

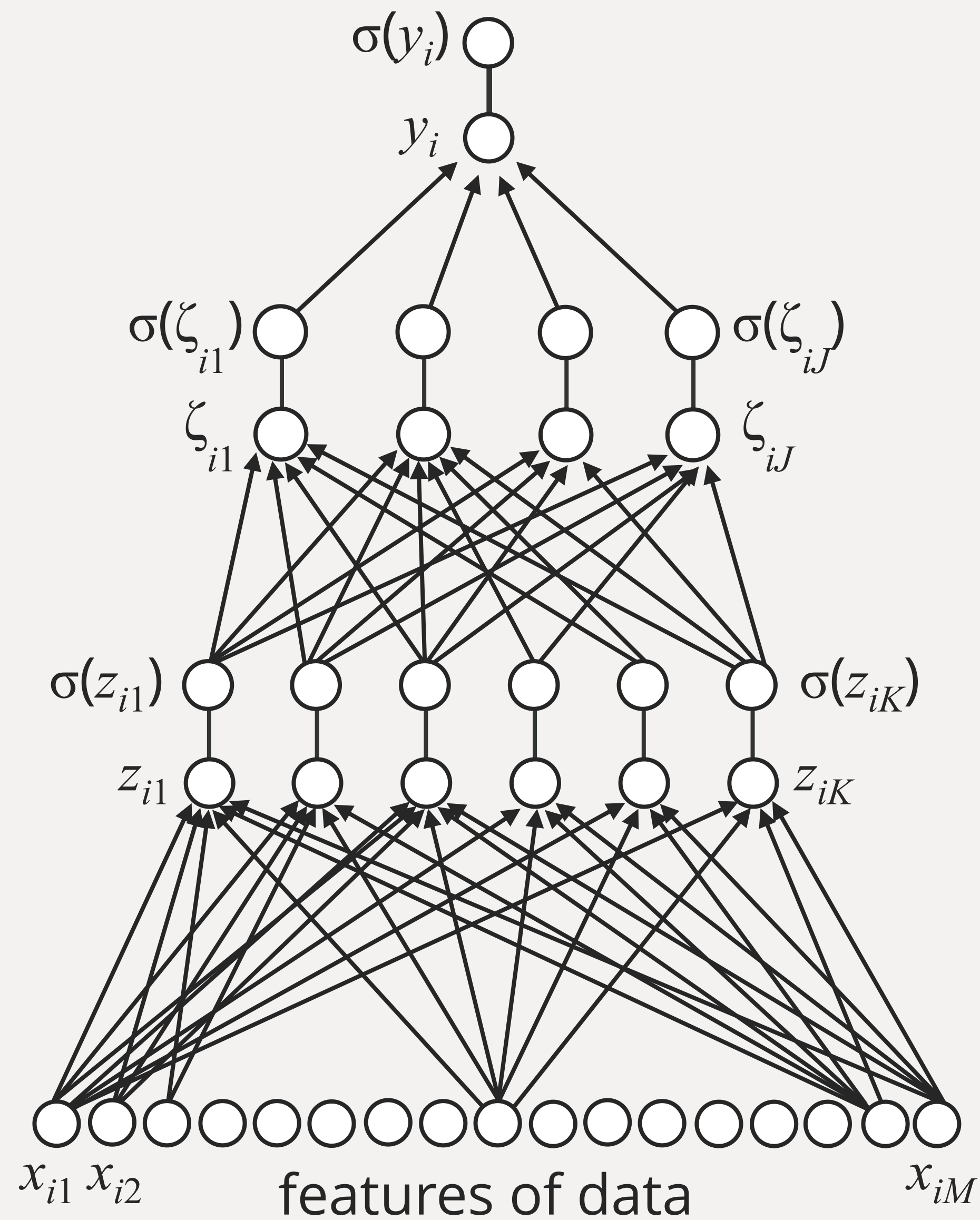


Transfer Learning

Why is deep learning so powerful?

What can deep learning do other
models can't do?





prediction
(person of interest)

$$y_i = d_0 + \sigma(\zeta_i) \odot d$$

logistic regression
based on layer 2 features

meta-topics

$$\zeta_{i1} = c_{01} + \sigma(z_i) \odot c_1$$

$$\zeta_{i2} = c_{02} + \sigma(z_i) \odot c_2$$

⋮

$$\zeta_{iJ} = c_{0J} + \sigma(z_i) \odot c_J$$

features of the data
with layer 2 filters

topcis

$$z_{i1} = b_{01} + x_i \odot b_1$$

$$z_{i2} = b_{02} + x_i \odot b_2$$

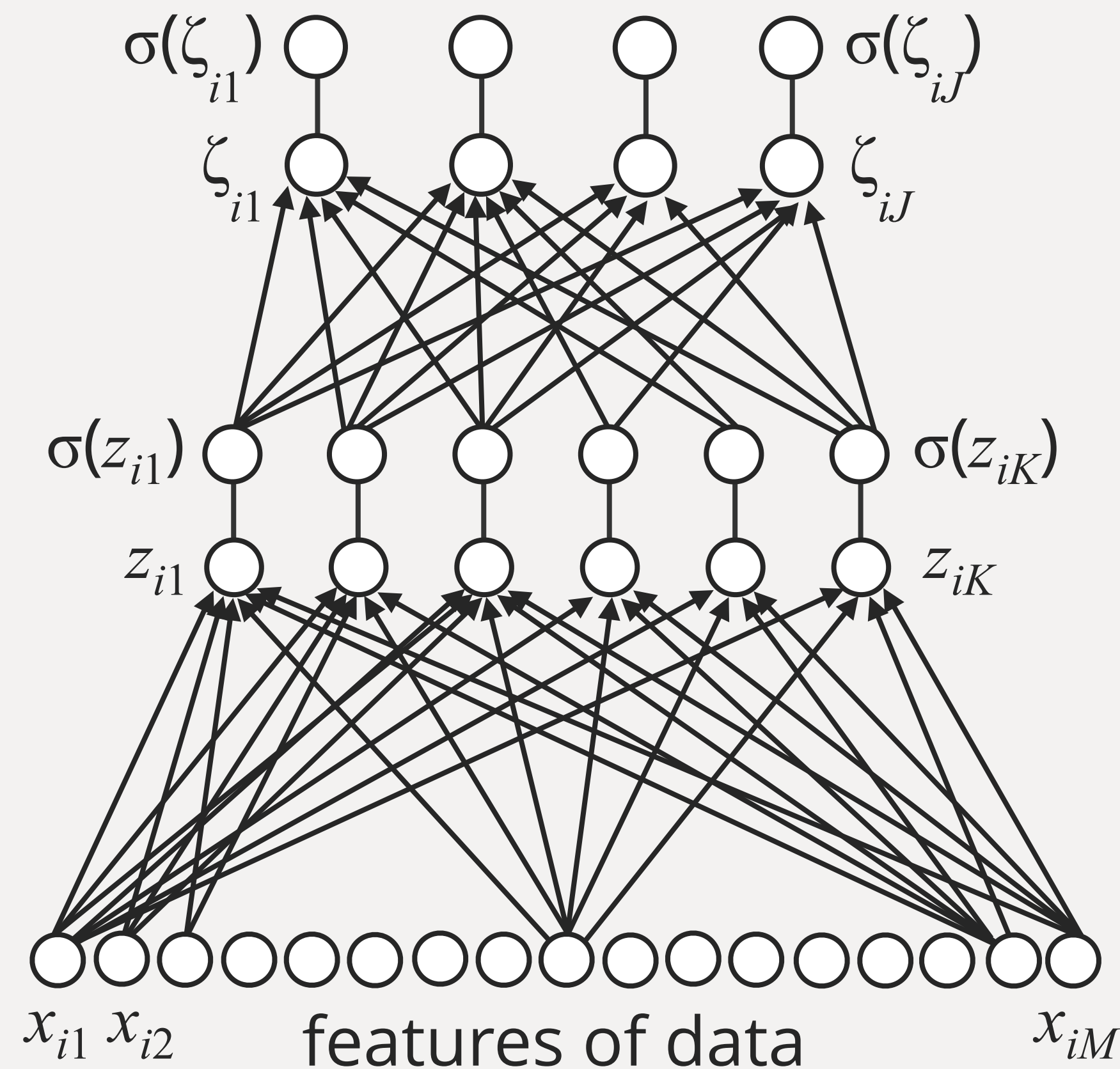
⋮

$$z_{iK} = b_{0K} + x_i \odot b_K$$

features of the data
with layer 1 filters

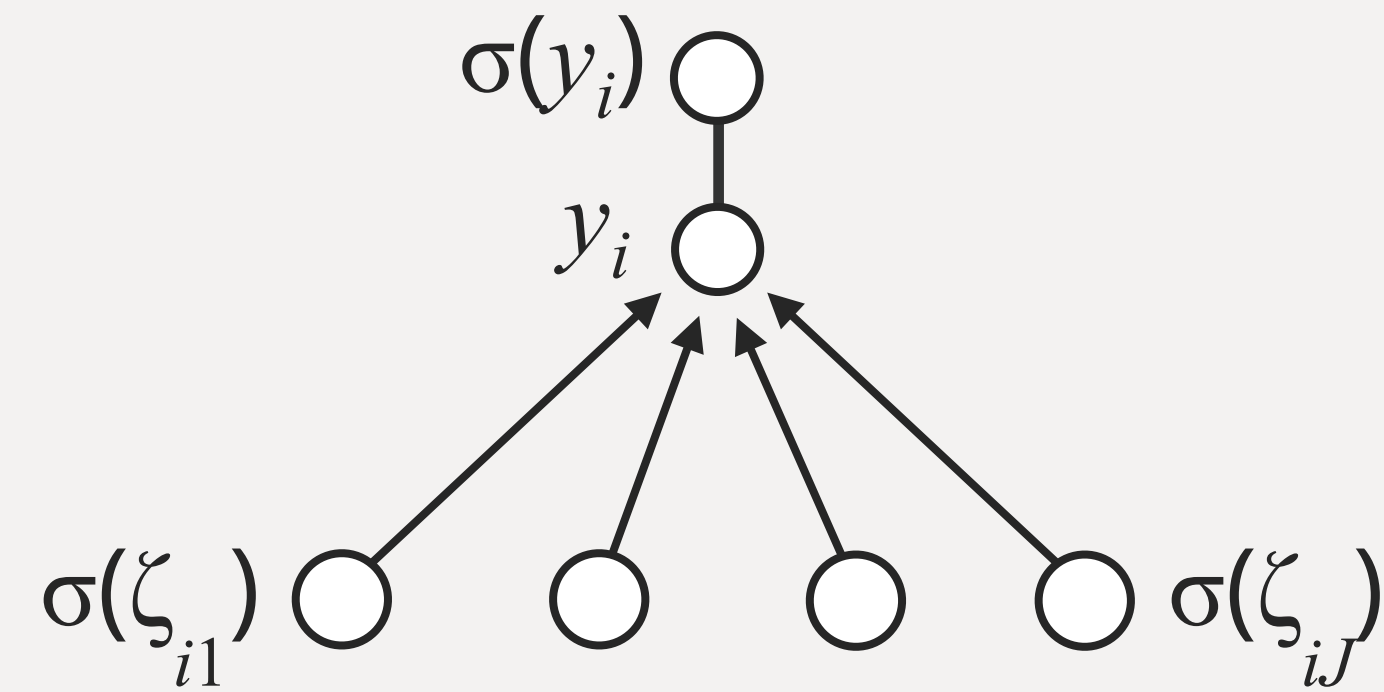
Considering Multiple Likes and Dislikes

Layers 1 and 2



- Look for topics and meta-topics
- Characterize the document, **not** the person
- Can be **reused** in models of multiple people

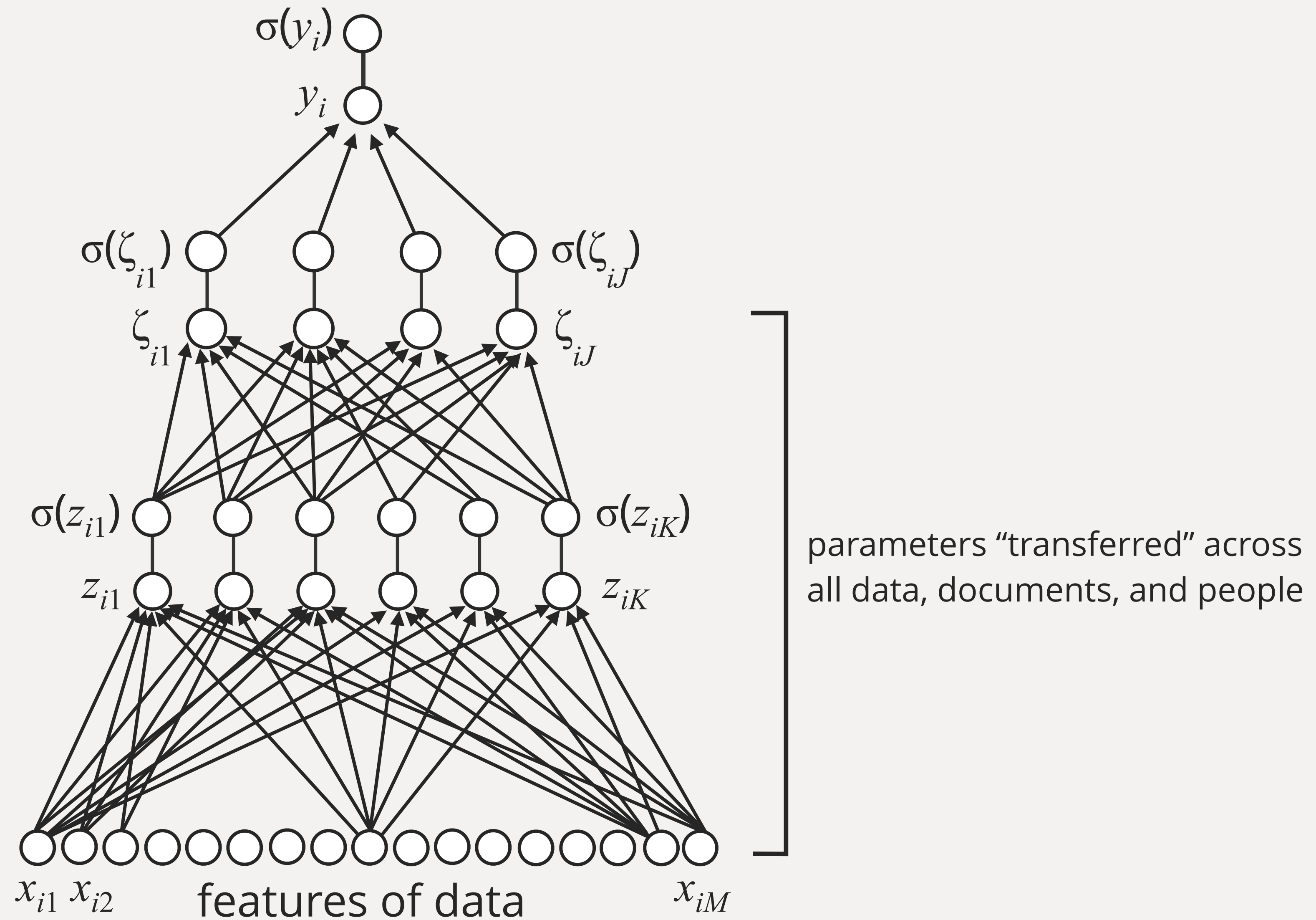
Considering Multiple Likes and Dislikes



Top layer

■ Characterizes a specific person

Transfer Learning



Transfer Learning

