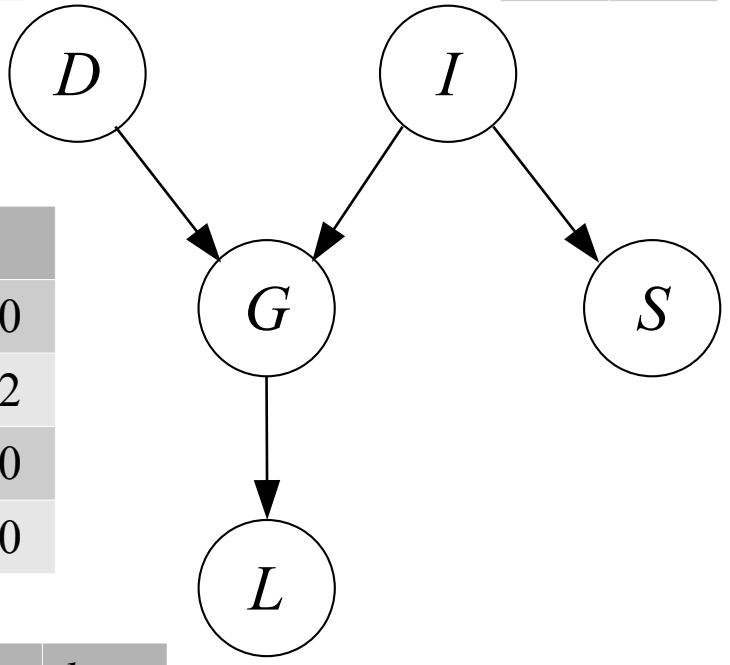
Bayesian Network «Student»



$P(D)$

d_0	d_1
0.6	0.4

$P(I)$

i_0	i_1
0.7	0.3

$P(G \mid D, I)$

	g_0	g_1	g_2
d_0, i_0	0.30	0.40	0.30
d_0, i_1	0.90	0.08	0.02
d_1, i_0	0.05	0.25	0.70
d_1, i_1	0.50	0.30	0.20

$P(S \mid I)$

	s_0	s_1
i_0	0.95	0.05
i_1	0.20	0.80

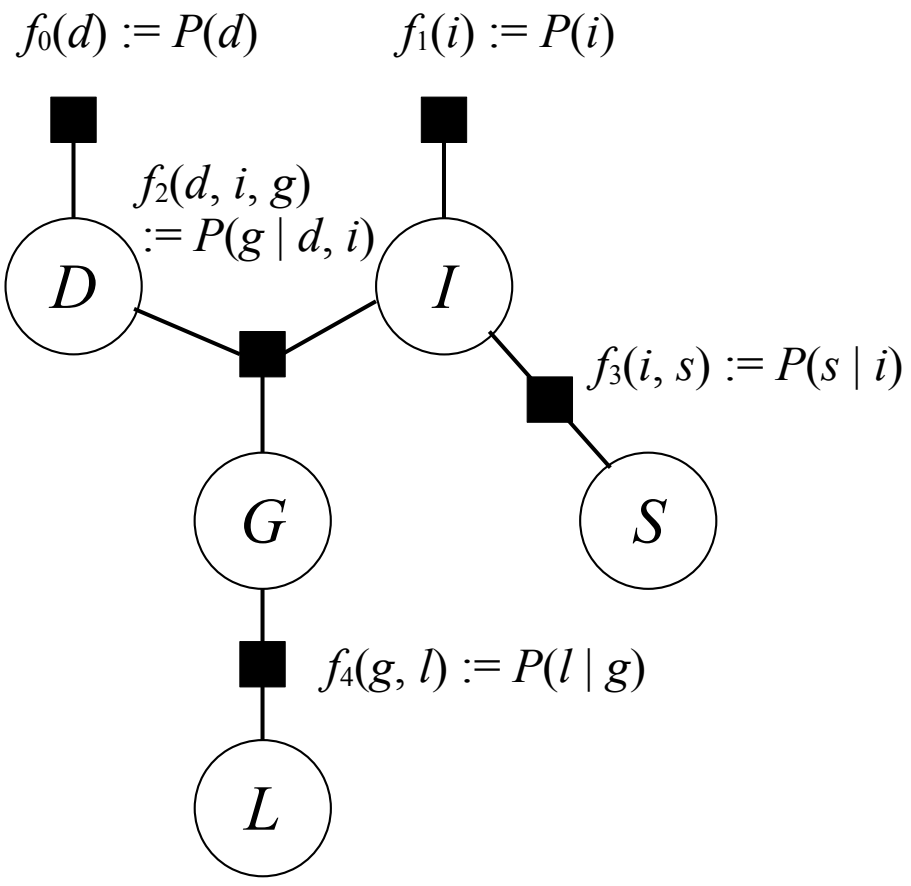
$P(L \mid G)$

	l_0	l_1
g_0	0.10	0.90
g_1	0.40	0.60
g_2	0.99	0.01

D := Difficulty
I := Intelligence
G := Grade
S := SAT
L := Letter

Daphne Koller and Nir Friedman, "Probabilistic Graphical Models: Principles and Techniques", MIT Press, 2009

Factor Graph Representation


$f_0(d) := P(d)$
$f_1(i) := P(i)$
$f_2(d, i, g)$
$:= P(g \mid d, i)$
D
I
$f_3(i, s) := P(s \mid i)$
G
S
$f_4(g, l) := P(l \mid g)$
L