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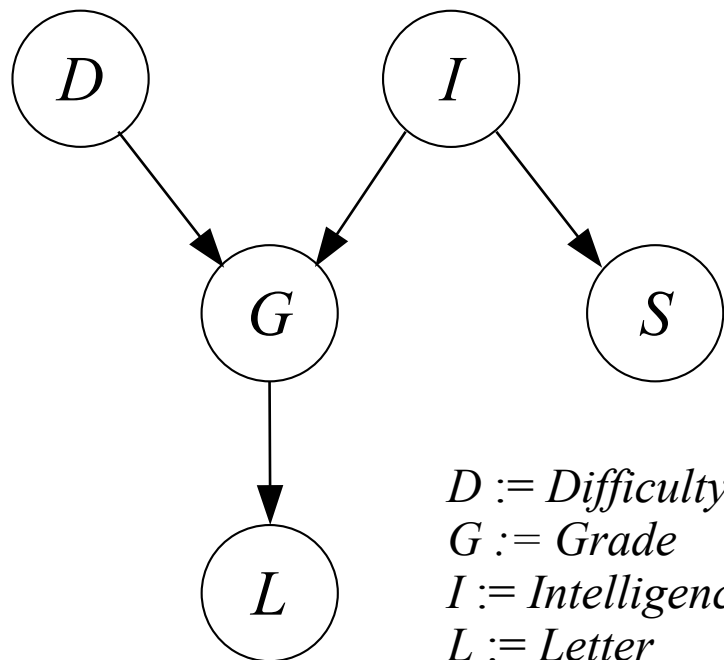
D := Difficulty
G := Grade
I := Intelligence
L := Letter
S := SAT

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

Factor Graph Representation

$f_d(d) := P(d)$

$f_i(i) := P(i)$

$f_{dig}(d, i, g)$
$:= P(g \mid d, i)$

D

I

$f_{is}(i, s) := P(s \mid i)$

G

S

$f_{gl}(g, l) := P(l \mid g)$

L