

Below we apply β -reductions to the expression $2S1$ in the normal order which means that we reduce the left-most redex first. The location of a redex is determined by its beginning. The reduced redex is highlighted.

$$\begin{aligned}
2S1 &\equiv (\lambda a.\lambda b.a(ab))S1 \\
&\equiv (\lambda b.S(Sb))1 \\
&\equiv S(S1) \\
&\equiv (\lambda w.\lambda x.\lambda y.x(wxy))(S1) \\
&\equiv \lambda x.\lambda y.x((S1)xy) \\
&\equiv \lambda x.\lambda y.x((\lambda w.\lambda a.\lambda b.a(wab))1)xy) \\
&\equiv \lambda x.\lambda y.x((\lambda a.\lambda b.a(1ab))x y) \\
&\equiv \lambda x.\lambda y.x((\lambda b.x(1xb))y) \\
&\equiv \lambda x.\lambda y.x(x(1xy)) \\
&\equiv \lambda x.\lambda y.x(x((\lambda a.\lambda b.ab)x y)) \\
&\equiv \lambda x.\lambda y.x(x((\lambda b.xb)y)) \\
&\equiv \lambda x.\lambda y.x(x(xy)) \\
&\equiv 3
\end{aligned}$$