

- (1) $[\lambda x \mathbf{R}xx] \langle \mathbf{a} \rangle$
 $= \mathbf{R}aa$
- (2) $[\lambda x \lambda y \mathbf{R}xy] \langle \mathbf{a} \rangle \langle \mathbf{b} \rangle$
 $= [\lambda y \mathbf{R}ay] \langle \mathbf{b} \rangle$
 $= \mathbf{R}ab$
- (3) $[\lambda x \lambda y \lambda z \mathbf{R}xyz] \langle \mathbf{a} \rangle \langle \mathbf{b} \rangle \langle \mathbf{c} \rangle$
 $= [\lambda y \lambda z \mathbf{R}yzz] \langle \mathbf{b} \rangle \langle \mathbf{c} \rangle$
 $= [\lambda z \mathbf{R}abz] \langle \mathbf{c} \rangle$
 $= \mathbf{R}abc$
- (4) $[\lambda x [\lambda y \mathbf{R}xy] \langle \mathbf{a} \rangle] \langle \mathbf{b} \rangle$
 $= [\lambda x \mathbf{R}xa] \langle \mathbf{b} \rangle$
 $= \mathbf{R}ba$
- (5) $[\lambda x [\lambda y [\lambda z \mathbf{R}xyz] \langle \mathbf{a} \rangle] \langle \mathbf{b} \rangle] \langle \mathbf{c} \rangle$
 $= [\lambda x [\lambda y \mathbf{R}xya] \langle \mathbf{b} \rangle] \langle \mathbf{c} \rangle$
 $= [\lambda x \mathbf{R}xba] \langle \mathbf{c} \rangle$
 $= \mathbf{R}cba$
- (6) $[\lambda P \forall x Px] \langle \lambda x \mathbf{R}xx \rangle$
 $= \forall x [\lambda x \mathbf{R}xx] \langle x \rangle$
 $= \forall x \mathbf{R}xx$
- (7) $[\lambda P \{ \mathbf{P}a \ \& \ \mathbf{P}b \}] \langle \lambda x \mathbf{R}xc \rangle$
 $= [\lambda x \mathbf{R}xc] \langle \mathbf{a} \rangle \ \& \ [\lambda x \mathbf{R}xc] \langle \mathbf{b} \rangle$
 $= \mathbf{R}ac \ \& \ [\lambda x \mathbf{R}xc] \langle \mathbf{b} \rangle$
 $= \mathbf{R}ac \ \& \ \mathbf{R}bc$
- (8) $[\lambda P \lambda Q \forall x \{ Px \rightarrow Qx \}] \langle \lambda x \mathbf{R}xx \rangle \langle \lambda x \mathbf{R}xa \rangle$
 $= [\lambda Q \forall x \{ [\lambda x \mathbf{R}xx] \langle x \rangle \rightarrow Qx \}] \langle \lambda x \mathbf{R}xa \rangle$
 $= \forall x \{ [\lambda x \mathbf{R}xx] \langle x \rangle \rightarrow [\lambda x \mathbf{R}xa] \langle x \rangle \}$
 $= \forall x \{ \mathbf{R}xx \rightarrow [\lambda x \mathbf{R}xa] \langle x \rangle \}$
 $= \forall x \{ \mathbf{R}xx \rightarrow \mathbf{R}xa \}$
- (9) $[\lambda P \lambda x \forall y \{ Py \rightarrow \mathbf{R}xy \}] \langle \lambda x \mathbf{R}xx \rangle \langle \mathbf{a} \rangle$
 $= [\lambda x \forall y \{ [\lambda x \mathbf{R}xx] \langle y \rangle \rightarrow \mathbf{R}xy \}] \langle \mathbf{a} \rangle$
 $= [\lambda x \forall y \{ \mathbf{R}yy \rightarrow \mathbf{R}xy \}] \langle \mathbf{a} \rangle$
 $= \forall y \{ \mathbf{R}yy \rightarrow \mathbf{R}ay \}$
- (10) $[\lambda y [\lambda P \lambda Q \forall x \{ Px \rightarrow Qx \}] \langle \lambda x \mathbf{K}xy \rangle \langle \lambda x \mathbf{H}xy \rangle] \langle \mathbf{a} \rangle$
 $= [\lambda y [\lambda Q \forall x \{ [\lambda x \mathbf{K}xy] \langle x \rangle \rightarrow Qx \}] \langle \lambda x \mathbf{H}xy \rangle] \langle \mathbf{a} \rangle$
 $= [\lambda y \forall x \{ [\lambda x \mathbf{K}xy] \langle x \rangle \rightarrow [\lambda x \mathbf{H}xy] \langle x \rangle \}] \langle \mathbf{a} \rangle$
 $= [\lambda y \forall x \{ \mathbf{K}xy \rightarrow [\lambda x \mathbf{H}xy] \langle x \rangle \}] \langle \mathbf{a} \rangle$
 $= [\lambda y \forall x \{ \mathbf{K}xy \rightarrow \mathbf{H}xy \}] \langle \mathbf{a} \rangle$
 $= \forall x \{ \mathbf{K}xa \rightarrow \mathbf{H}xa \}$