outlook	temp.	humidity	windy	play
sunny	hot	high	false	no
sunny	hot	high	true	no
overcast	hot	high	false	yes
rainy	mild	high	false	yes
rainy	cool	normal	false	yes
rainy	cool	normal	true	no
overcast	cool	normal	true	yes
sunny	mild	high	false	no
sunny	cool	normal	false	yes
rainy	mild	normal	false	yes
sunny	mild	normal	true	yes
overcast	mild	high	true	yes
overcast	hot	normal	false	yes
rainy	mild	high	true	no

example: input data

outlook	temp.	humidity	windy	play
sunny	hot	high	false	no
sunny	hot	high	true	no
overcast	hot	high	false	yes
rainy	mild	high	false	yes
rainy	cool	normal	false	yes
rainy	cool	normal	true	no
overcast	cool	normal	true	yes
sunny	mild	high	false	no
sunny	cool	normal	false	yes
rainy	mild	normal	false	yes
sunny	mild	normal	true	yes
overcast	mild	high	true	yes
overcast	hot	normal	false	yes
rainy	mild	high	true	no

outlook

sunny-no	2/5
overcast-yes	0/4
rainy-yes	2/5

total 4/14

temp.

hot-no*	2/4
mild-yes	2/6
cool-yes	1/4

total 5/14

humidity

high-no	3/7
normal-yes	1/7

total 4/14

windy

false-yes	2/8
true-no*	3/6

total 5/14

example: 1R

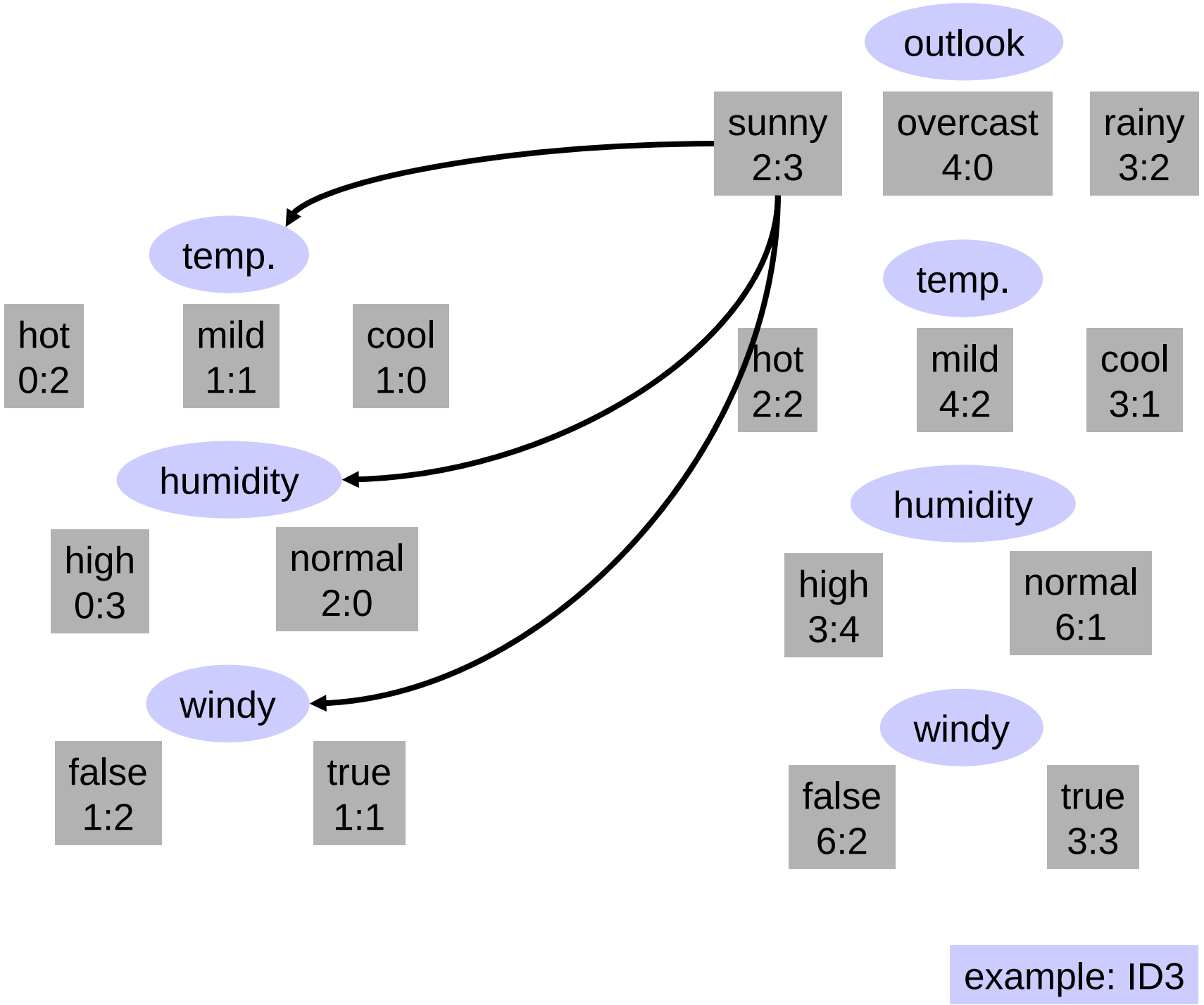
outlook	temp.	humidity	windy	play
sunny	hot	high	false	no
sunny	hot	high	true	no
overcast	hot	high	false	yes
rainy	mild	high	false	yes
rainy	cool	normal	false	yes
rainy	cool	normal	true	no
overcast	cool	normal	true	yes
sunny	mild	high	false	no
sunny	cool	normal	false	yes
rainy	mild	normal	false	yes
sunny	mild	normal	true	yes
overcast	mild	high	true	yes
overcast	hot	normal	false	yes
rainy	mild	high	true	no

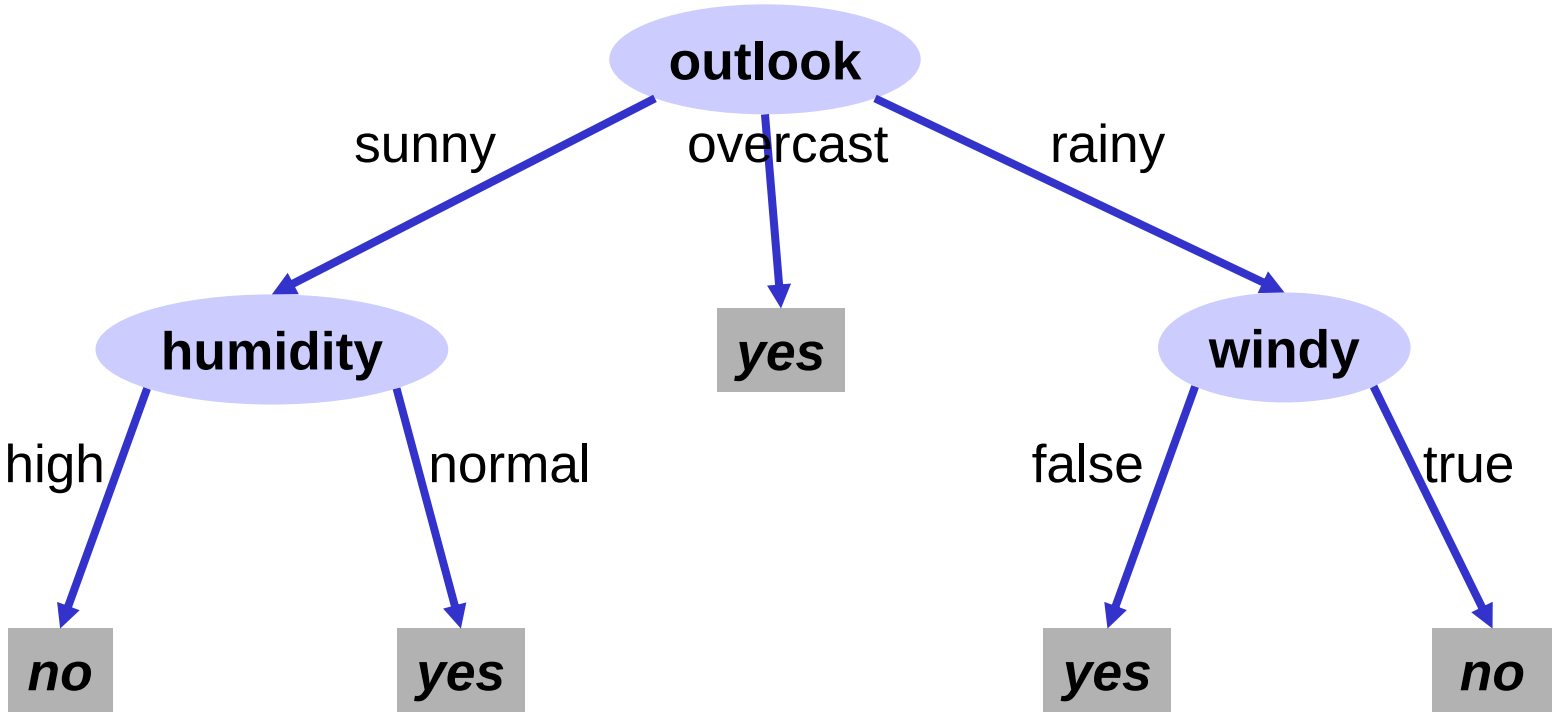
yes	
sunny	2/9
cool	3/9
high	3/9
true	3/9
overall	9/14
0.0053	
20.5 %	

no	
sunny	3/5
cool	1/5
high	4/5
true	3/5
overall	5/14
0.0206	
79.5 %	

sunny	***cool***	***high***	***true***	***?***

example: Naïve Bayes


outlook
sunny
2:3
overcast
4:0
rainy
3:2
temp.
hot
0:2
mild
1:1
cool
1:0
temp.
hot
2:2
mild
4:2
cool
3:1
humidity
high
0:3
normal
2:0
humidity
high
3:4
normal
6:1
windy
false
1:2
true
1:1
windy
false
6:2
true
3:3
example: ID3


outlook
sunny
overcast
rainy
humidity
yes
windy
high
normal
false
true
no
yes
yes
no

example: ID3

outlook	temp.	humidity	windy	play
sunny	hot	high	false	no
sunny	hot	high	true	no
overcast	hot	high	false	yes
rainy	mild	high	false	yes
rainy	cool	normal	false	yes
rainy	cool	normal	true	no
overcast	cool	normal	true	yes
sunny	mild	high	false	no
sunny	cool	normal	false	yes
rainy	mild	normal	false	yes
sunny	mild	normal	true	yes
overcast	mild	high	true	yes
overcast	hot	normal	false	yes
rainy	mild	high	true	no

If ? then P=yes

If O=overcast then P=yes

O = sunny	2/5
O = overcast	***4/4***
O = rainy	3/5
T = hot	2/4
T = mild	4/6
T = cool	3/4
H = high	3/7
H = normal	6/7
W = false	6/8
W = true	3/6

example: PRISM

outlook	temp.	humidity	windy	play
sunny	hot	high	false	no
sunny	hot	high	true	no
rainy	mild	high	false	yes
rainy	cool	normal	false	yes
rainy	cool	normal	true	no
sunny	mild	high	false	no
sunny	cool	normal	false	yes
rainy	mild	normal	false	yes
sunny	mild	normal	true	yes
rainy	mild	high	true	no

If ? then P=yes

If H=normal then P=yes

O = sunny	2/5
O = rainy	3/5
T = hot	0/2
T = mild	3/5
T = cool	2/3
H = high	1/5
H = normal	***4/5***
W = false	4/6
W = true	1/4

example: PRISM

outlook	temp.	humidity	windy	play
sunny	hot	high	false	no
sunny	hot	high	true	no
rainy	mild	high	false	yes
rainy	cool	normal	false	yes
rainy	cool	normal	true	no
sunny	mild	high	false	no
sunny	cool	normal	false	yes
rainy	mild	normal	false	yes
sunny	mild	normal	true	yes
rainy	mild	high	true	no

If H=normal
and ? then P=yes
If H=normal and W=false then P=yes

O = sunny	2/2
O = rainy	2/3
T = mild	2/2
T = cool	2/3
W = false	***3/3***
W = true	1/2

example: PRISM

outlook	temp.	humidity	windy	play
sunny	hot	high	false	no
sunny	hot	high	true	no
rainy	mild	high	false	yes
rainy	cool	normal	true	no
sunny	mild	high	false	no
sunny	mild	normal	true	yes
rainy	mild	high	true	no

If ? then P=yes
If T=mild then P=yes

O = sunny	1/4
O = rainy	1/3
T = hot	0/2
T = mild	***2/3***
T = cool	0/1
H = high	1/5
H = normal	1/2
W = false	1/3
W = true	1/4

example: PRISM

outlook	temp.	humidity	windy	play
sunny	hot	high	false	no
sunny	hot	high	true	no
rainy	mild	high	false	yes
rainy	cool	normal	true	no
sunny	mild	high	false	no
sunny	mild	normal	true	yes
rainy	mild	high	true	no

If T=mild and
? then P=yes
If T=mild and H=normal then P=yes

O = sunny	1/2
O = rainy	1/2
H = high	1/3
H = normal	***1/1***
W = false	1/2
W = true	1/2

example: PRISM

outlook	temp.	humidity	windy	play
sunny	hot	high	false	no
sunny	hot	high	true	no
rainy	mild	high	false	yes
rainy	cool	normal	true	no
sunny	mild	high	false	no
rainy	mild	high	true	no

If ? then P=yes
If O=rainy then P=yes

O = sunny	0/3
O = rainy	***1/3***
T = hot	0/2
T = mild	1/3
T = cool	0/1
H = high	1/5
H = normal	0/1
W = false	1/3
W = true	0/3

example: PRISM

outlook	temp.	humidity	windy	play
sunny	hot	high	false	no
sunny	hot	high	true	no
rainy	mild	high	false	yes
rainy	cool	normal	true	no
sunny	mild	high	false	no
rainy	mild	high	true	no

If O=rainy and
? then P=yes
If O=rainy and W=false then P=yes

T = mild	1/2
T = cool	0/1
H = high	1/2
H = normal	0/1
W = false	**1/1**
W = true	0/2

example: PRISM

outlook	temp.	humidity	windy	play
sunny	hot	high	false	no
sunny	hot	high	true	no
overcast	hot	high	false	yes
rainy	mild	high	false	yes
rainy	cool	normal	false	yes
rainy	cool	normal	true	no
overcast	cool	normal	true	yes
sunny	mild	high	false	no
sunny	cool	normal	false	yes
rainy	mild	normal	false	yes
sunny	mild	normal	true	yes
overcast	mild	high	true	yes
overcast	hot	normal	false	yes
rainy	mild	high	true	no

If O=overcast then P=yes

If H=normal and W=false then P=yes

If T=mild and H=normal then P=yes

If O=rainy and W=false then P=yes

example: PRISM

outlook	temp.	humidity	windy	play	distance
sunny	hot	high	false	no	2
sunny	hot	high	true	no	1
overcast	hot	high	false	yes	3
rainy	mild	high	false	yes	3
rainy	cool	normal	false	yes	3
rainy	cool	normal	true	no	2
overcast	cool	normal	true	yes	2
sunny	mild	high	false	no	2
sunny	cool	normal	false	yes	2
rainy	mild	normal	false	yes	4
sunny	mild	normal	true	yes	2
overcast	mild	high	true	yes	2
overcast	hot	normal	false	yes	4
rainy	mild	high	true	no	2

sunny	***cool***	***high***	***true***	***?***

example: kNN