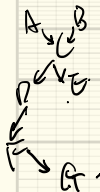


# D-separation.

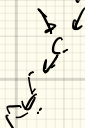
alg. to check indep.

$A \perp\!\!\!\perp B \mid D?$



① Draw ancestral graph of all relevant nodes.

$A \rightarrow B$



② Mark the graph by "marrying" parents.

if 1. parents "marry" each other.

③ Disorient edges remove all vns.

④ Delete all given vns & edges.



⑤ Read answer from graph  $\begin{cases} \text{if vns disconnected: indep.} \\ \text{if connected: dep.} \end{cases}$

structural:

$\begin{cases} \text{dep.} \\ \text{numerical indep.} \end{cases}$   
 $P(A|B) \text{ happens} \Leftrightarrow P(s)$   
for all values of A & B: