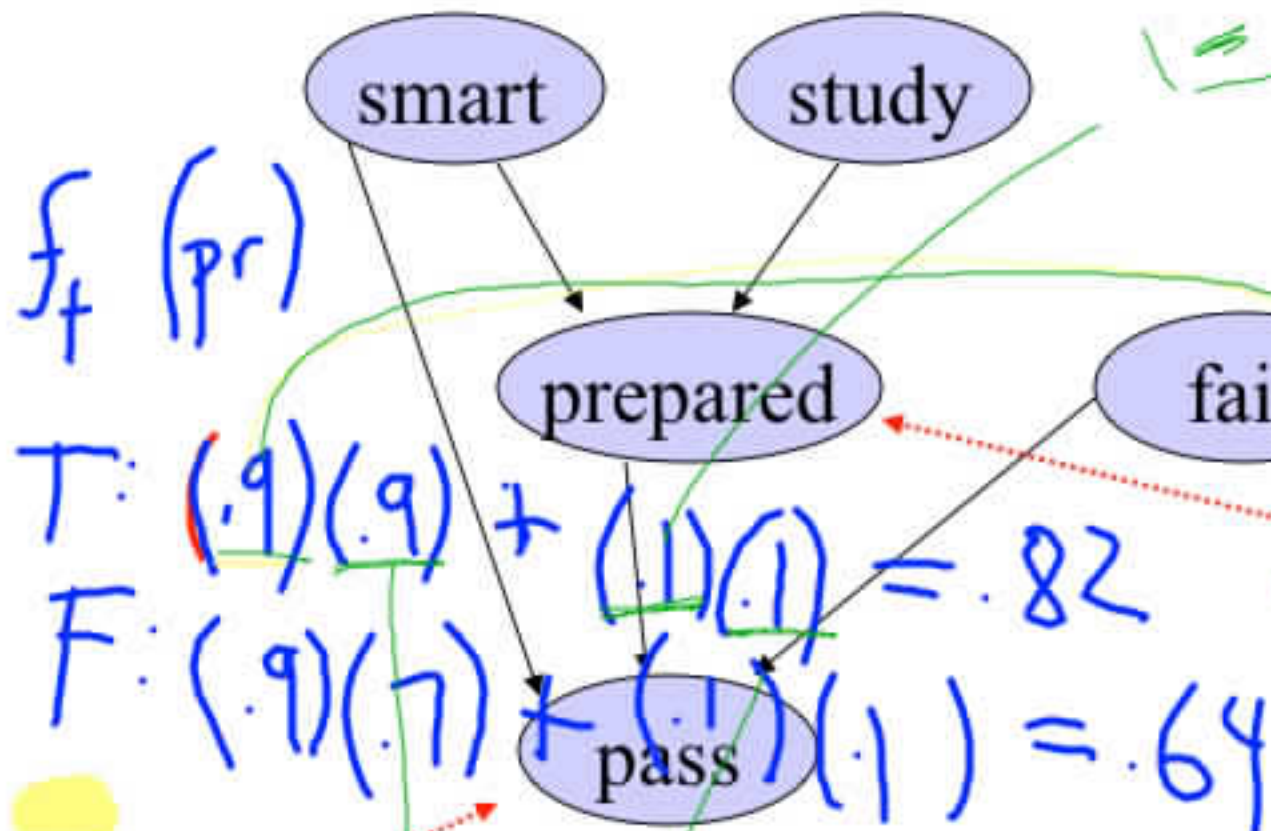


$$f_f(pr) = \sum_f p(f) \psi(pa | sm, pr, f)$$

Exercise: Variable Elimination

$p(\text{smart}) = .8$

$p(\text{study}) = .6$



$$\sum_{st, pr, f} p(sm) p(st) p(p|sm, st) p(f) p(pa) \text{const}$$

$$.8 \sum_{st, pr, f} p(st) p(pr|sm, st) p(f) p(pa|pr, f)$$

$$\sum_{st, pr} p(st) p(pr|sm, st) f_f(pr)$$

p(prepare ...)	smart	¬smart
study	.9	.7
¬study	.5	.1

p(pass ...)	smart		¬smart	
	prep	¬prep	prep	¬prep
fair	.9	.7	.7	.2
¬fair	.1	.1	.1	.1

$$f_f(pr) = \sum_{st} p(st) p(pr|sm, st)$$

Query: What is the probability that a student is smart, given that they pass the exam?