

$$\begin{array}{c}
 a = b \\
 \uparrow \text{change} \\
 \int_0^\infty F_X(x)dx = \int_0^\infty F_X(-x)dx = \int_{-\infty}^0 F_X(x)dx. \\
 \uparrow \text{change of variables}
 \end{array}$$