

## Question (() (Answer at practicaldsc.org/q)

Which hypothesis function is **not** linear in the parameters?

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A. 
$$H(\vec{x}) = w_1(x^{(1)}x^{(2)}) + \frac{w_2}{x^{(1)}}\sin(x^{(2)})$$

B.  $H(\vec{x}) = 2^{w_1}x^{(1)}$ 

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A.  $u_1(\vec{x}) = u_2(\vec{x})$ 

Then  $u_2(\vec{x}) = u_2(\vec{x})$ 

Then  $u_3(\vec{x}) = u_3(\vec{x})$ 

C. 
$$H(\vec{x}) = \vec{w} \cdot \text{Aug}(\vec{x})$$
  
D.  $H(\vec{x}) = w_1 \cos(x^{(1)}) + w_2 2^{x^{(2)} \log x^{(3)}}$ 

• E. More than one of the above.

H(x) = woe wix \_ not currently linear!

Iden: take log of both sides

$$\log H(x) = \log (\omega_0 e^{\omega_1 x})$$

$$\log H(x) = \log (\omega_0) + \omega_1 x$$

 $\Rightarrow T(x) = b_0 + b_1 x \Rightarrow is linear in its parameters$ 

17.1



• Suppose we have the following fitted model:

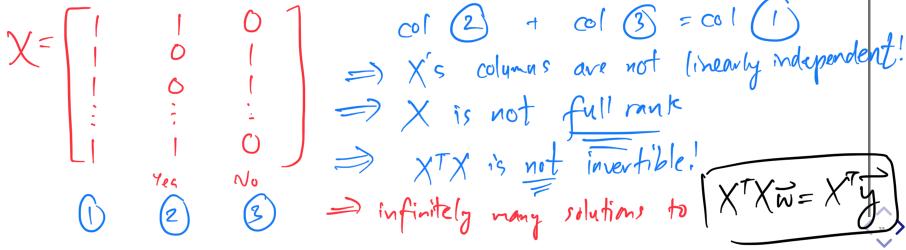
For illustration, assume 'weekend' was originally a categorical feature with two possible values, 'Yes' or 'No'.

$$H(x) = 1 + 2 \cdot (\text{weekend} = \text{Yes}) - 2 \cdot (\text{weekend} = \text{No})$$

• This is equivalent to:

$$H(x) = 10 - 7 \cdot (\text{weekend} = \text{Yes}) - 11 \cdot (\text{weekend} = \text{No})$$

• Note that for a particular row in the dataset, weekend == Yes + weekend == No is always equal to 1.



 $\blacksquare$   $\leftarrow$   $\rightarrow$   $\circlearrowleft$  localhost



```
In [65]: stdscaler.var_
Out[65]: array([ 3.89, 35191.58, 13.72, 25.44, 23.08])
```

• If needed, the fit\_transform method will fit the transformer and then transform the data in one go.