① $S\,(\lambda x.\,M)\,(\lambda x.\,N) = \lambda x.\,(\lambda x.\,M)\,x\,((\lambda x.\,N)\,x) =$

$= \lambda x.\,(\lambda x.\,M)\,x\,N = \lambda x.\,M\,N$

② xor = if a then b ~~else~~ else (not b) =

~~$= (\lambda a\,b\,x\,y.\,b\,x\,y)$~~

$= (\lambda\,b\,x\,y.\,b\,x\,y)$

$= \lambda a\,b.\,(\lambda\,n\,x\,y.\,n\,x\,y)\;a\;b\;((\lambda b.\,b$ false tru
$\to b)$

$= \eta\text{-}D\;\lambda a\,b.\,(\lambda n\,x\,y.\,n\,x\,y)\;a\;b\;(b$ false true) =

$= \lambda a\,b.\;a\;b\;(b$ false true)

③