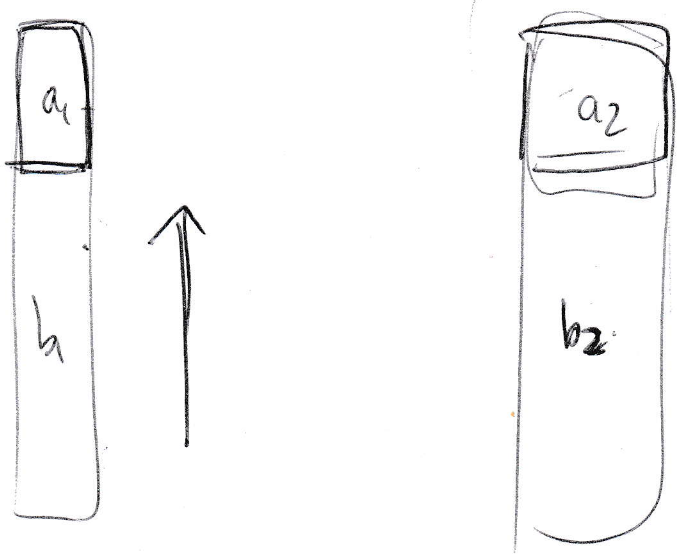
$$\frac{\mathbb{P}(Y_a \in D \cap I \cap \{Y_i = y\})}{\mathbb{P}(I \cap \{Y_i = y\})}$$

$\mathbb{P}(Y_2$

$Y = N(\mu_1, \sigma^2)$ $\quad\quad$ $Y = N(\mu_2, \sigma^2)$



$$\boxed{\frac{a_1}{b_1} < \frac{a_2}{b_2}}$$

$a_1 > a_2$, $\quad b_1 > b_2$. $\quad a_1 + a_2 > b_1 + b_2$.

$$\frac{a_1}{a_1 + b_1} < \frac{a_2}{a_2 + b_2}.$$

$\Leftrightarrow \quad a_1(a_2 + b_2) < a_2(a_1 + b_1)$

$\Leftrightarrow \quad a_1 a_2 + a_1 b_2 < a_1 a_2 + a_2 b_1$

$\Updownarrow$

$a_1 b_2 < a_2 b_1$

$\Leftrightarrow \quad \frac{a_1}{a_2} < \frac{b_1}{b_2}$