

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

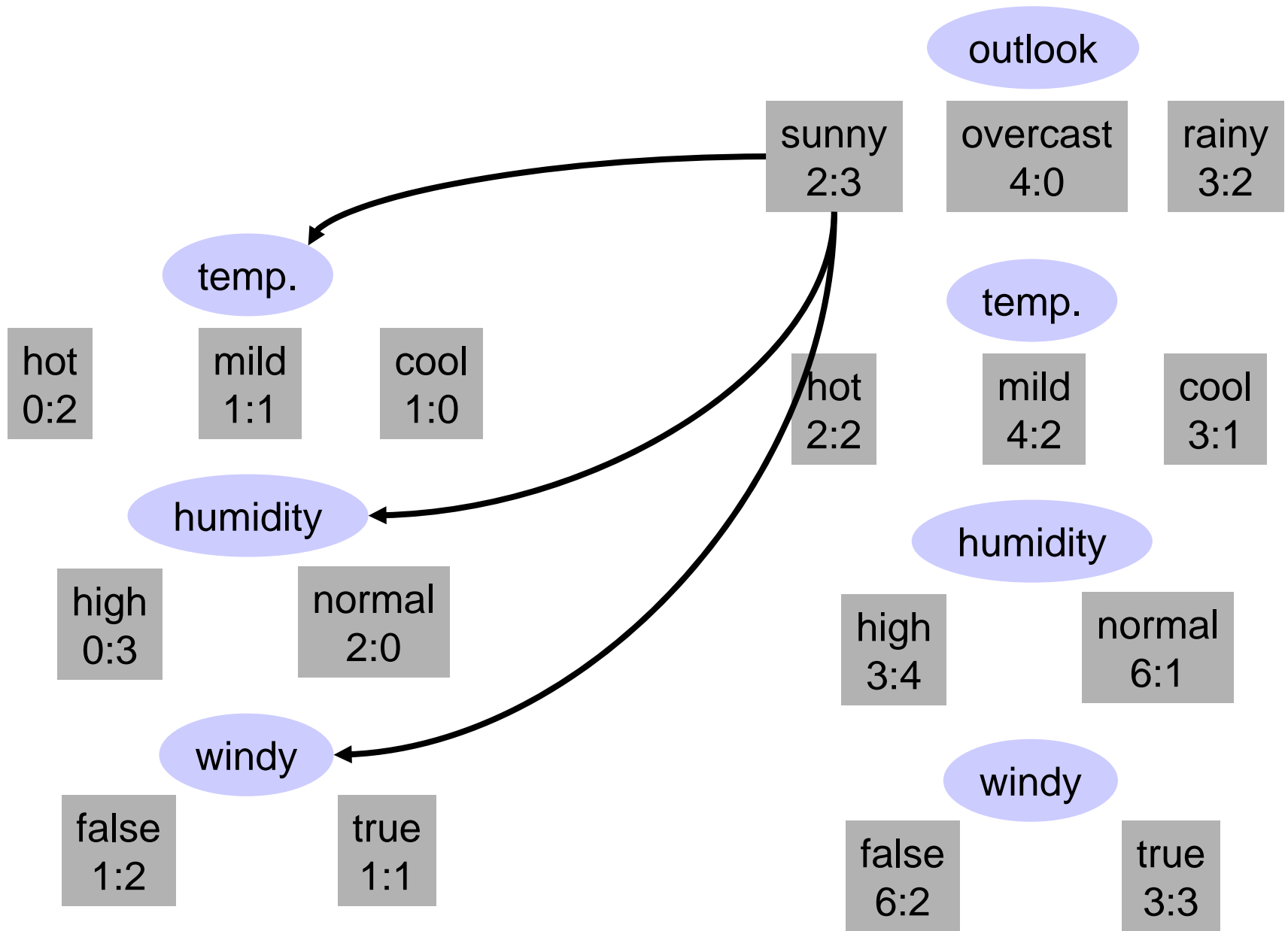
outlook	temp.	humidity	windy	play
sunny	hot	high	false	no
sunny	hot	high	true	no
overcast	hot	high	false	yes
rainy	mild	high	false	yes
rainy	cool	normal	false	yes
rainy	cool	normal	true	no
overcast	cool	normal	true	yes
sunny	mild	high	false	no
sunny	cool	normal	false	yes
rainy	mild	normal	false	yes
sunny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

<i>sunny</i>	<i>cool</i>	<i>high</i>	<i>true</i>	<i>?</i>
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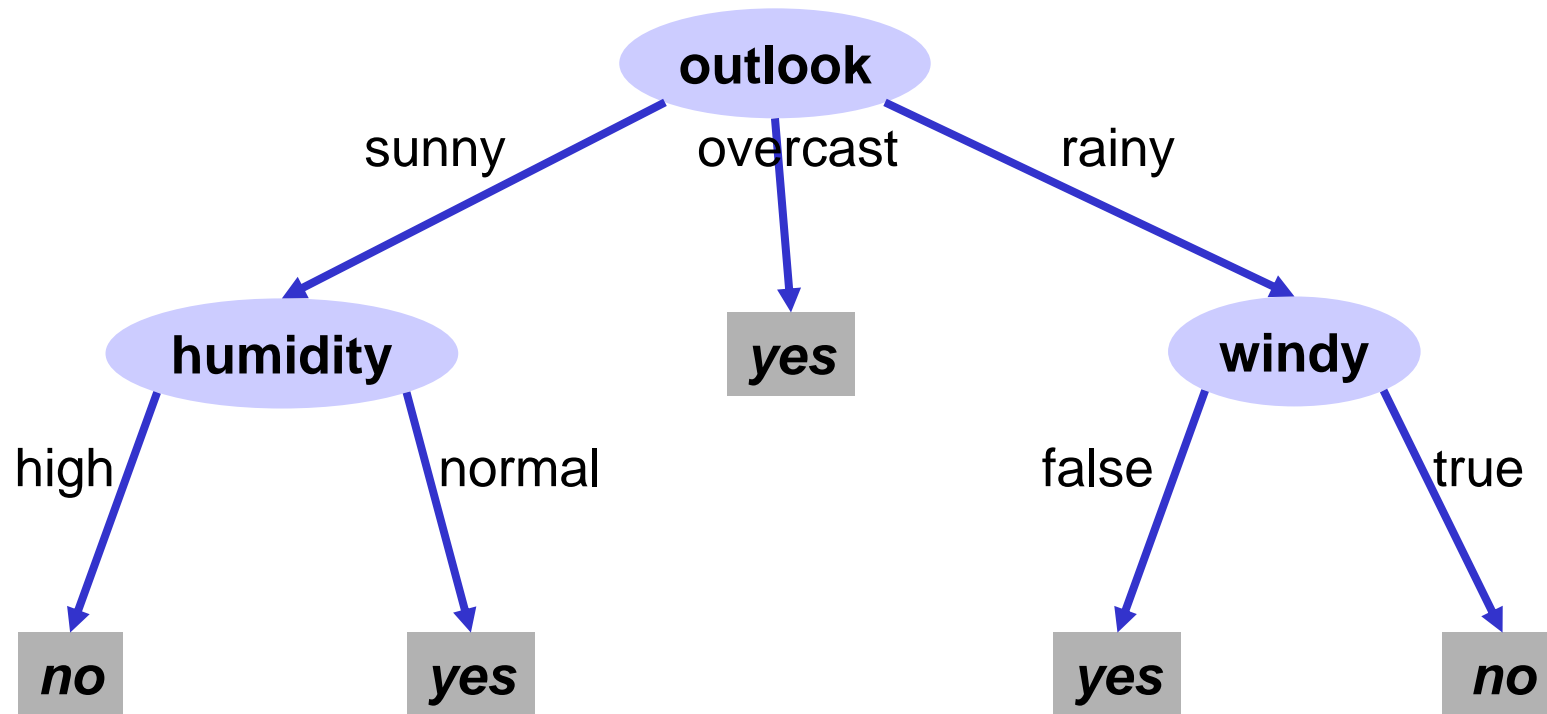
yes	
sunny	2/9
cool	3/9
high	3/9
true	3/9
overall	9/14
0.0053	
20.5 %	

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

example: Naïve Bayes



example: ID3



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

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

rainy	mild	high	false	yes
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rainy	cool	normal	true	no
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sunny	mild	high	false	no
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rainy	mild	high	true	no
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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

<i>sunny</i>	<i>cool</i>	<i>high</i>	<i>true</i>	<i>?</i>
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example: kNN