FIND-S: FINDING THE MOST SPECIFIC HYPOTHESIS

---

1. Initialize h to the most specific hypothesis in H

2. For each positive training instance x
   - For each attribute constraint a_i in h
       If the constraint a_i is satisfied by x
       Then do nothing
       Else replace a_i in h by the next more general constraint that is satisfied by x

3. Output hypothesis h
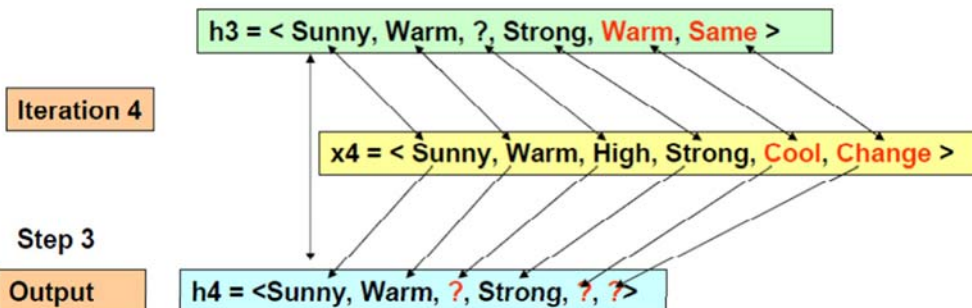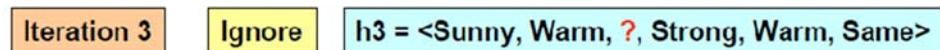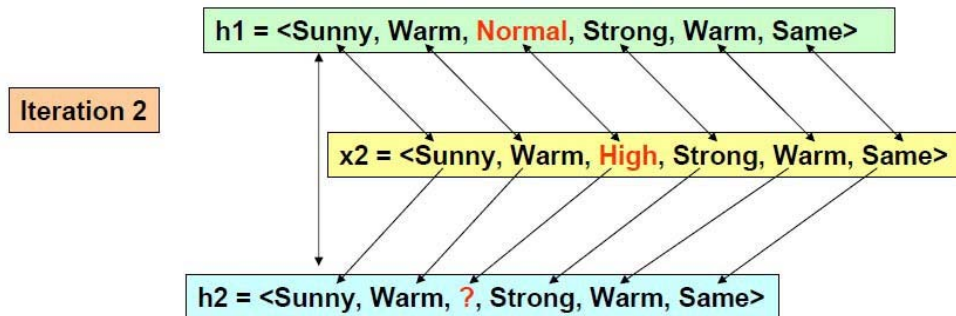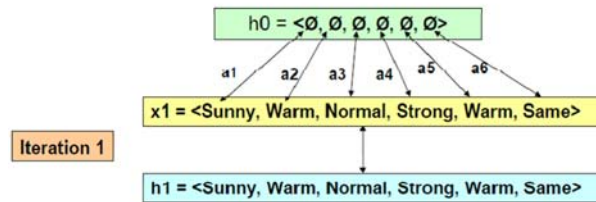

TABLE 2.3
FIND-S Algorithm.

Step 1: FIND-S

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

1. Initialize h to the most specific hypothesis in H

$$h0 = <\emptyset, \emptyset, \emptyset, \emptyset, \emptyset, \emptyset>$$

Step 2: FIND-S

2. For each positive training instance x
   - For each attribute constraint a_i in h

     If the constraint a_i is satisfied by x

     Then do nothing

     Else replace a_i in h by the next more general constraint that is satisfied by x

h0 = <Ø, Ø, Ø, Ø, Ø, Ø>

a1 a2 a3 a4 a5 a6

x1 = <Sunny, Warm, Normal, Strong, Warm, Same>

Iteration 1

h1 = <Sunny, Warm, Normal, Strong, Warm, Same>

---

h1 = <Sunny, Warm, Normal, Strong, Warm, Same>

Iteration 2

x2 = <Sunny, Warm, High, Strong, Warm, Same>

h2 = <Sunny, Warm, ?, Strong, Warm, Same>

Iteration 3   Ignore   h3 = <Sunny, Warm, ?, Strong, Warm, Same>

---

h3 = < Sunny, Warm, ?, Strong, Warm, Same >

Iteration 4

x4 = < Sunny, Warm, High, Strong, Cool, Change >

Step 3

Output   h4 = <Sunny, Warm, ?, Strong, ?, ?>