle$

$$\sum_H \begin{cases} H=+h : \langle P(+h|+b,+d),\, P(+h|+b,-d)\rangle \\ \qquad\qquad \langle 0.95,\ 0.94\rangle \\ H=-h : \langle P(-h|+b,+d),\, P(-h|+b,-d)\rangle \\ \qquad\qquad \langle 0.05,\ 0.06\rangle \end{cases} \;\langle 1,1\rangle\; \sum_G \begin{cases} G=+g : \langle P(+g|+d,-c),\, P(+g|+d,-c)\rangle \\ \qquad \langle 0.33,\ 0.0015\rangle \\ G=-g : \langle P(-g|+d,-c),\, P(-g|+d,-c)\rangle \\ \qquad \langle 0.67,\ 0.9985\rangle \\ G=+g : \langle P(+g|+d,-c),\, P(+g|+d,-c)\rangle \\ \qquad \langle 0.33,\ 0.0015\rangle \\ G=-g : \langle P(-g|+d,-c),\, P(-g|+d,-c)\rangle \\ \qquad \langle 0.67,\ 0.9985\rangle \end{cases}$$

$\langle 1,1\rangle \qquad\qquad\qquad \langle 1,1\rangle$

$$\sum_H \begin{cases} H=+h : \langle P(+h|-b,+d),\, P(+h|-b,-d)\rangle \\ \qquad\qquad \langle 0.29,\ 0.001\rangle \\ H=-h : \langle P(-h|-b,+d),\, P(-h|-b,-d)\rangle \\ \qquad\qquad \langle 0.71,\ 0.999\rangle \end{cases} \;\langle 1,1\rangle\; \sum_G \begin{cases} G=+g : \langle P(+g|+d,-c),\, P(+g|+d,-c)\rangle \\ \qquad \langle 0.33,\ 0.0015\rangle \\ G=-g : \langle P(-g|+d,-c),\, P(-g|+d,-c)\rangle \\ \qquad \langle 0.67,\ 0.9985\rangle \\ G=+g : \langle P(+g|+d,-c),\, P(+g|+d,-c)\rangle \\ \qquad \langle 0.33,\ 0.0015\rangle \\ G=-g : \langle P(-g|+d,-c),\, P(-g|+d,-c)\rangle \\ \qquad \langle 0.67,\ 0.9985\rangle \end{cases}$$

$\langle 1,1\rangle \qquad\qquad\qquad \langle 1,1\rangle$

$$= \alpha_D \times 0.001 \times 0.64 \times 0.04 \times \langle 0.030709,\ 0.94699028\rangle$$

normalization term

$$= \frac{0.030709}{0.030709 + 0.94699028}$$

$$= 0.031409$$