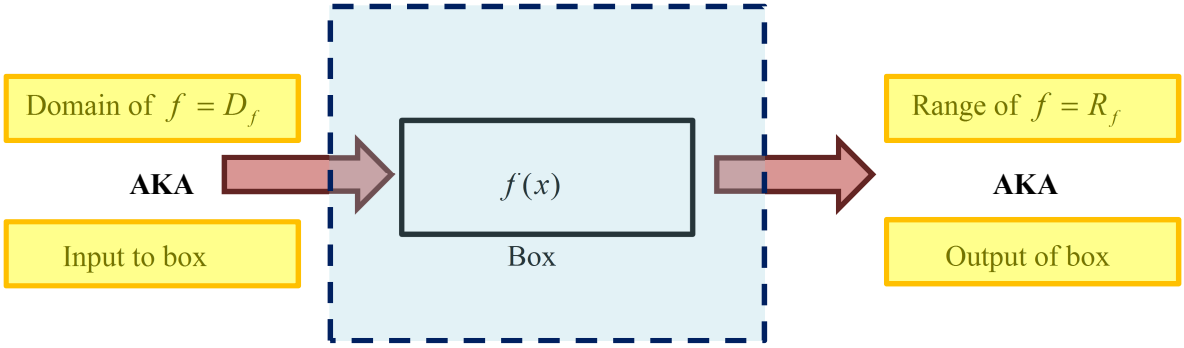
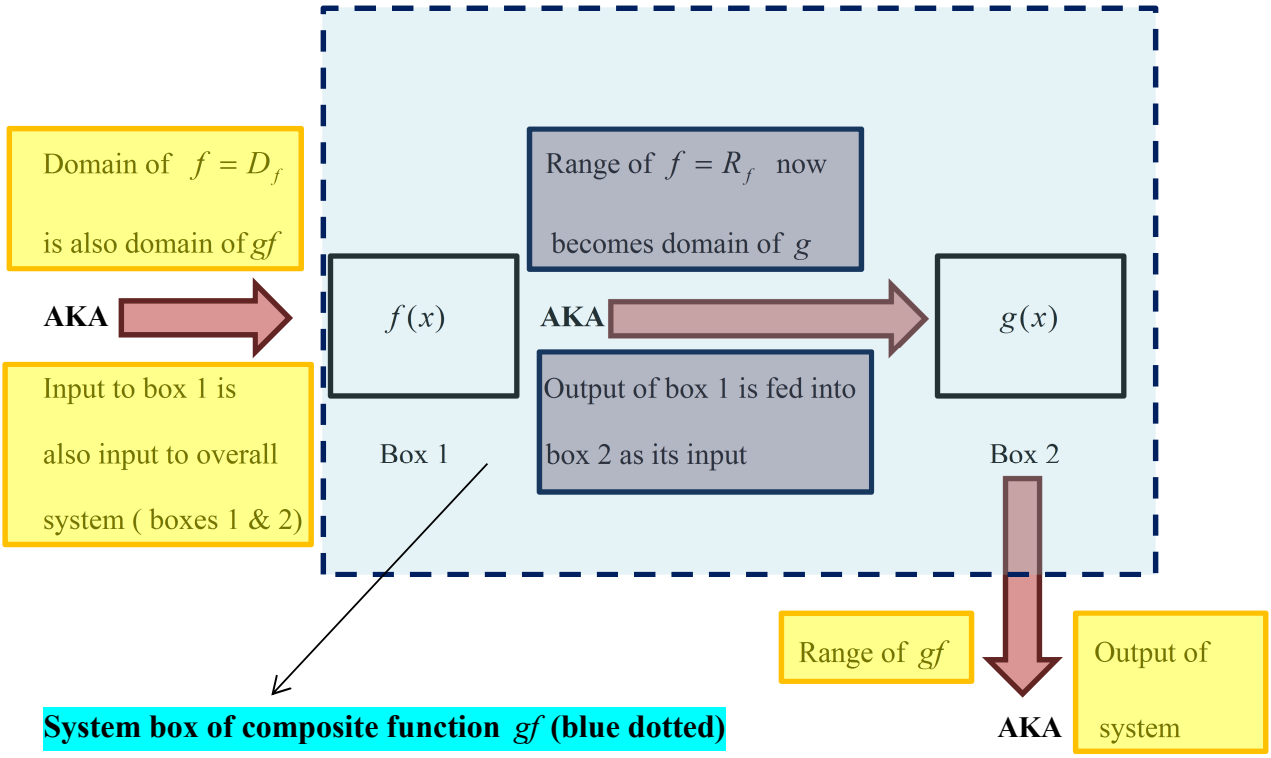
We can view the domain and range of a function as separate inputs and outputs of a box processor:




We can also see a composite function in a similar fashion. For example, considering a generic composite function $gf(x)$, the following system can be imagined:




1. The domain of $f(x)$ is plugged into the system $gf(x)$ as the interfacing input, hence $D_f = D_{gf}$.

2. Within the system $gf(x)$ (blue dotted), the output of $f(x) = R_f$ is subsequently fed as an input into $g(x)$; ie $D_g = R_f$.

3. The output of $g(x)$ is also the output of the entire system $gf(x)$, ie $R_{gf}$.