Beta-reduction in the lambda-calculus is defined by substitution:

$$(\lambda v.E)\ x \quad \longrightarrow_\beta \quad E[x/v] \tag{1}$$

$$(\lambda vw.E)\ x \quad \longrightarrow_\beta \quad \lambda w.(E[x/v]) \tag{2}$$

where x may be any lambda term (variable, function or application). E.g.:

$$\begin{aligned}(\lambda xy.(y\,(x\,x\,y)))\ (\lambda xy.(y\,(x\,x\,y)))& \\ \longrightarrow_\beta\ \lambda y.(y\,((\lambda xy.(y\,(x\,x\,y)))\ (\lambda xy.(y\,(x\,x\,y)))\,y))&\end{aligned} \tag{3}$$