

1. concept learning

concept learning: Acquiring the definition of a general category from given sample positive and negative training examples of the category. Learning can be seen as a problem of searching through a predefined space of potential hypotheses for the hypothesis that best fits the training examples. The hypothesis space has a general-to-specific ordering of hypotheses and the search can be efficiently organized by taking advantage of a naturally occurring structure over the hypothesis space.

These special features differentiate the set of cars, trucks, etc from the larger set of vehicles. These features that define the set of cars, trucks, etc are known as concepts.

Similar to this, machines can also learn from concepts to identify whether an object belongs to a specific category or not.

Training Data

Target Concept

Actual Data Objects

2. General Hypothesis

Hypothesis, in general, is an example for something. The general hypothesis basically states the general relationship between the major variable. For example, a general hypothesis for ordering food would be I want a burger.

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

3. Specific Hypothesis

The specific hypothesis fills in all the important details about the variable given in the general hypothesis. The more specific details into the example given above would be I want a cheeseburger with a chicken pepperoni filling with a lot of lettuce.

$$S = \{\phi^1, \phi^2, \phi^3, \dots, \phi^k\}$$

Now, let's talk about the Find-S Algorithm in Machine Learning

Initialize 'h' to the most specific hypothesis

The Find-S algorithm only considers the positive examples and eliminates negative examples. For each positive example, the algorithm checks for each attribute in the example. If the attribute value is the same as the hypothesis value, the algorithm moves on without any changes.