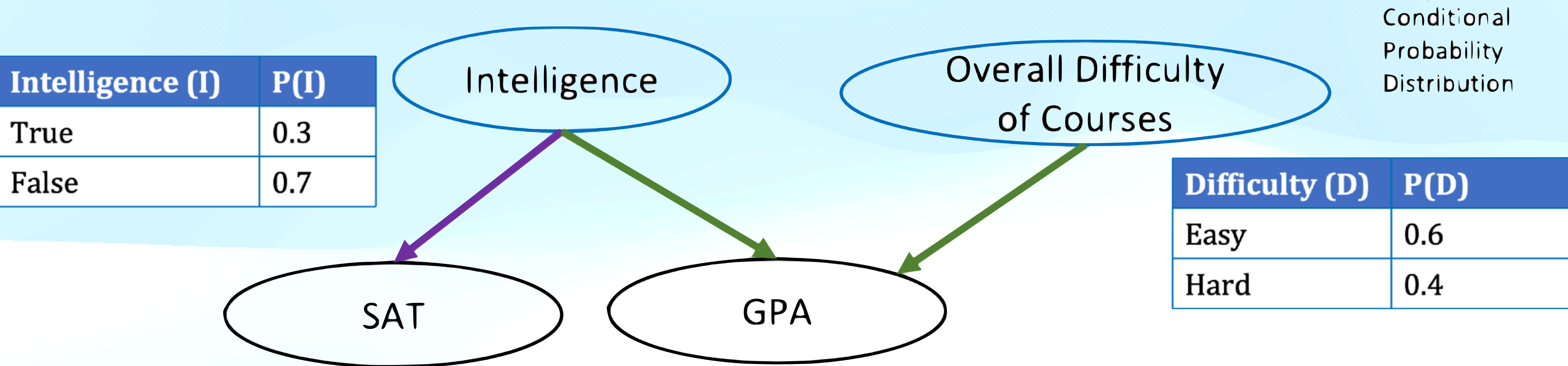


Student Example – A Full Bayesian Network

Component: (1) Graph Structure (DAG) (2) Local probability model (CPDs)



I	SAT	P(SAT I)
True	High	0.7
True	Low	0.3
False	High	0.4
False	Low	0.6

I	D	GPA	P(GPA I,D)
True	Easy	High	0.8
True	Easy	Low	0.2
True	Hard	High	0.6
...

Independence (local topological semantics)

- Notations: $A \perp B \mid C$ OR $I(A; B \mid C): \Pr(A, B \mid C) = \Pr(A \mid C) \times \Pr(B \mid C)$
- Local semantics: $A \perp \{\text{non-descendant}(A)\} \mid \text{parents}(A)$
- Markov blanket: $A \perp \text{not MB}(A) \mid \text{MB}(A)$ MB: parent, children, child's parents

