

## < Tree ensembles - Using multiple decision trees >

- One of the weaknesses of using a single decision tree

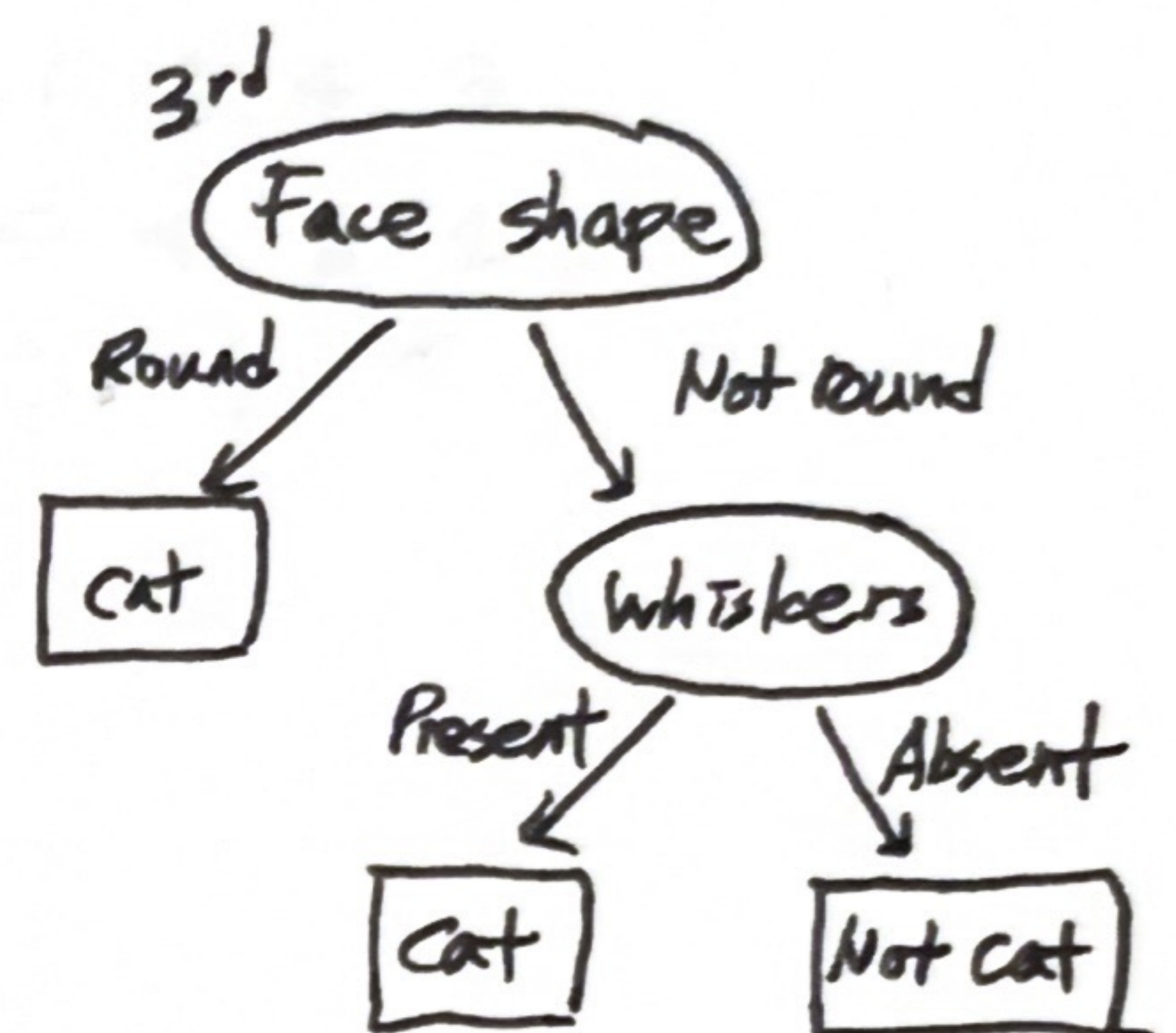
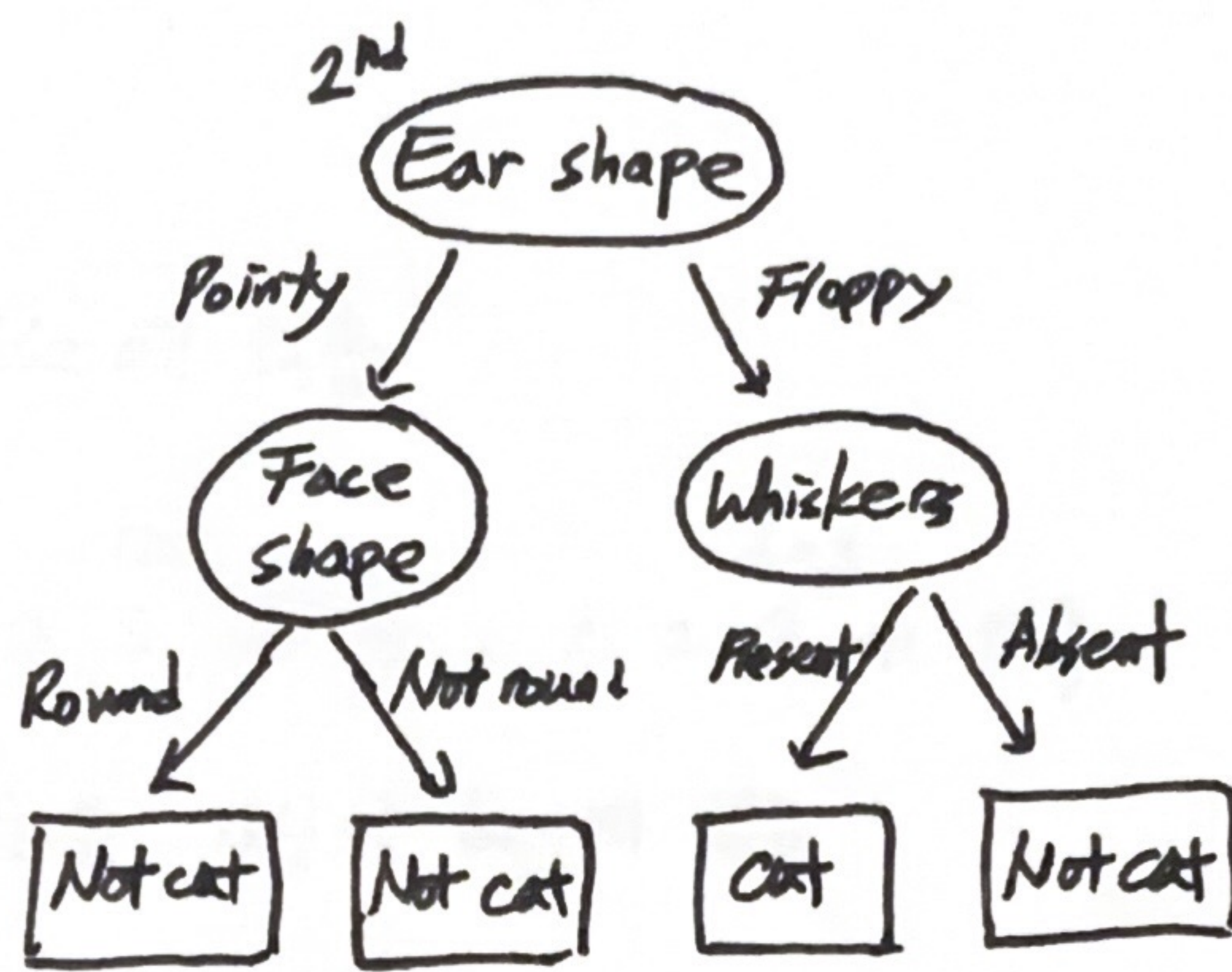
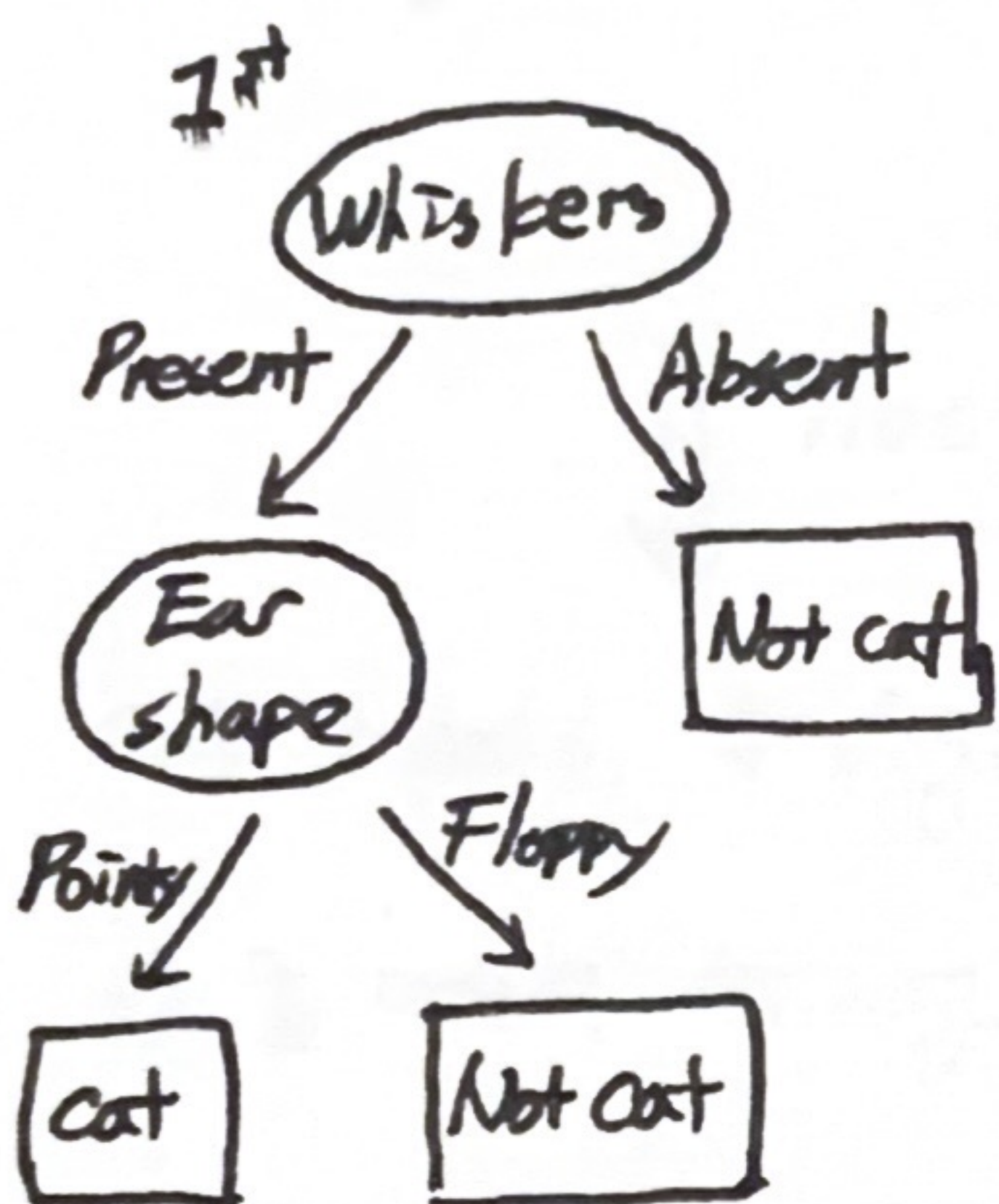
: decision tree can be highly sensitive to small changes in the data

high sensitive?  
data가 조금만 바뀌어도  
highest information gain을  
달라져 split한 기준 feature가  
달라질 수 있기 때문 (tree)

- One solution to make the algorithm less sensitive or more robust

: build not one decision tree but to build a lot of decision trees = "Tree Ensemble"

ex) ensemble 3 trees



① With new test example that you wanted to classify (e.g. New test example)

⇒ run all trees

② get them to vote on what is the final prediction

③ get majority

- Ear shape : Pointy  
- Face shape : Not round  
- Whiskers : Present

1st tree : cat  
2nd tree : Not cat  
3rd tree : cat

majority : the new test example  
is "cat"