## Synthesized solution for benchmark Olsendrecv.c

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solution
          _ (Partial), cond d_{30}: c > 0
                                          k_1 = (a_8 \cdot V_{16} \cdot (c_{15} \cdot E_{13} \cdot (b_{12} \cdot C_{11} \cdot S_{10} + \neg b_{12} \cdot 1) + \neg c_{15} \cdot I_{33}) \cdot X_9) * \neg a_8
k_2 = (a_{22} \cdot V_{31} \cdot (d_{30} \cdot L_{29} + \neg d_{30} \cdot 1) \cdot (c_{28} \cdot C_{27} \cdot S_{26} \cdot (d_{25} \cdot G_{24} + \neg d_{25} \cdot 1) + \neg c_{28} \cdot 1) \cdot X_{23}) * \neg a_{22}
                                        _ (Partial), cond c_{28}: b > 0
                                                                       Case\ c_{28}:
                                                                      k_1 = (a_8 \cdot V_{16} \cdot (c_{15} \cdot E_{13} \cdot (b_{12} \cdot C_{11} \cdot S_{10} + \neg b_{12} \cdot 1) + \neg c_{15} \cdot I_{33}) \cdot X_9) * \neg a_8

k_2 = (a_{22} \cdot V_{31} \cdot 1 \cdot J_{34} \cdot (c_{28} \cdot C_{27} \cdot S_{26} \cdot G_{24} + \neg c_{28} \cdot 1) \cdot X_{23}) * \neg a_{22}
                                                              \square (Partial), cond c_{15}: b > 0
                                                                                   ( Case \ c_{15} :
                                                                                                     \begin{array}{l} k_1 = (a_8 \cdot V_{16} \cdot (c_{15} \cdot E_{13} \cdot (b_{12} \cdot C_{11} \cdot S_{10} + \neg b_{12} \cdot 1) + \neg c_{15} \cdot I_{33}) \cdot X_9) * \neg a_8 \\ k_2 = (a_{22} \cdot V_{31} \cdot 1 \cdot I_{34} \cdot 1 \cdot C_{27} \cdot S_{26} \cdot G_{24} \cdot X_{23}) * \neg a_{22} \end{array}
                                                                                                   _(Partial), cond b_{12}\colon auth > 0
                                                                                                                            \left\{ \begin{array}{l} Case \ b_{12}: \\ k_1 = (a_8 \cdot V_{16} \cdot 1 \cdot E_{13} \cdot (b_{12} \cdot C_{11} \cdot S_{10} + \neg b_{12} \cdot 1) \cdot X_9) * \neg a_8 \\ k_2 = (a_{22} \cdot V_{31} \cdot 1 \cdot J_{34} \cdot 1 \cdot C_{27} \cdot S_{26} \cdot G_{24} \cdot X_{23}) * \neg a_{22} \end{array} \right. 
                                                                                                                                      \begin{cases} Axioms: \{I=1, J=1, K=1, M=1\} \\ k_1 = (a_8 \cdot V_{16} \cdot 1 \cdot K_{36} \cdot 1 \cdot C_{11} \cdot S_{10} \cdot X_9) * \neg a_8 \\ k_2 = (a_{22} \cdot V_{31} \cdot 1 \cdot J_{34} \cdot 1 \cdot C_{27} \cdot S_{26} \cdot M_{37} \cdot X_{23}) * \neg a_{22} \end{cases} 
                                                                        k_1 = (a_8 \cdot V_{16} \cdot (c_{15} \cdot E_{13} \cdot (b_{12} \cdot C_{11} \cdot S_{10} + \neg b_{12} \cdot 1) + \neg c_{15} \cdot I_{33}) \cdot X_9) * \neg a_8 
k_2 = (a_{22} \cdot V_{31} \cdot 1 \cdot J_{34} \cdot (c_{28} \cdot C_{27} \cdot S_{26} \cdot G_{24} + \neg c_{28} \cdot 1) \cdot X_{23}) * \neg a_{22}
                                                                         (Partial), cond c_{15}: b > 0
                                                                                                   \begin{array}{l} \vdots \\ k_1 = (a_8 \cdot V_{16} \cdot (c_{15} \cdot K_{45} \cdot (b_{12} \cdot C_{11} \cdot S_{10} + \neg b_{12} \cdot 1) + \neg c_{15} \cdot I_{33}) \cdot X_9) * \neg a_8 \\ k_2 = (a_{22} \cdot V_{31} \cdot 1 \cdot J_{34} \cdot 1 \cdot 1 \cdot X_{23}) * \neg a_{22} \end{array}
                                                                                                   _ (Partial), cond b_{12}: auth > 0
                                                                                                                          \begin{cases} Case \neg b_{12}: \\ k_1 = (a_8 \cdot V_{16} \cdot 1 \cdot K_{45} \cdot (b_{12} \cdot C_{11} \cdot S_{10} + \neg b_{12} \cdot 1) \cdot X_9) * \neg a_8 \\ k_2 = (a_{22} \cdot V_{31} \cdot 1 \cdot J_{34} \cdot 1 \cdot 1 \cdot X_{23}) * \neg a_{22} \end{cases}
                                                                                                                                                  \left\{ \begin{array}{l} Axioms: \{I=1, J=1, K=1\} \\ k_1 = (a_8 \cdot V_{16} \cdot 1 \cdot K_{45} \cdot 1 \cdot 1 \cdot X_9) * \neg a_8 \\ k_2 = (a_{22} \cdot V_{31} \cdot 1 \cdot J_{34} \cdot 1 \cdot 1 \cdot X_{23}) * \neg a_{22} \end{array} \right.
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\begin{cases} Case \ \neg c_{15}: \\ k_1 = (a_8 \cdot V_{16} \cdot (c_{15} \cdot K_{45} \cdot (b_{12} \cdot C_{11} \cdot S_{10} + \neg b_{12} \cdot 1) + \neg c_{15} \cdot I_{33}) \cdot X_9) * \neg a_8 \\ k_2 = (a_{22} \cdot V_{31} \cdot 1 \cdot J_{34} \cdot 1 \cdot 1 \cdot X_{23}) * \neg a_{22} \\ & A \text{Complete} \\ & = \begin{cases} Axioms: \{I = 1, J = 1, K = 1\} \\ k_1 = (a_8 \cdot V_{16} \cdot (c_{15} \cdot E_{13} \cdot (b_{12} \cdot C_{11} \cdot S_{10} + \neg b_{12} \cdot 1) + \neg c_{15} \cdot I_{33}) \cdot X_9) * \neg a_8 \\ k_2 = (a_{22} \cdot V_{31} \cdot 1 \cdot J_{34} \cdot 1 \cdot 1 \cdot X_{23}) * \neg a_{22} \end{cases} \\ \begin{cases} Case \ \neg d_{30}: \\ k_1 = (a_8 \cdot V_{16} \cdot (c_{15} \cdot E_{13} \cdot (b_{12} \cdot C_{11} \cdot S_{10} + \neg b_{12} \cdot 1) + \neg c_{15} \cdot I_{33}) \cdot X_9) * \neg a_8 \\ k_2 = (a_{22} \cdot V_{31} \cdot (d_{30} \cdot L_{29} + \neg d_{30} \cdot 1) \cdot (c_{28} \cdot C_{27} \cdot S_{26} \cdot (d_{25} \cdot G_{24} + \neg d_{25} \cdot 1) + \neg c_{28} \cdot 1) \cdot X_{23}) * \neg a_{22} \end{cases}
 (Partial), \ cond \ c_{28}: \ b > 0 
 \begin{cases} Case \ \neg c_{28}: \\ k_1 = (a_8 \cdot V_{16} \cdot (c_{15} \cdot K_{64} \cdot (b_{12} \cdot C_{11} \cdot S_{10} + \neg b_{12} \cdot 1) + \neg c_{15} \cdot I_{33}) \cdot X_9) * \neg a_8 \\ k_2 = (a_{22} \cdot V_{31} \cdot 1 \cdot 1 \cdot (c_{28} \cdot C_{27} \cdot S_{26} \cdot 1 + \neg c_{28} \cdot 1) \cdot X_{23}) * \neg a_{22} \end{cases} 
 (Partial), \ cond \ c_{15}: \ b > 0 
 \begin{cases} Case \ c_{15}: \\ k_1 = (a_8 \cdot V_{16} \cdot (c_{15} \cdot K_{64} \cdot (b_{12} \cdot C_{11} \cdot S_{10} + \neg b_{12} \cdot 1) + \neg c_{15} \cdot I_{33}) \cdot X_9) * \neg a_8 \\ k_2 = (a_{22} \cdot V_{31} \cdot 1 \cdot 1 \cdot 1 \cdot 1 \cdot X_{23}) * \neg a_{22} \end{cases} 
 (Partial), \ cond \ b_{12}: \ auth > 0 
 \begin{cases} Case \ \sigma_{15}: \\ k_1 = (a_8 \cdot V_{16} \cdot (c_{15} \cdot K_{64} \cdot (b_{12} \cdot C_{11} \cdot S_{10} + \neg b_{12} \cdot 1) + \neg c_{15} \cdot I_{33}) \cdot X_9) * \neg a_8 \\ k_2 = (a_{22} \cdot V_{31} \cdot 1 \cdot 1 \cdot 1 \cdot 1 \cdot X_{23}) * \neg a_{22} \end{cases} 
 \begin{cases} Case \ \sigma_{15}: \\ k_1 = (a_8 \cdot V_{16} \cdot 1 \cdot K_{64} \cdot (b_{12} \cdot C_{11} \cdot S_{10} + \neg b_{12} \cdot 1) + \neg c_{15} \cdot I_{33}) \cdot X_9) * \neg a_8 \\ k_2 = (a_{22} \cdot V_{31} \cdot 1 \cdot 1 \cdot 1 \cdot 1 \cdot X_{23}) * \neg a_{22} \end{cases}
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Remaining 63 solutions ommitted for brevity.