

Lab 16

Annual probability of burglary per house = $50 / (2 * 1350) = 0.0185 \approx 0.019$.

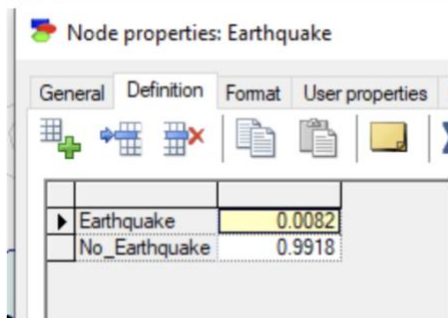
$$P(\text{Burglary}) = 0.019$$

$$P(\text{No Burglary}) = 1 - 0.019 = 0.981$$

Daily probability of an earthquake = $3 / 365 \approx 0.0082$.

$$P(\text{Earthquake}) = 0.0082$$

$$P(\text{No Earthquake}) = 1 - 0.0082 = 0.9918$$



Node properties: Earthquake

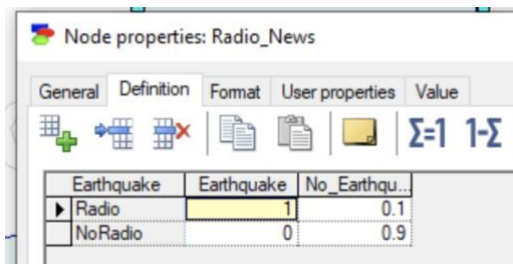
Earthquake	0.0082
No_Earthquake	0.9918

Alarm catches 95% of burglaries.

Alarm triggered by 1 out of 5 earthquakes.

$$P(\text{Radio News} \mid \text{Earthquake}) = 1.0$$

$$P(\text{Radio News} \mid \text{No Earthquake}) = 0.1 \text{ (Assume a 10\% false report rate)}$$

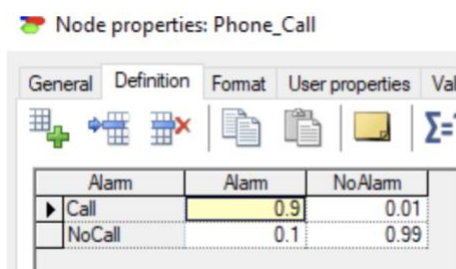


Node properties: Radio_News

	Earthquake	No_Earthqu...
Radio	1	0.1
NoRadio	0	0.9

$$P(\text{Phone Call} \mid \text{Alarm}) = 0.9 \text{ (Assume Watson hears it 90\% of the time)}$$

$$P(\text{Phone Call} \mid \text{No Alarm}) = 0.01 \text{ (Assume a very low false call rate)}$$



Node properties: Phone_Call

	Alarm	NoAlarm
Call	0.9	0.01
NoCall	0.1	0.99

$P(\text{Alarm} \mid \text{Burglary}, \text{Earthquake}) = 0.95$

$P(\text{Alarm} \mid \text{Burglary}, \text{No Earthquake}) = 0.95$

$P(\text{Alarm} \mid \text{No Burglary}, \text{Earthquake}) = 0.2$

$P(\text{Alarm} \mid \text{No Burglary}, \text{No Earthquake}) = 0.001$ (Assume a very low false alarm rate)

