

## The formula

$$\mathbb{P}(V = 1 | T = 1) = \frac{0.99\alpha}{0.98\alpha + 0.01} = \frac{99\alpha}{1 + 98\alpha} =: f(\alpha).$$

## How does this depend on $\alpha$ ?

- As  $\alpha \rightarrow 1$ ,  $f(\alpha) \rightarrow 1$ , so :
  - If the prevalence of the virus is high, then the test is **reliable**.
- As  $\alpha \rightarrow 0$ ,  $f(\alpha) \rightarrow 0$ , so :
  - If the prevalence of the virus is low, then the test is **unreliable**.

