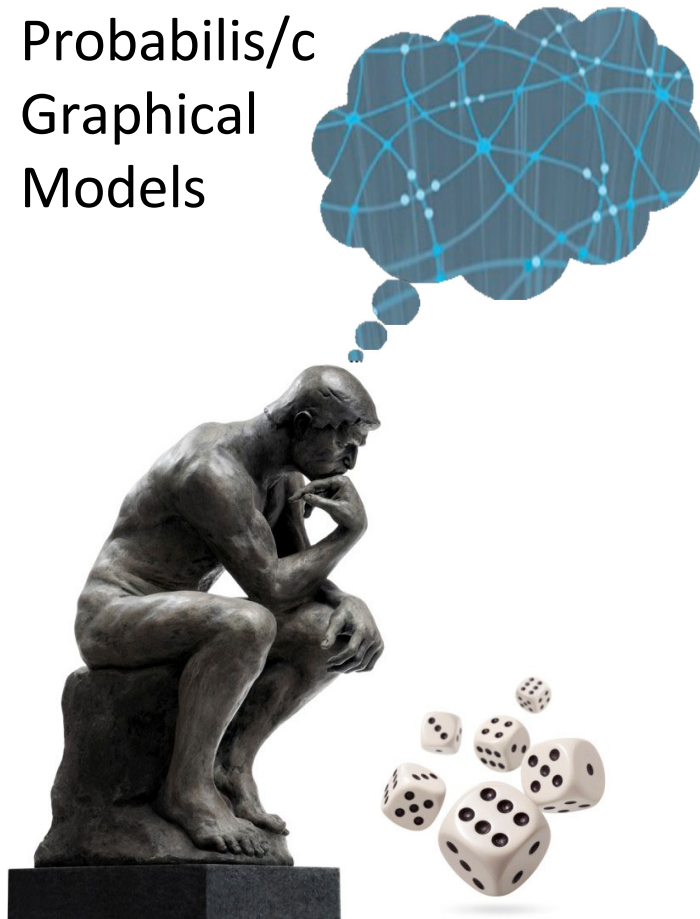


Probabilistic
Graphical
Models



Acting

Decision Making

Maximum
Expected
Utility

Simple Decision Making

A simple decision making situation D :

- A set of possible actions $\text{Val}(A) = \{a^1, \dots, a^K\}$
- A set of states $\text{Val}(X) = \{x^1, \dots, x^N\}$
- A distribution $P(X \mid A)$
- A utility function $U(X, A)$

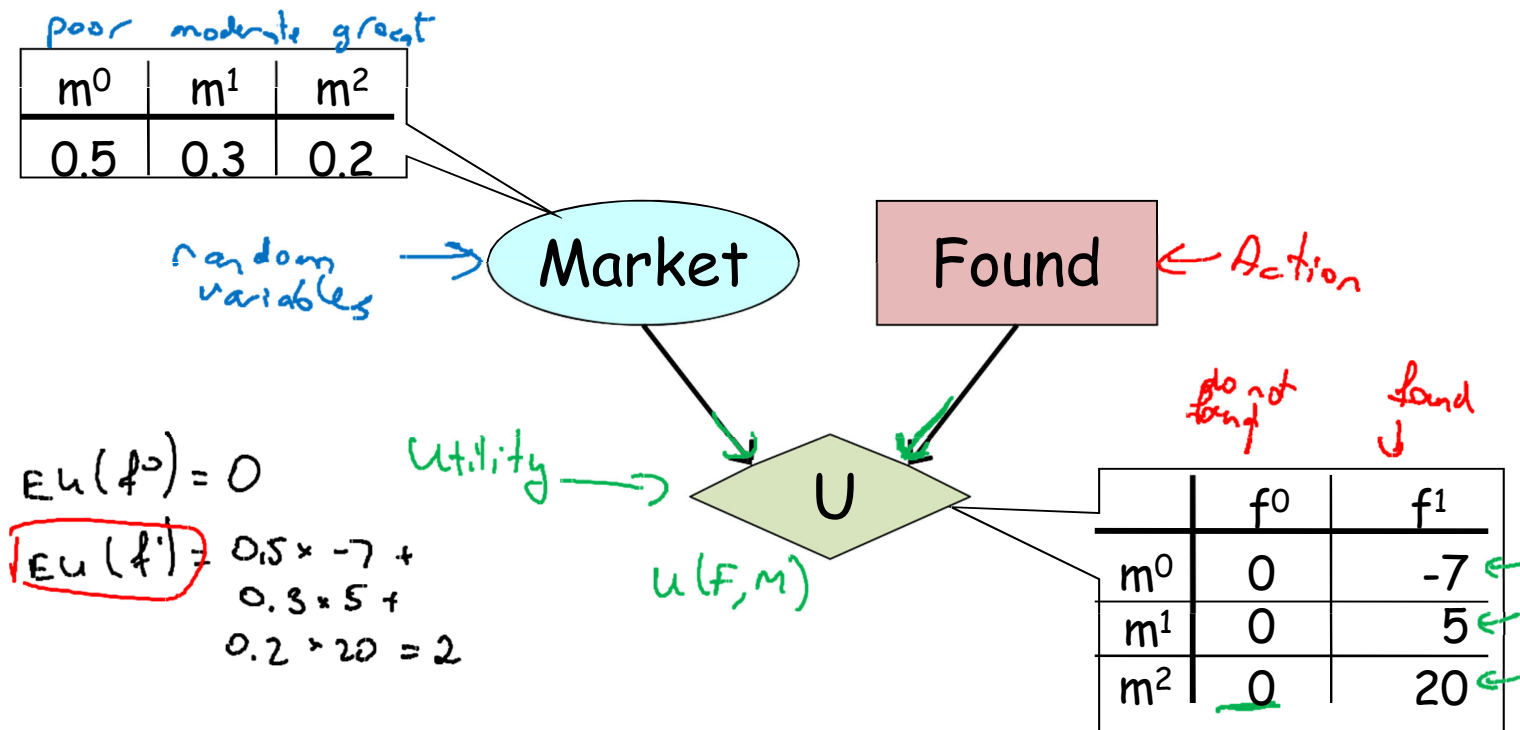
Expected Utility

$$EU[\mathcal{D}[a]] = \sum_{\mathbf{x}} \underbrace{P(\mathbf{x} \mid a)}_{\text{red}} \underbrace{U(\mathbf{x}, a)}_{\text{blue}}$$

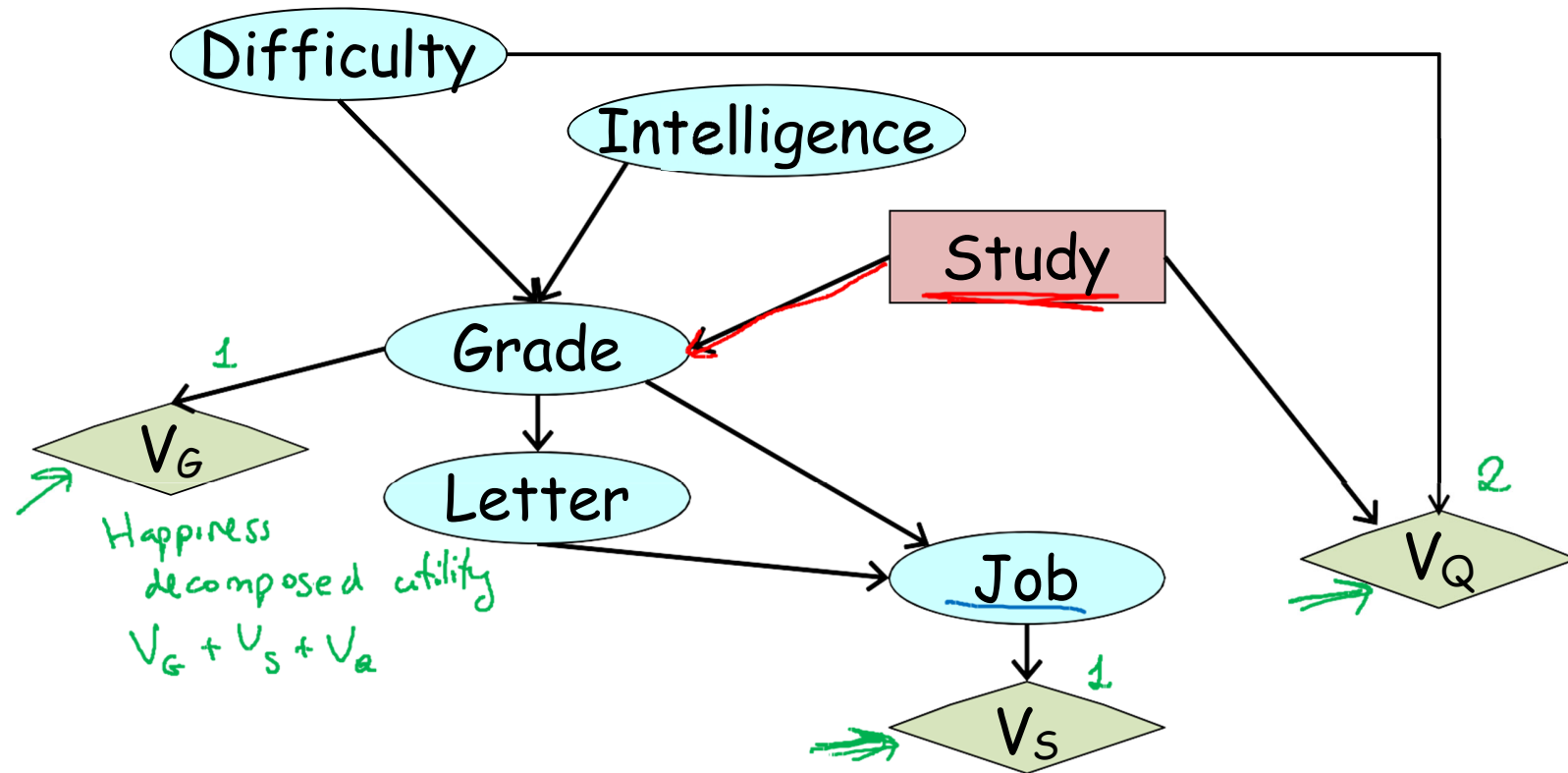
- Want to choose action a that maximizes the expected utility *Max. expected utility*

$$a^* = \operatorname{argmax}_a EU[\mathcal{D}[a]]$$

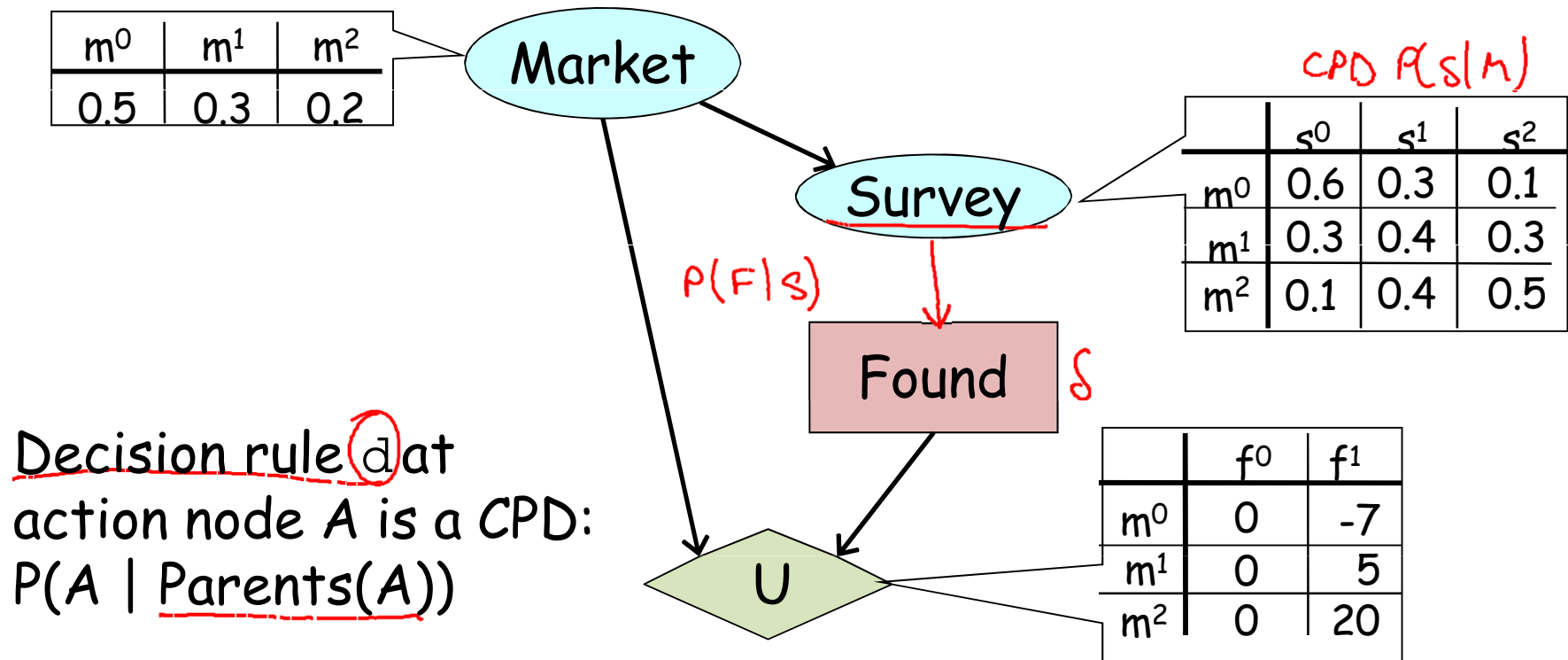
Simple Influence Diagram



More Complex Influence Diagram



Information Edges



以上内容仅为本文档的试下载部分，为可阅读页数的一半内容。如要下载或阅读全文，请访问：<https://d.book118.com/205033333143011040>