i_j = block name $i \in \{a, \ldots, h\}$, $j \in \{1, \ldots, 8\}$

Problem 1

$i_j = 1$: block i_j is not contaminated

$i_j = 2$: block i_j is contaminated

Conditional Probability Tables:

a_1:

$a_1=1$	$a_1=2$
0.95	0.05

$p(a_1)$

a_2:

	$a_2=1$	$a_2=2$
$a_1=1$	0.95	0.05
$a_1=2$	0.65	0.35

↑ this table is $p(a_2|a_1)$.

table is the same for: $p(a_3|a_2)$, $p(a_4|a_3)$, $p(a_5|a_4)$, $p(a_6|a_5)$, $p(a_7|a_6)$, $p(a_8|a_7)$

also:

$p(b_1|a_1)$, $p(c_1|b_1)$, $p(d_1|c_1)$, $p(e_1|d_1)$, $p(f_1|e_1)$, $p(g_1|f_1)$, $p(h_1|g_1)$

b_2:

	$b_2=1$	$b_2=2$
$a_1=1$, & $a_2=1$, & $b_1=1$	0.95	0.05
$a_1=1$, & $a_2=1$, & $b_1=2$	0.65	0.35
$a_1=1$, & $a_2=2$, & $b_1=1$	0.65	0.35
$a_1=2$, & $a_2=1$, & $b_1=1$	0.65	0.35
$a_1=1$, & $a_2=2$, & $b_1=2$	0.35	0.65
$a_1=2$, & $a_2=1$, & $b_1=2$	0.35	0.65
$a_1=2$, & $a_2=2$, & $b_1=1$	0.35	0.65
$a_1=2$, & $a_2=2$, & $b_1=2$	0.05	0.95

↑ this table is $p(b_2|a_1, a_2, b_1)$.

table is the same for: $p(b_3|a_2, a_3, b_2)$, $p(b_4|a_3, a_4, b_3)$, $p(b_5|a_4, a_5, b_4)$, $p(b_6|a_5, a_6, b_5)$, $p(b_7|a_6, a_7, b_6)$, $p(b_8|a_7, a_8, b_7)$

also: $p(c_i|b_{i-1}, b_i, c_{i-1})$, $p(d_i|c_{i-1}, c_i, d_{i-1})$, $p(e_i|d_{i-1}, d_i, e_{i-1})$, $p(f_i|e_{i-1}, e_i, f_{i-1})$, $p(g_i|f_{i-1}, f_i, g_{i-1})$, $p(h_i|g_{i-1}, g_i, h_{i-1})$ for $i \in \{2, \ldots, 8\}$