

Equation assignment sequence for variable *intensities*

| no | var | equ | quations | token |
|----|-----|-----|------------------------------|-------|
| 61 | 26 | - | $A^v ::$ port variable | |
| 60 | 64 | - | $P_{NS,KS} ::$ port variable | |
| 59 | 9 | - | $r_{xN} ::$ port variable | |
| 58 | 88 | - | $K^o_K ::$ port variable | |
| 57 | 62 | - | $P_{N,NK} ::$ port variable | |
| 56 | 127 | - | $D_{N,A} ::$ port variable | |
| 55 | 23 | - | $r_{zN} ::$ port variable | |
| 54 | 10 | - | $r_{yN} ::$ port variable | |
| 53 | 86 | - | $N_{S,K} ::$ port variable | |
| 52 | 61 | - | $P_{S,NS} ::$ port variable | |
| 51 | 60 | - | $P_{K,NK} ::$ port variable | |
| 50 | 63 | - | $P_{NK,KS} ::$ port variable | |
| 49 | 59 | - | $P_{NS,AS} ::$ port variable | |
| 48 | 5 | - | $F_{N,A} ::$ port variable | |
| 47 | 128 | - | $D_{NS,AS} ::$ port variable | |
| 46 | 6 | - | $t ::$ port variable | |
| 45 | 12 | - | $S_N ::$ port variable | |
| 44 | 11 | - | $U_N ::$ port variable | |
| 43 | 1 | - | $\# ::$ port variable | |

Continued on next page

| no | var | equ | quations | token |
|----|-----|-----|--|-------|
| 42 | 13 | - | $V_N :: \text{port variable}$ | |
| 41 | 27 | 16 | $Bo_N := \text{Instantiate}(S_N, \#)$ | |
| 40 | 69 | 47 | $m_N := \lambda_S \overset{S \in NS}{\star} n_{NS}$ | |
| 39 | 87 | 64 | $E_{aNK} := \text{Instantiate}(P_{N,NK} \overset{N}{\star} R_N . T_{NK}, \#)$ | |
| 38 | 28 | 17 | $R_N := A^v . Bo_N$ | |
| 37 | 115 | 91 | $c_{KS}^o := \text{Instantiate}(c_{KS}, \#)$ | |
| 36 | 114 | 90 | $c_{KS} := c_{NS} \overset{NS}{\star} P_{NS,KS}$ | |
| 35 | 71 | 49 | $\rho_N := m_N . (V_N)^{-1}$ | |
| 34 | 50 | 37 | $k_{xN}^c := \left(\lambda_S \overset{S \in NS}{\star} (\mu_{NS})^{-1} \right) . (V_N)^{-1} . \frac{\partial U_N}{\partial p_N} . v_{xN}$ | |
| 33 | 65 | 46 | $d_A := \text{sign} \left(F_{N,A} \overset{N}{\star} p_N \right)$ | |
| 32 | 4 | 3 | $0.5 := \text{Instantiate}(\#, \#)$ | |
| 31 | 21 | 12 | $v_{xN} := \frac{\partial r_{xN}}{\partial t}$ | |
| 30 | 77 | 55 | $T_{NK} := P_{N,NK} \overset{N}{\star} T_N$ | |
| 29 | 89 | 65 | $K_{NK} := K_K^o \odot \exp((-E_{aNK}) . \left(R_N \overset{N}{\star} P_{N,NK} . T_{NK} \right)^{-1})$ | |
| 28 | 116 | 92 | $\phi_{KS} := \prod (c_{KS} . (c_{KS}^o)^{-1})$ | |
| 27 | 98 | 74 | $\hat{V}_A := (\rho_N)^{-1} . k_{xN}^c . A_{yzN} . D_{N,A} \overset{N}{\star} p_N$ | |
| 26 | 109 | 85 | $c_{AS} := (0.5 . (F_{NS,AS} - d_A \odot F_{NS,AS})) \overset{NS}{\star} c_{NS}$ | |
| 25 | 95 | 71 | $A_{yzN} := r_{yN} . r_{zN}$ | |
| 24 | 54 | 41 | $k_{xNS}^d := (\mu_{NS})^{-1} . \left(v_{xN} \odot \left((V_N)^{-1} \odot \frac{\partial U_N}{\partial \mu_{NS}} \right) \right)$ | |
| 23 | 93 | 69 | $N_{NS,NK} := P_{S,NS} \overset{S}{\star} \left((P_{K,NK} . T_{NK} . (T_{NK})^{-1}) \overset{K}{\star} N_{S,K} \right)$ | |

Continued on next page

| no | var | equ | quations | token |
|----|-----|-----|---|-------|
| 22 | 117 | 93 | $\xi_{NK} := K_{NK} \cdot P_{NK,KS} \overset{KS}{\star} \phi_{KS}$ | |
| 21 | 110 | 86 | $\hat{n}_{AS}^c := \hat{V}_A \odot c_{AS}$ | |
| 20 | 73 | 51 | $F_{NS,AS} := F_{N,A} \odot P_{NS,AS}$ | |
| 19 | 104 | 80 | $\hat{n}_{AS}^d := A_{yzN} \odot (-k_{xNS}^d) \cdot D_{NS,AS} \overset{NS}{\star} \mu_{NS}$ | |
| 18 | 118 | 94 | $\tilde{n}_{NS} := V_N \odot \left(N_{NS,NK} \overset{NK}{\star} \xi_{NK} \right)$ | |
| 17 | 111 | 87 | $\hat{n}_{NS}^c := F_{NS,AS} \overset{AS}{\star} \hat{n}_{AS}^c$ | |
| 16 | 105 | 81 | $\hat{n}_{NS}^d := F_{NS,AS} \overset{AS}{\star} \hat{n}_{AS}^d$ | |
| 15 | 2 | 1 | $0 := \text{Instantiate}(\#, \#)$ | |
| 14 | 8 | 5 | $t_e := \text{Instantiate}(t, \#)$ | |
| 13 | 7 | 4 | $t_o := \text{Instantiate}(t, \#)$ | |
| 12 | 150 | 124 | $n_{NS}^o := \text{Instantiate}(n_{NS}, \#)$ | |
| 11 | 119 | 95 | $\dot{n}_{NS} := \hat{n}_{NS}^c + \hat{n}_{NS}^d + \tilde{n}_{NS}$ | |
| 10 | 119 | 129 | $\dot{n}_{NS} := \text{Instantiate}(\dot{n}_{NS}, 0)$ | |
| 9 | 42 | 116 | $n_{NS} := \int_{t_o}^{t_e} \dot{n}_{NS} dt + n_{NS}^o$ | |
| 8 | 45 | 114 | $\mu_{NS} := \text{Instantiate}(\mu_{NS}, \#)$ | |
| 7 | 45 | 32 | $\mu_{NS} := \frac{\partial U_N}{\partial n_{NS}}$ | |
| 6 | 16 | 7 | $T_N := \frac{\partial U_N}{\partial S_N}$ | |
| 5 | 16 | 113 | $T_N := \text{Instantiate}(T_N, \#)$ | |
| 4 | 15 | 6 | $p_N := \left(-\frac{\partial U_N}{\partial V_N} \right)$ | |
| 3 | 15 | 115 | $p_N := \text{Instantiate}(p_N, \#)$ | |

Continued on next page

| no | var | equ | quations | token |
|----|-----|-----|--|-------|
| 2 | 108 | 127 | $c_{NS} := \text{Instantiate}(c_{NS}, \#)$ | |
| 1 | 108 | 84 | $c_{NS} := (V_N)^{-1} \odot n_{NS}$ | |
| 0 | 152 | 126 | $intensities := \text{MixedStack}(p_N, T_N, \mu_{NS}, c_{NS})$ | |