

SciLifeLab

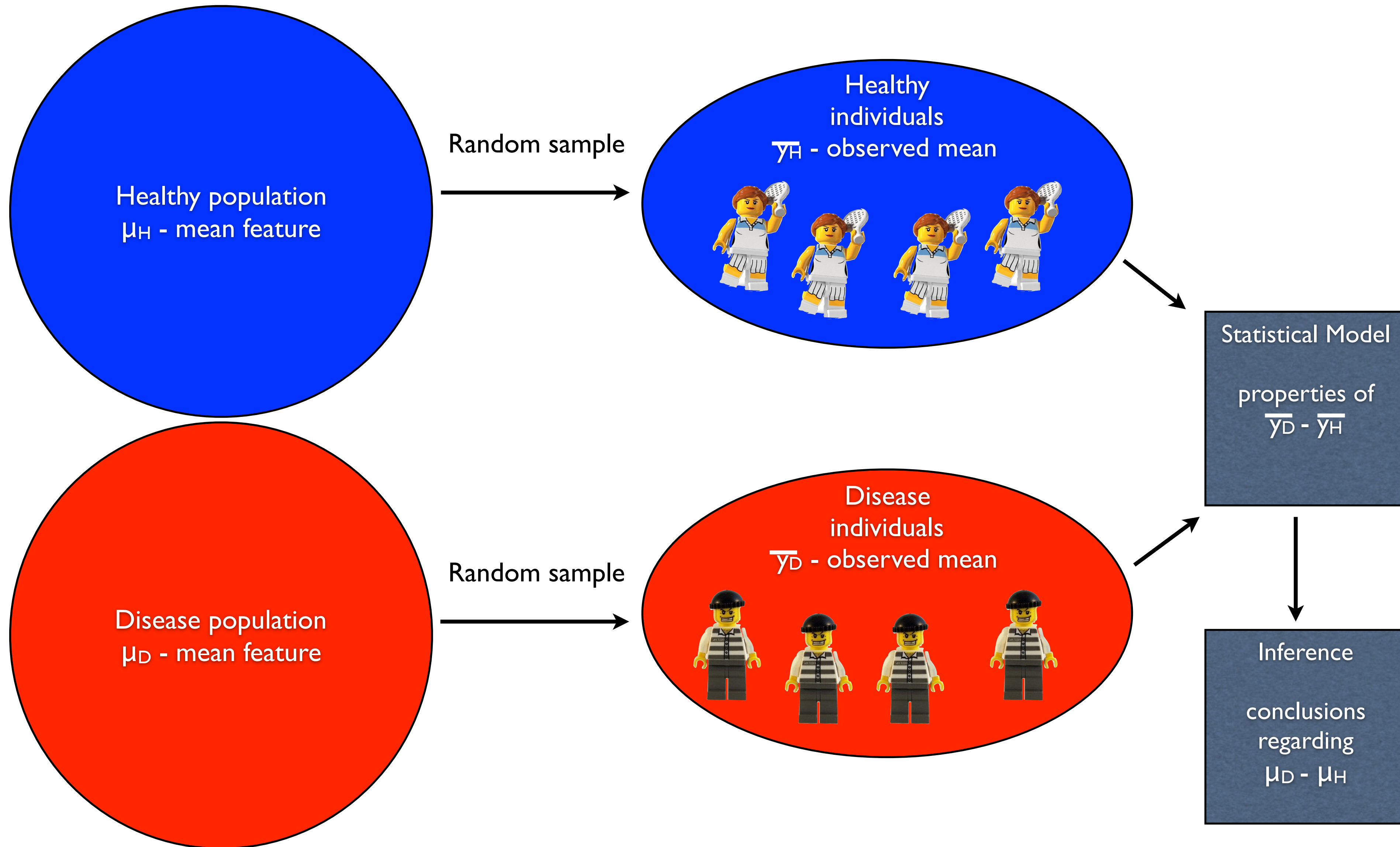
Linear Models

CB2030

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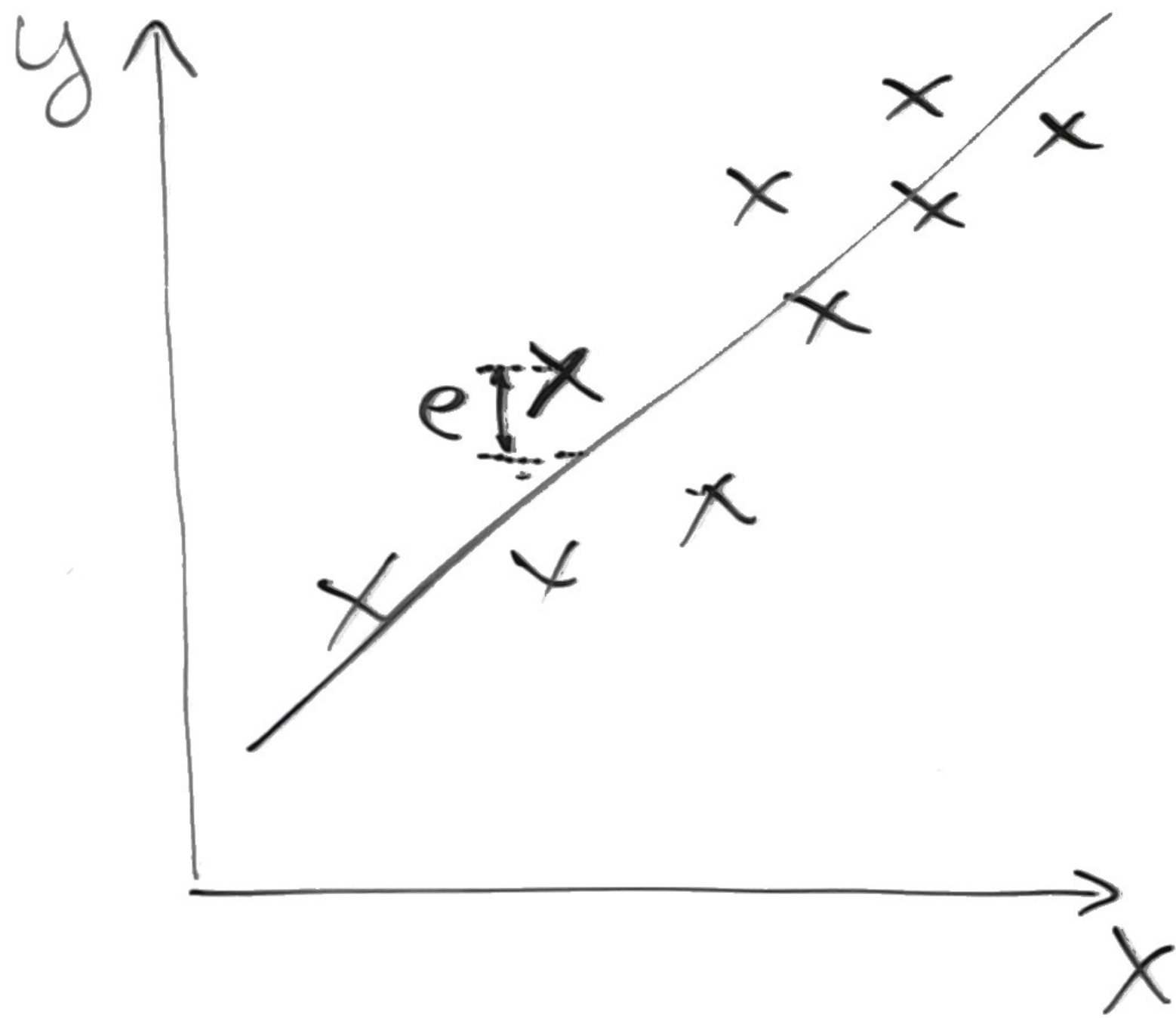
Statistical inference procedure



Statistical Tests

- Does our statistical model explain more of the variance in the data than expected by chance?

You have observed a set of samples $\{(x_i, y_i)\}$



$$f(x) = ax + b$$

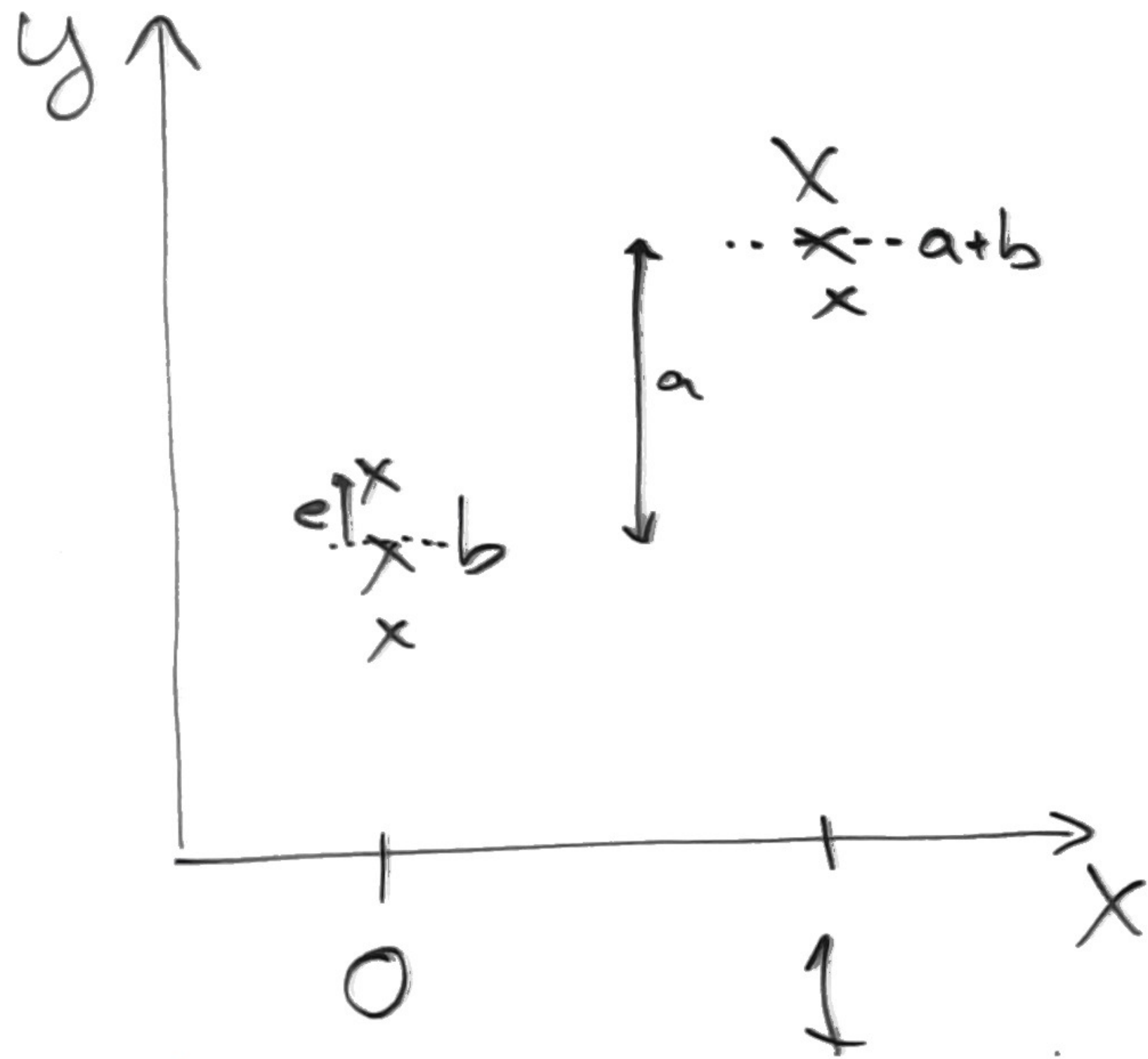
$$e_i = y_i - f(x_i)$$

Look for a and b that

$$\min_{a,b} \sum_i e_i^2 = \min_{a,b} \sum_i (y_i - f(x_i))^2 = \min_{a,b} \sum_i (y_i - (ax_i + b))^2$$

= Squared sum of the residuals

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$$y \sim x$$