$\lambda a\ x.b\ (a\ (\lambda b.(\lambda a.b)\ b\ c\ a\ x))$

$Y \equiv \lambda f.(\lambda x.f\ (x\ x))\ (\lambda x.f\ (x\ x))$

$\lambda x.\lambda x.$ cons $\lambda x\ y\ c.c\ x\ y$ x nil $\lambda x.$ *true*

$\lambda x\ y.x\ y$ XX $\lambda x.\lambda x.(\lambda x\ y\ c.c\ x\ y\ x)$ nil $\lambda x.$ true $\lambda x\ y.x$

$$
\begin{aligned}
& (\lambda f.\lambda x.f\ x)\ x \\
=_\alpha\ & (\lambda f.\lambda x'.f\ x')\ x \\
\to_\beta\ & \lambda x'.x\ x' \\
\to_\eta\ & x
\end{aligned}
$$