T-79.230 **Kevät 2003**
Agenttipohjaisen tietojenkäsittelyn perusteet
Laskuharjoitus 5
Tehtävät

1. An ornithologist was very interested in observing birds. Every time he sees something moving in the skyline he grabs his binoculars and starts observing it. However, there are also other animals around that are not interesting to him but who cause false alarms quite often. Because of this, he has developed an artificial intelligence system that tries to distinguish birds from other animals.

   The system is based on a decision tree that has the following parameters: does the animal fly, how many legs it has, can it swim, does it have fur, does it have a long neck, and does it look like it had a tail-coat.

   The ornithologist teaches the system using the following teaching vector:

Animal	Flies?	Legs	Fur?	Swims?	Neck	Tail-coat?	Bird
Starling	T	2	F	F	Short	F	**T**
Cormorant	T	2	F	T	Long	F	**T**
Giraffe	F	4	T	F	Long	F	**F**
Gnat	T	6	F	F	Short	F	**F**
Bat	T	2	T	F	Short	F	**F**
Ostrich	F	2	F	F	Long	F	**T**
Penguin	F	2	F	T	Short	T	**T**
Crocodile	F	4	F	T	Short	F	**F**
Fluke	F	0	F	T	Short	F	**F**

   Construct the decision tree from the vector using information theory to choose the order of the nodes. How does the system classify a human (non-flying, 2 legs, no fur, swimming, short-necked, and in informal dress)?