略解

1. $\rho' = \rho[M[a(t;i)]_\rho / a]$

2.

$twp(DO, B) = \exists n\ K_n(DO, B)$

$K_0(DO, B) = x=5 \wedge \neg(x>2 \vee x>3) = false$

$K_1(DO, B) = twp(IF, K_0(DO, B)) \vee K_0(DO, B)$

$= (x>2 \vee x>3) \wedge (x>2 \supset twp(x=x-1, x=5)) \wedge (x>3 \supset twp(x=x-2, x=5)) \vee false$

$= x>2 \wedge (x>2 \supset x=6) \wedge (x>3 \supset x=7) \vee false = false$

したがって$twp(DO, B) = false$