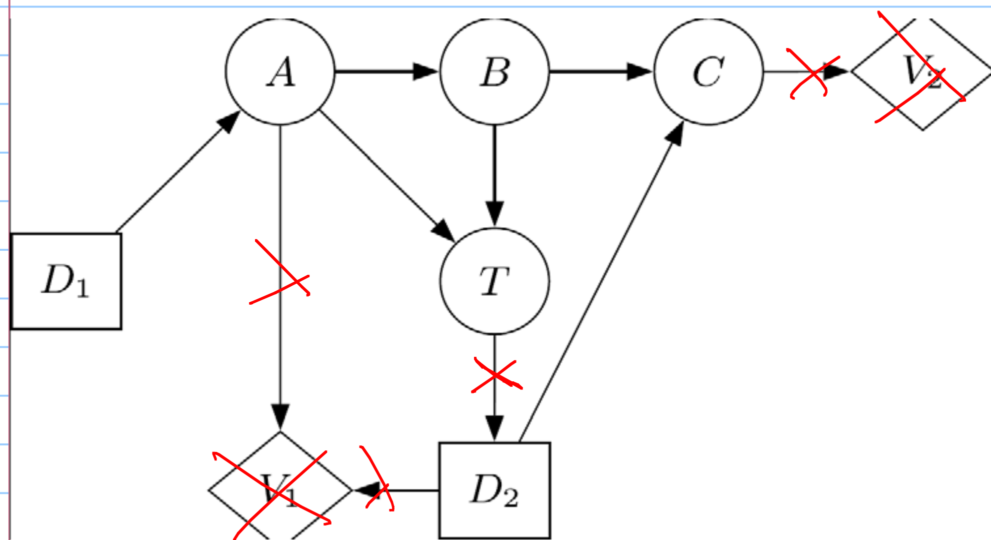
Note Title 4/13/2009



For the purpose of d-separation,

- remove utility nodes
- remove the edges (information links) into decision nodes

$\underbrace{\{\}}_{\mathcal{J}_0} < D_1 < \underbrace{\{T\}}_{\mathcal{J}_1} < D_2 < \underbrace{\{A, B, C\}}_{\mathcal{J}_2}$

Ex. C is d-separated from T by B

C is d-separated from A by B

A and T are d-separated from D_2.

Proposition 10.1 Let $A \in \mathcal{J}_i$ and let D_j be a decision variable with $i < j$. Then

(i) A and D_j are d-separated, and hence

$$P(A \mid D_j) = P(A)$$

(ii) Let W be any set of variables prior to D_j in the temporal ordering. Then A and D_j are d-separated given W and hence

$$P(A \mid D_j, W) = P(A \mid W)$$

The Chain Rule for Influence Diagrams

Let ID be an influence diagram with universe $U = U_C \cup U_D$. Then

$$P(U_C \mid U_D) = \prod_{X \in U_C} P(X \mid pa(X))$$