Entering into β–reductions (applications of closures)

(1) $([\ E'\ \lambda v.e_b\ ] : {e_a}^t : S,\ E,\ \overline{@}^0 : M,\ C,\ D)$
$\rightarrow (S,\ < v\ e_a >: E', M,\ e_b : nil,\ (E,\ C,\ D))$

(2) $([\ E'\ \lambda v.e_b\ ] : S,\ E,\ @^1 : M,\ e_a : C,\ D)$
$\rightarrow (S,\ < v\ [\ E\ e_a\ ] >: E', M,\ e_b : nil,\ (E,\ C,\ D))$

Substituting bound variables while traversing terms from C to S

(3) $(S,\ E,\ nil,\ v : C,\ D)$
$\rightarrow (lookup(\ v,\ E\ ) : S,\ E,\ nil,\ C,\ D)$

(4) $(S,\ E,\ ap^i : M,\ v : C,\ D) \mid (i > 0)$
$\rightarrow (lookup(\ v,\ E\ ) : S,\ E,\ ap^{(i-1)} : M,\ C,\ D)$

Setting up for evaluation closures of terms other than abstractions

(5) $([\ E'\ e_a\ ] : S,\ E,\ ap^i : M,\ C,\ D) \mid (e_a \neq_s \lambda v.e_b)$
$\rightarrow (S,\ E',\ ap^{(i+1)} : M,\ e_a : nil,\ (E,\ C,\ D))$

(6) $([\ E'\ e_a\ ] : S,\ E,\ nil,\ C,\ D) \mid (e_a \neq_s \lambda v.e_b)$
$\rightarrow (S,\ E',\ nil,\ e_a : nil,\ (E,\ C,\ D))$

Returning from the evaluation of terms (instantiated abstraction bodies)

(0) $(S,\ E,\ M,\ nil,\ (E',\ C',\ D')) \rightarrow (S,\ E',\ M,\ C',\ D')$

Creating closures on S for abstractions on E

(7) $(S,\ E,\ nil,\ \lambda v.e_b : C,\ D)$
$\rightarrow ([\ E\ \lambda v.e_b\ ] : S,\ E,\ nil,\ C,\ D)$

(8) $(S,\ E,\ \overline{@}^i : M,\ \lambda v.e_b : C,\ D) \mid (i > 0)$
$\rightarrow ([\ E\ \lambda v.e_b\ ] : S,\ E,\ \overline{@}^{(i-1)} : M,\ C,\ D)$

(9) $(S,\ E,\ @^2 : M,\ \lambda v.e_b : C,\ D)$
$\rightarrow ([\ E\ \lambda v.e_b\ ] : S,\ E,\ @^1 : M,\ C,\ D)$

Traversing things from C to S via M

(10) $(S,\ E,\ M,\ ap : C,\ D) \rightarrow\ (S,\ E,\ ap^2 : M,\ C,\ D)$

(11) $(S,\ E,\ ap^i : M,\ e : C,\ D) \mid (i > 0)$
$\rightarrow\ (e^t : S,\ E,\ ap^{(i-1)} : M,\ C,\ D)$

(12) $(S,\ E,\ ap^0 : nil,\ C,\ D) \rightarrow\ (ap : S,\ E,\ nil,\ C,\ D)$

(13) $(S,\ E,\ ap^0 : ap^i : M,\ C,\ D) \mid (i > 0)$
$\rightarrow\ (ap : S,\ E,\ ap^{(i-1)} : M,\ C,\ D)$