

1. 2 perbedaan supervised learning and unsupervised learning

Supervised	unsupervised
1. data sudah dilabeli	Tidak memiliki label
2. untuk mempelajari pola input output	untuk mengelompokkan data.

2.

1,2 S	2,2 P2,1 w?
1,1 OK v	2,1 B

Buktikan menggunakan propositional logic bahwa Aman di room [2,1]

pada [1,1]

$$\neg OK_{1,1}, \neg W_{1,1}, \neg P_{1,1}, \neg P_{2,1}, \neg S_{1,1}, \neg B_{1,1}$$

$$\neg B_{1,1} \rightarrow \neg P_{1,2} \wedge \neg P_{2,1} \dots 1)$$

$$\neg S_{1,1} \rightarrow \neg W_{1,2} \wedge \neg W_{2,1} \dots 2)$$

MP 1) dan  $\neg B_{1,1}$

$$\neg B_{1,1} \rightarrow \neg P_{1,2} \wedge \neg P_{2,1}$$

$$\neg B_{1,1}$$

$$\neg P_{1,2} \wedge \neg P_{2,1} \dots 3)$$

And Elimination ..3)

$$\neg P_{1,2}, \neg P_{2,1} \dots 4)$$

And introduction ..4)  $\neg P_{2,1}, \neg P_{2,1}$

MP 2) dan  $\neg S_{1,1}$

$$\neg S_{1,1} \rightarrow \neg W_{1,2} \wedge \neg W_{2,1}$$

$$\neg S_{1,1}$$

$$\neg W_{1,2} \wedge \neg W_{2,1} \dots 5)$$

And Elimination

$$\neg W_{1,2}, \neg W_{2,1} \dots 6)$$

And introduction 6)

$$\neg W_{2,1}, \neg W_{1,2}$$

Terapkan and production

$$\neg W_{2,1} \wedge \neg P_{2,1}$$

R1

$$OK_{2,1} \rightarrow \neg W_{2,1} \wedge \neg P_{2,1}$$

So that  $OK_{2,1}$  Aman.

### 3. Basis pengetahuan:

- A musical instrument used by musician only in a plays
- The instruments can only be played by someone who is not tone deaf
- Angela is a musician.

convert to FOL

- A instrument used by a musician only in a plays

FOL:  $\text{Instrument}(x) \wedge \text{Musician}(y) \rightarrow \text{played}(y, x)$

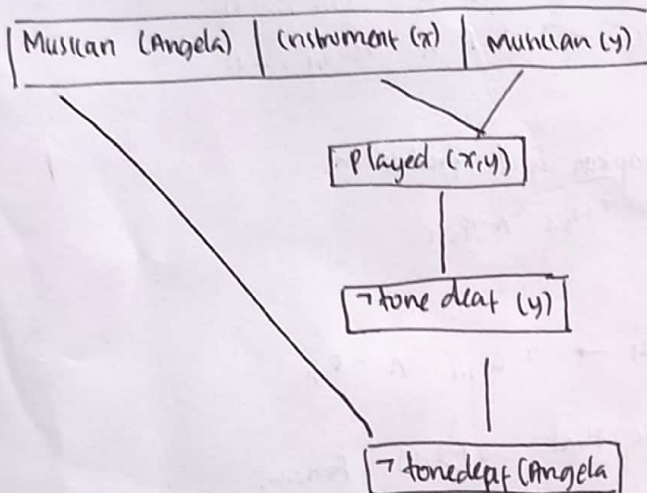
- The instrument can only be played by someone who is not tone deaf

$\text{played}(y, x) \rightarrow \neg \text{tone-deaf}(y)$

- Angela is Musician

$\text{Musician}(\text{Angela})$

-- proof --



4. dik  $P(S|M) = \frac{1}{2}$ ;  $P(M) = \frac{1}{50000}$ ;  $P(S) = \frac{1}{20}$

$$P(M|S) = \frac{P(S|M) \cdot P(M)}{P(S)} = \frac{\frac{1}{2} \cdot \frac{1}{50000}}{\frac{1}{20}} = \frac{1}{5000} = 0.0002$$

5.  $MB[\text{wet Grass, Sprinkler} \wedge \text{rain}] = MB[\text{wet Grass, Sprinkler}] - MB[\text{wet Grass, Rain}] (1 - MB[\text{wet Grass, spr}])$   
 $= (0.5) - (0.8)(1 - 0.5) = 0.1$

$MD[\text{wet Grass, S \wedge R}] = MD(\text{wet, S}) - MD(\text{wet, R})(1 - MD(\text{wet, S})) = 0.5 - 0.2(0.5) = 0.4$

$CF[\text{wet, S \wedge R}] = MD[] - MB[] = 0.4 - 0.1 = 0.3$