

1. Jay respects every man who respects his mother, and so-does Ray. [deictic reading of 'he']

Jay ₁	respects	every man who respects his mother	and	so-does	Ray ₁
		(from below)		ⓐ	
		$\lambda y_2 \lambda x_1 \mathbf{R}xy$		$\lambda z_1 \forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(\delta)] \} \rightarrow \mathbf{R}zx \}$	R ₁
		$\lambda Q_2 \forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(\delta)] \} \rightarrow Qx \}$			
J ₁		$\lambda z_1 \forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(\delta)] \} \rightarrow \mathbf{R}zx \}$ ⓐ			
		$\forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(\delta)] \} \rightarrow \mathbf{R}Jx \}$	&	$\forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(\delta)] \} \rightarrow \mathbf{R}Rx \}$	
$\forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(\delta)] \} \rightarrow \mathbf{R}Jx \} \ \& \ \forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(\delta)] \} \rightarrow \mathbf{R}Rx \}$					

every ₂	man	who ₁	respects	he	's	mother ₂
				δ	$\lambda x \{ x_6 \}$	
				δ_6	$\lambda x_6 \{ \mathbf{m}(x)_2 \}$	
			$\lambda y_2 \lambda x_1 \mathbf{R}xy$	$\mathbf{m}(\delta)_2$		
		$\lambda Q_1 \lambda P_0 \lambda x_0 \{ Px \ \& \ Qx \}$	$\lambda x_1 \mathbf{R}[x, \mathbf{m}(\delta)]$			
	\mathbf{M}_0	$\lambda P_0 \lambda x_0 \{ Px \ \& \ \mathbf{R}[x, \mathbf{m}(\delta)] \}$				
$\lambda P_0 \lambda Q_2 \forall x \{ Px \rightarrow Qx \}$	$\lambda x_0 \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(\delta)] \}$					
$\lambda Q_2 \forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(\delta)] \} \rightarrow Qx \}$						

2. Jay respects every man who respects his mother, and so-does Ray ['he' is lazy-anaphoric to 'Jay']

Jay	[+1]	respects	every man who respects his mother	and	so-does	Ray ₁
J	Ⓜ	$\lambda x\{x_1\}$	(from below)		Ⓜ $\lambda z_1 \forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(J)] \} \rightarrow \mathbf{R}zx \}$	R ₁
		$\lambda y_2 \lambda x_1 \mathbf{R}xy$	$\lambda Q_2 \forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(J)] \} \rightarrow Qx \}$			
	J ₁		$\lambda z_1 \forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(J)] \} \rightarrow \mathbf{R}zx \}$ Ⓜ			
			$\forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(J)] \} \rightarrow \mathbf{R}Jx \}$	&	$\forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(J)] \} \rightarrow \mathbf{R}Rx \}$	
$\forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(J)] \} \rightarrow \mathbf{R}Jx \} \ \& \ \forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(J)] \} \rightarrow \mathbf{R}Rx \}$						

every ₂	man	who ₁	respects	he	's	mother ₂
				Ⓜ	J	$\lambda x\{x_6\}$
					J ₆	$\lambda x_6\{\mathbf{m}(x)_2\}$
			$\lambda y_2 \lambda x_1 \mathbf{R}xy$			$\mathbf{m}(J)_2$
		$\lambda Q_1 \lambda P_0 \lambda x_0 \{ Px \ \& \ Qx \}$				$\lambda x_1 \mathbf{R}[x, \mathbf{m}(J)]$
	\mathbf{M}_0					$\lambda P_0 \lambda x_0 \{ Px \ \& \ \mathbf{R}[x, \mathbf{m}(J)] \}$
$\lambda P_0 \lambda Q_2 \forall x \{ Px \rightarrow Qx \}$						$\lambda x_0 \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(J)] \}$
$\lambda Q_2 \forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(J)] \} \rightarrow Qx \}$						

3. Jay respects every man who respects his mother, and so-does Ray. ['he' is reflexively-anaphoric to 'Jay']

Jay ₁	[ref ₁]	respects	every man who respects his mother	and	so-does	Ray ₁
			(from below)		ⓐ	
		$\lambda y_2 \lambda x_1 \mathbf{R}xy$	$\lambda y \lambda Q_2 \forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(y)] \} \rightarrow Qx \}$		$\lambda z_1 \forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(z)] \} \rightarrow \mathbf{R}zx \}$	R ₁
	$\lambda x_1 \{x_1 \times x\}$		$\lambda y \lambda z_1 \forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(y)] \} \rightarrow \mathbf{R}zx \}$			
J ₁			$\lambda z_1 \forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(z)] \} \rightarrow \mathbf{R}zx \}$ ⓐ			
			$\forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(J)] \} \rightarrow \mathbf{R}Jx \}$	&		$\forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(R)] \} \rightarrow \mathbf{R}Rx \}$
$\forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(J)] \} \rightarrow \mathbf{R}Jx \} \ \& \ \forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(R)] \} \rightarrow \mathbf{R}Rx \}$						

every ₂	man	who ₁	respects	he	's	mother ₂
				∅	$\lambda x \{x_6\}$	
					$\lambda x \{x_6\}$	$\lambda x_6 \{ \mathbf{m}(x)_2 \}$
			$\lambda y_2 \lambda x_1 \mathbf{R}xy$			$\lambda x \{ \mathbf{m}(x)_2 \}$
		$\lambda Q_1 \lambda P_0 \lambda x_0 \{ Px \ \& \ Qx \}$				$\lambda y \lambda x_1 \mathbf{R}[x, \mathbf{m}(y)]$
	M ₀					$\lambda y \lambda P_0 \lambda x_0 \{ Px \ \& \ \mathbf{R}[x, \mathbf{m}(y)] \}$
$\lambda P_0 \lambda Q_2 \forall x \{ Px \rightarrow Qx \}$						$\lambda y \lambda x_0 \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(y)] \}$
$\lambda y \lambda Q_2 \forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(y)] \} \rightarrow Qx \}$						

4. Jay respects every man who respects his mother, and so-does Ray. ['he' is reflexively-anaphoric to 'who']
 [done in class; not assigned]

Jay ₁	respects	every man who respects his mother	and	so-does	Ray ₁
		(from below)		ⓐ	
		$\lambda y_2 \lambda x_1 \mathbf{R}xy$		$\lambda z_1 \forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(x)] \} \rightarrow \mathbf{R}zx \}$	R ₁
		$\lambda Q_2 \forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(x)] \} \rightarrow Qx \}$			
J ₁		$\lambda z_1 \forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(x)] \} \rightarrow \mathbf{R}zx \}$ ⓐ			
		$\forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(x)] \} \rightarrow \mathbf{R}Jx \}$	&	$\forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(x)] \} \rightarrow \mathbf{R}Rx \}$	
$\forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(x)] \} \rightarrow \mathbf{R}Jx \} \ \& \ \forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(x)] \} \rightarrow \mathbf{R}Rx \}$					

every ₂	man	who ₁	[ref ₁]	respects	he	's	mother ₂
					∅	$\lambda x \{ x_6 \}$	$\lambda x_6 \{ \mathbf{m}(x)_2 \}$
				$\lambda y_2 \lambda x_1 \mathbf{R}xy$	$\lambda x \{ \mathbf{m}(x)_2 \}$		
			$\lambda x_1 \{ x_1 \times x \}$	$\lambda y \lambda x_1 \mathbf{R}[x, \mathbf{m}(y)]$			
		$\lambda Q_1 \lambda P_0 \lambda x_0 \{ Px \ \& \ Qx \}$	$\lambda x_1 \mathbf{R}[x, \mathbf{m}(x)]$				
	M₀	$\lambda P_0 \lambda x_0 \{ Px \ \& \ \mathbf{R}[x, \mathbf{m}(x)] \}$					
$\lambda P_0 \lambda Q_2 \forall x \{ Px \rightarrow Qx \}$	$\lambda x_0 \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(x)] \}$						
$\lambda Q_2 \forall x \{ \{ \mathbf{M}x \ \& \ \mathbf{R}[x, \mathbf{m}(x)] \} \rightarrow Qx \}$							

5. Jay respects every man who loves his dog ['he' is reflexively-anaphoric to 'who']

Jay ₁	respects	every ₂	man	who ₁	[ref ₁]	loves	he	's	dog	[def]	[+2]
							\emptyset	$\lambda y \lambda P_0 \lambda x_0 \{ Px \& bxy \}$			
								$\lambda y \lambda P_0 \lambda x_0 \{ Px \& bxy \}$	D₀		
								$\lambda y \lambda x_0 \{ \mathbf{D}x \& bxy \}$		$\lambda P_0 1x Px$	
								$\lambda y 1x \{ \mathbf{D}x \& bxy \}$			$\lambda x \{ x_2 \}$
						$\lambda y_2 \lambda x_1 \mathbf{L}xy$		$\lambda y 1x_2 \{ \mathbf{D}x \& bxy \}$			
					$\lambda x_1 \{ x_1 \times x \}$			$\lambda y \lambda x_1 \mathbf{L}[x, 1z \{ \mathbf{D}z \& bzy \}]$			
				$\lambda Q_1 \lambda P_0 \lambda x_0 \{ Px \& Qx \}$				$\lambda x_1 \mathbf{L}[x, 1z \{ \mathbf{D}z \& bzx \}]$			
			M₀					$\lambda P_0 \lambda x_0 \{ Px \& \mathbf{L}[x, 1z \{ \mathbf{D}z \& bzx \}] \}$			
		$\lambda P_0 \lambda Q_2 \forall x \{ Px \rightarrow Qx \}$						$\lambda x_0 \{ \mathbf{M}x \& \mathbf{L}[x, 1z \{ \mathbf{D}z \& bzx \}] \}$			
	$\lambda y_2 \lambda x_1 \mathbf{R}xy$							$\lambda Q_2 \forall x \{ \{ \mathbf{M}x \& \mathbf{L}[x, 1z \{ \mathbf{D}z \& bzx \}] \} \rightarrow Qx \}$			
J₁								$\lambda y_1 \forall x \{ \{ \mathbf{M}x \& \mathbf{L}[x, 1z \{ \mathbf{D}z \& bzx \}] \} \rightarrow \mathbf{R}yx \}$			
								$\forall x \{ \{ \mathbf{M}x \& \mathbf{L}[x, 1z \{ \mathbf{D}z \& bzx \}] \} \rightarrow \mathbf{R}jx \}$			

6. Jay respects every man who loves his dog ['he' is reflexively-anaphoric to 'Jay']

Jay ₁	[ref ₁]	respects	every ₂	man	who ₁	loves	he	's	dog	[def]	[+2]
							\emptyset	$\lambda y \lambda P_0 \lambda x_0 \{ Px \& bxy \}$			
								$\lambda y \lambda P_0 \lambda x_0 \{ Px \& bxy \}$	D₀		
								$\lambda y \lambda x_0 \{ \mathbf{D}x \& bxy \}$		$\lambda P_0 \lambda x Px$	
								$\lambda y \lambda x \{ \mathbf{D}x \& bxy \}$			$\lambda x \{ x_2 \}$
						$\lambda y_2 \lambda x_1 \mathbf{L}xy$		$\lambda y \lambda x_2 \{ \mathbf{D}x \& bxy \}$			
					$\lambda Q_1 \lambda P_0 \lambda x_0 \{ Px \& Qx \}$			$\lambda y \lambda x_1 \mathbf{L}[x, \lambda z \{ \mathbf{D}z \& bzy \}]$			
				M₀				$\lambda y \lambda P_0 \lambda x_0 \{ Px \& \mathbf{L}[x, \lambda z \{ \mathbf{D}z \& bzy \}] \}$			
			$\lambda P_0 \lambda Q_2 \forall x \{ Px \rightarrow Qx \}$					$\lambda y \lambda x_0 \{ \mathbf{M}x \& \mathbf{L}[x, \lambda z \{ \mathbf{D}z \& bzy \}] \}$			
		$\lambda y_2 \lambda x_1 \mathbf{R}xy$						$\lambda y \lambda Q_2 \forall x \{ \{ \mathbf{M}x \& \mathbf{L}[x, \lambda z \{ \mathbf{D}z \& bzy \}] \} \rightarrow Qx \}$			
	$\lambda x_1 \{ x_1 \times x \}$							$\lambda y \lambda u_1 \forall x \{ \{ \mathbf{M}x \& \mathbf{L}[x, \lambda z \{ \mathbf{D}z \& bzy \}] \} \rightarrow \mathbf{R}ux \}$			
J ₁								$\lambda u_1 \forall x \{ \{ \mathbf{M}x \& \mathbf{L}[x, \lambda z \{ \mathbf{D}z \& bzu \}] \} \rightarrow \mathbf{R}ux \}$			
								$\forall x \{ \{ \mathbf{M}x \& \mathbf{L}[x, \lambda z \{ \mathbf{D}z \& bzl \}] \} \rightarrow \mathbf{R}lx \}$			