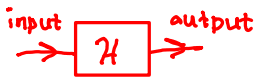
a real variable t,

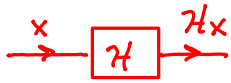
Example 2.6. For a system operator $\mathcal{H}$, a function x, and a real constant t_0, the expression $\mathcal{H}x(t-t_0)$ denotes the result obtained by taking the function y produced as the output of the system $\mathcal{H}$ when the input is the function x and then evaluating y at $t-t_0$. ■

$\mathcal{H}$ is a system.



$\mathcal{H}x$ is the output of the system $\mathcal{H}$ when the input is x.

$\mathcal{H}x$: function; x: function



Since $\mathcal{H}x$ is a function, we can evaluate it at some point such as $t-t_0$.

$\mathcal{H}x(t-t_0)$: number

$\mathcal{H}x$: function; $t-t_0$: point at which function is evaluated