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## Candidate Elimination Algorithm

steps:

i) Init. specific hypo. (S)

S  $\rightarrow$  init. to most specific hypo. in H

G  $\rightarrow$  init to most general hypo. in H

$$\therefore S = \{\phi, \phi, \phi, \dots\}$$

$$G = \{?, ?, ?, \dots\}$$

ii) for every example in the dataset  
if +ve  $\rightarrow$  generalise the specific hypo. (S) Similar to find S

else if -ve

$\rightarrow$  specialise the general hypo. (G)

Example

Example	Sky	AirTemp	Humidity	Wind	Water	Forecast	EnjoySport
1	Sunny	Warm	Normal	Strong	Warm	Same	Yes
2	Sunny	Warm	High	Strong	Warm	Same	Yes
3	Rainy	Cold	High	Strong	Warm	Change	No
4	Sunny	Warm	High	Strong	Cool	Change	Yes

$\leftarrow +ve$   
 $\leftarrow +ve$   
 $\leftarrow -ve$   
 $\leftarrow +ve$

$$\therefore S = \langle \phi, \phi, \phi, \phi, \phi, \phi \rangle \quad G = \langle ?, ?, ?, ?, ?, ? \rangle$$

$$\therefore S = \langle \text{Sunny, Warm, Normal, Strong, Warm, Same} \rangle \quad G = \langle ?, ?, ?, ?, ?, ? \rangle$$



$s_1 = \langle \text{Sunny, Warm, ?, strong, ?, ?} \rangle$  identical  
 $\text{Vs } \textcircled{1} \langle \text{sunny, warm, ?, ?, ?, ?} \rangle$   
 $\textcircled{2} \langle \text{sunny, ?, ?, strong, ?, ?} \rangle$   $\textcircled{3} \langle \text{?, warm, ?, strong, ?, ?} \rangle$

$G_1 = \{ \langle \text{sunny, ?, ?, ?, ?, ?} \rangle, \langle \text{?, warm, ?, ?, ?, ?} \rangle \}$

## Example 2

article	Crime	Academic	Local	Music	Reads
$a_1$	true	false	false	true	true
$a_2$	true	false	false	false	true
$a_3$	false	true	false	false	false
$a_4$	false	false	true	false	false
$a_5$	true	true	false	false	true

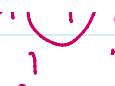
$S = \langle \emptyset, \emptyset, \emptyset, \emptyset \rangle$      $G = \langle \text{?, ?, ?, ?} \rangle$

$\textcircled{1} S_1 = \langle T, F, F, T \rangle$      $G_1 = \{ \text{?, ?, ?, ?} \}$

$\textcircled{2} S_2 = \langle T, F, F, ? \rangle$      $G_2 = \{ \text{?, ?, ?, ?} \}$

$\textcircled{3} S_3 = \langle T, F, F, ? \rangle$      $G_3 = \{ \langle T, ?, ?, ? \rangle, \langle \text{?, F, ?, ?} \rangle \}$

$\textcircled{4} S_4 = \langle T, F, F, ? \rangle$      $G_4 = \{ \langle T, ?, ?, ? \rangle \}$     Removed in  $\textcircled{4}$ ?

⑦  $\neg G \vdash \dots$  remove  $\neg$    
Revise

⑧  $S_S = \langle T, \neg, \neg, \neg \rangle$   $G_S = \langle T, \neg, \neg, \neg \rangle$

$\therefore S = (\text{Crime} \wedge \sim \text{Local})$   
 $G = (\text{Crime})$