1) $\left(\left(\forall x\,\exists y\;P(x,z)\lor Q(y)\right)_{[x:=f(z)]}\right)_{[y:=g(z,x)]}$

$\left(\forall x\,\exists y\;P(x,z)\lor Q(y)\right)_{[y:=g(z,x)]}$ regla 1

$\left(\forall x\,\left(\exists y\;P(x,z)\lor Q(y)\right)\right)_{[y:=g(z,x)]}$

$\left(\forall x\,\exists y\;P(x,z)\lor Q(y)\right)$ regla 1

2) $\left(\left(\forall y\;P(x,y,z)\land\forall x\,Q(x,y,z)\right)_{[x:=f(y,z)]}\right)_{[y:=g(x,z)]}$

$\left(\left(\left(\forall y\;P(x,y,z)\right)_{[x:=f(y,z)]}\land\left(\forall x\,Q(x,y,z)\right)_{[x:=f(y,z)]}\right)_{[y:=g(x,z)]}\right)$

$\left(\left(\left(\left(\forall w\;P(x,y,z)\right)_{[y:=w]}\right)_{[x:=f(y,z)]}\land\forall x\,Q(x,y,z)\right)_{[y:=g(x,z)]}\right)$ regla 3 y regla 1

$\left(\left(\left(\forall w\;P(x,w,z)\right)_{[x:=f(y,z)]}\land\forall x\,Q(x,y,z)\right)_{[y:=g(x,z)]}\right)$

$\left(\left(\forall w\;P(f(y,z),w,z)\land\forall x\,Q(x,y,z)\right)_{[y:=g(x,z)]}\right)$ regla 2

$\left(\left(\forall w\;P(f(y,z),w,z)\right)_{[y:=g(x,z)]}\land\left(\forall x\,Q(x,y,z)\right)_{[y:=g(x,z)]}\right)$

$\left(\forall w\;P(f(g(x,z),z),w,z)\land\left(\forall v\,Q(x,y,z)_{[x:=v]}\right)_{[y:=g(x,z)]}\right)$ regla 2 y regla 3

$\left(\forall w\;P(f(g(x,z),z),w,z)\land\left(\forall v\,Q(v,y,z)\right)_{[y:=g(x,z)]}\right)$

$\left(\forall w\;P(f(g(x,z),z),w,z)\land\forall v\,Q(v,g(x,z),z)\right)$ regla 2