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Model name: `cge_nestedCES`

Index sets

$$CONSUMERS = \{1, 2, 3\}$$
$$COUNTRIES = \{\text{AUT}, \text{DEU}, \text{SVN}\}$$
$$SECTORS = \{\text{A}, \text{B}, \text{C}\}$$

1 CONSUMER $i \in COUNTRIES$ $h \in CONSUMERS$

1.1 Optimisation problem

$$\max_{\left(D^{\langle i,s,h\rangle}\right)_{s\in SECTORS}} U^{\langle i,h\rangle} = \left(\sum_{s\in SECTORS} \alpha^{\langle i,s,h\rangle} {D^{\langle i,s,h\rangle}}^{\omega^{-1}(-1+\omega)}\right)^{\omega(-1+\omega)^{-1}} \tag{1.1}$$

s.t. :

$$INC^{\langle i,h\rangle} + \Pi^{\langle i,h\rangle} = \sum_{s\in SECTORS} p^{\langle i,s\rangle} D^{\langle i,s,h\rangle} \quad \left(\lambda^{\text{CONSUMER}^1\langle i,h\rangle}\right) \tag{1.2}$$

1.2 Identities

$$INC^{\langle i,h\rangle} = L^{\langle i,h\rangle} + p^{\text{k}} K^{\langle i,h\rangle} \tag{1.3}$$

$$K^{\langle i,h\rangle} = ks^{\text{data}\langle i,h\rangle} \tag{1.4}$$

$$L^{\langle i,h\rangle} = ls^{\text{data}\langle i,h\rangle} \tag{1.5}$$

1.3 First order conditions

$$s \in SECTORS: \quad \lambda^{\text{CONSUMER}^1\langle i,h\rangle} p^{\langle i,s\rangle} + \alpha^{\langle i,s,h\rangle} {D^{\langle i,s,h\rangle}}^{-1+\omega^{-1}(-1+\omega)} \left(\sum_{s\in SECTORS} \alpha^{\langle i,s,h\rangle} {D^{\langle i,s,h\rangle}}^{\omega^{-1}(-1+\omega)}\right)^{-1+\omega(-1+\omega)^{-1}} = 0 \quad \left(D^{\langle i,s,h\rangle}\right) \tag{1.6}$$

2 FIRM $i \in COUNTRIES$ $s \in SECTORS$

2.1 Optimisation problem

$$\max_{Y^{\langle i,s\rangle},K^{\langle i,s\rangle},L^{\langle i,s\rangle},\left(X^{\langle i,si,s\rangle}\right)_{si\in SECTORS}} \pi^{\langle i,s\rangle} = -L^{\langle i,s\rangle} - p^{\mathrm{k}}K^{\langle i,s\rangle} + p^{\langle i,s\rangle}Y^{\langle i,s\rangle} - \sum_{si\in SECTORS} p^{\langle i,si\rangle}X^{\langle i,si,s\rangle} \tag{2.1}$$

s.t. :

$$Y^{\langle i,s\rangle} = \gamma^{\langle i,s\rangle}{K^{\langle i,s\rangle}}^{\eta^{\mathrm{k}\langle i,s\rangle}}{L^{\langle i,s\rangle}}^{\eta^{\mathrm{l}\langle i,s\rangle}}\left(\sum_{si\in SECTORS}\beta^{\mathrm{x}\langle i,si,s\rangle}{X^{\langle i,si,s\rangle}}^{\rho^{\langle i\rangle}}\right)^{\eta^{\mathrm{x}\langle i,s\rangle}\rho^{\langle i\rangle-1}} \left(\lambda^{\mathrm{FIRM}^{1}\langle i,s\rangle}\right) \tag{2.2}$$

2.2 First order conditions

$$-\lambda^{\mathrm{FIRM}^{1}\langle i,s\rangle} + p^{\langle i,s\rangle} = 0 \quad \left(Y^{\langle i,s\rangle}\right) \tag{2.3}$$

$$-p^{\mathrm{k}} + \eta^{\mathrm{k}\langle i,s\rangle}\gamma^{\langle i,s\rangle}\lambda^{\mathrm{FIRM}^{1}\langle i,s\rangle}{K^{\langle i,s\rangle}}^{-1+\eta^{\mathrm{k}\langle i,s\rangle}}{L^{\langle i,s\rangle}}^{\eta^{\mathrm{l}\langle i,s\rangle}}\left(\sum_{si\in SECTORS}\beta^{\mathrm{x}\langle i,si,s\rangle}{X^{\langle i,si,s\rangle}}^{\rho^{\langle i\rangle}}\right)^{\eta^{\mathrm{x}\langle i,s\rangle}\rho^{\langle i\rangle-1}} = 0 \quad \left(K^{\langle i,s\rangle}\right) \tag{2.4}$$

$$-1 + \eta^{\mathrm{l}\langle i,s\rangle}\gamma^{\langle i,s\rangle}\lambda^{\mathrm{FIRM}^{1}\langle i,s\rangle}{K^{\langle i,s\rangle}}^{\eta^{\mathrm{k}\langle i,s\rangle}}{L^{\langle i,s\rangle}}^{-1+\eta^{\mathrm{l}\langle i,s\rangle}}\left(\sum_{si\in SECTORS}\beta^{\mathrm{x}\langle i,si,s\rangle}{X^{\langle i,si,s\rangle}}^{\rho^{\langle i\rangle}}\right)^{\eta^{\mathrm{x}\langle i,s\rangle}\rho^{\langle i\rangle-1}} = 0 \quad \left(L^{\langle i,s\rangle}\right) \tag{2.5}$$

$$si \in SECTORS: \quad -p^{\langle i,si\rangle} + \beta^{\mathrm{x}\langle i,si,s\rangle}\eta^{\mathrm{x}\langle i,s\rangle}\gamma^{\langle i,s\rangle}\lambda^{\mathrm{FIRM}^{1}\langle i,s\rangle}{K^{\langle i,s\rangle}}^{\eta^{\mathrm{k}\langle i,s\rangle}}{L^{\langle i,s\rangle}}^{\eta^{\mathrm{l}\langle i,s\rangle}}{X^{\langle i,si,s\rangle}}^{-1+\rho^{\langle i\rangle}}\left(\sum_{si\in SECTORS}\beta^{\mathrm{x}\langle i,si,s\rangle}{X^{\langle i,si,s\rangle}}^{\rho^{\langle i\rangle}}\right)^{-1+\eta^{\mathrm{x}\langle i,s\rangle}\rho^{\langle i\rangle-1}} = 0 \quad \left(X^{\langle i,si,s\rangle}\right) \tag{2.6}$$

2.3 First order conditions after reduction

$$-p^{\mathrm{k}} + \eta^{\mathrm{k}\langle i,s\rangle}\gamma^{\langle i,s\rangle}p^{\langle i,s\rangle}{K^{\langle i,s\rangle}}^{-1+\eta^{\mathrm{k}\langle i,s\rangle}}{L^{\langle i,s\rangle}}^{\eta^{\mathrm{l}\langle i,s\rangle}}\left(\sum_{si\in SECTORS}\beta^{\mathrm{x}\langle i,si,s\rangle}{X^{\langle i,si,s\rangle}}^{\rho^{\langle i\rangle}}\right)^{\eta^{\mathrm{x}\langle i,s\rangle}\rho^{\langle i\rangle-1}} = 0 \quad \left(K^{\langle i,s\rangle}\right) \tag{2.7}$$

$$-1 + \eta^{\mathrm{l}\langle i,s\rangle}\gamma^{\langle i,s\rangle}p^{\langle i,s\rangle}{K^{\langle i,s\rangle}}^{\eta^{\mathrm{k}\langle i,s\rangle}}{L^{\langle i,s\rangle}}^{-1+\eta^{\mathrm{l}\langle i,s\rangle}}\left(\sum_{si\in SECTORS}\beta^{\mathrm{x}\langle i,si,s\rangle}{X^{\langle i,si,s\rangle}}^{\rho^{\langle i\rangle}}\right)^{\eta^{\mathrm{x}\langle i,s\rangle}\rho^{\langle i\rangle-1}} = 0 \quad \left(L^{\langle i,s\rangle}\right) \tag{2.8}$$

$$si \in SECTORS: \quad -p^{\langle i,si\rangle}+\beta^{\mathrm{x}\langle i,si,s\rangle}\eta^{\mathrm{x}\langle i,s\rangle}\gamma^{\langle i,s\rangle}p^{\langle i,s\rangle}K^{\langle i,s\rangle\,\eta^{\mathrm{k}\langle i,s\rangle}}L^{\langle i,s\rangle\,\eta^{\mathrm{l}\langle i,s\rangle}}X^{\langle i,si,s\rangle\,-1+\rho^{\langle i\rangle}}\left(\sum_{si\in SECTORS}\beta^{\mathrm{x}\langle i,si,s\rangle}X^{\langle i,si,s\rangle\,\rho^{\langle i\rangle}}\right)^{-1+\eta^{\mathrm{x}\langle i,s\rangle}\rho^{\langle i\rangle\,-1}} = 0 \quad \left(\left(X^{\langle i,si,s\rangle}\right)_{si\in SECTORS}\right) \tag{2.9}$$

3 EQUILIBRIUM

3.1 Identities

$$i \in COUNTRIES: \quad \sum_{h\in CONSUMERS} K^{\langle i,h\rangle} = \sum_{s\in SECTORS} K^{\langle i,s\rangle} \tag{3.1}$$

$$s \in SECTORS: \quad p^{\langle \mathrm{AUT},s\rangle} = 1 \tag{3.2}$$

$$i \in COUNTRIES\backslash\{\mathrm{AUT}\}: \quad s \in SECTORS\backslash\{\mathrm{A}\}: \quad p^{\langle i,s\rangle} = 1 \tag{3.3}$$

$$i \in COUNTRIES: \quad h \in CONSUMERS: \quad \Pi^{\langle i,h\rangle} = \pi^{\mathrm{h}\langle i,h\rangle}\left(\sum_{s\in SECTORS}\pi^{\langle i,s\rangle}\right) \tag{3.4}$$

4 Equilibrium relationships (before expansion and reduction)

$$i \in COUNTRIES\backslash\{\mathrm{AUT}\}: \quad s \in SECTORS\backslash\{\mathrm{A}\}: \quad 1 - p^{\langle i,s\rangle} = 0 \tag{4.1}$$

$$i \in COUNTRIES: \quad -\sum_{h\in CONSUMERS} K^{\langle i,h\rangle} + \sum_{s\in SECTORS} K^{\langle i,s\rangle} = 0 \tag{4.2}$$

$$i \in COUNTRIES: \quad h \in CONSUMERS: \quad ks^{\mathrm{data}\langle i,h\rangle} - K^{\langle i,h\rangle} = 0 \tag{4.3}$$

$$i \in COUNTRIES: \quad h \in CONSUMERS: \quad ls^{\mathrm{data}\langle i,h\rangle} - L^{\langle i,h\rangle} = 0 \tag{4.4}$$

$$i \in COUNTRIES: \quad h \in CONSUMERS: \quad -\Pi^{\langle i,h\rangle} + \pi^{\mathrm{h}\langle i,h\rangle}\left(\sum_{s\in SECTORS}\pi^{\langle i,s\rangle}\right) = 0 \tag{4.5}$$

$$i \in COUNTRIES: \quad h \in CONSUMERS: \quad U^{\langle i,h\rangle} - \left(\sum_{s\in SECTORS}\alpha^{\langle i,s,h\rangle}D^{\langle i,s,h\rangle\,\omega^{-1}(-1+\omega)}\right)^{\omega(-1+\omega)^{-1}} = 0 \tag{4.6}$$

$$i \in \mathit{COUNTRIES}: \quad h \in \mathit{CONSUMERS}: \quad -\mathit{INC}^{\langle i,h\rangle} + L^{\langle i,h\rangle} + p^{\mathrm{k}} K^{\langle i,h\rangle} = 0 \tag{4.7}$$

$$i \in \mathit{COUNTRIES}: \quad h \in \mathit{CONSUMERS}: \quad -\mathit{INC}^{\langle i,h\rangle} - \Pi^{\langle i,h\rangle} + \sum_{s \in \mathit{SECTORS}} p^{\langle i,s\rangle} D^{\langle i,s,h\rangle} = 0 \tag{4.8}$$

$$i \in \mathit{COUNTRIES}: \quad h \in \mathit{CONSUMERS}: \quad s \in \mathit{SECTORS}: \quad \lambda^{\mathrm{CONSUMER}^{1}\langle i,h\rangle} p^{\langle i,s\rangle} + \alpha^{\langle i,s,h\rangle} {D^{\langle i,s,h\rangle}}^{-1+\omega^{-1}(-1+\omega)} \left(\sum_{s \in \mathit{SECTORS}} \alpha^{\langle i,s,h\rangle} {D^{\langle i,s,h\rangle}}^{\omega^{-1}(-1+\omega)} \right)^{-1+\omega(-1+\omega)^{-1}} = 0 \tag{4.9}$$

$$i \in \mathit{COUNTRIES}: \quad s \in \mathit{SECTORS}: \quad -1 + \eta^{\mathrm{l}\langle i,s\rangle} \gamma^{\langle i,s\rangle} p^{\langle i,s\rangle} {K^{\langle i,s\rangle}}^{\eta^{\mathrm{k}\langle i,s\rangle}} {L^{\langle i,s\rangle}}^{-1+\eta^{\mathrm{l}\langle i,s\rangle}} \left(\sum_{si \in \mathit{SECTORS}} \beta^{\mathrm{x}\langle i,si,s\rangle} {X^{\langle i,si,s\rangle}}^{\rho^{\langle i\rangle}} \right)^{\eta^{\mathrm{x}\langle i,s\rangle}\rho^{\langle i\rangle}-1} = 0 \tag{4.10}$$

$$i \in \mathit{COUNTRIES}: \quad s \in \mathit{SECTORS}: \quad -p^{\mathrm{k}} + \eta^{\mathrm{k}\langle i,s\rangle} \gamma^{\langle i,s\rangle} p^{\langle i,s\rangle} {K^{\langle i,s\rangle}}^{-1+\eta^{\mathrm{k}\langle i,s\rangle}} {L^{\langle i,s\rangle}}^{\eta^{\mathrm{l}\langle i,s\rangle}} \left(\sum_{si \in \mathit{SECTORS}} \beta^{\mathrm{x}\langle i,si,s\rangle} {X^{\langle i,si,s\rangle}}^{\rho^{\langle i\rangle}} \right)^{\eta^{\mathrm{x}\langle i,s\rangle}\rho^{\langle i\rangle}-1} = 0 \tag{4.11}$$

$$i \in \mathit{COUNTRIES}: \quad s \in \mathit{SECTORS}: \quad -Y^{\langle i,s\rangle} + \gamma^{\langle i,s\rangle} {K^{\langle i,s\rangle}}^{\eta^{\mathrm{k}\langle i,s\rangle}} {L^{\langle i,s\rangle}}^{\eta^{\mathrm{l}\langle i,s\rangle}} \left(\sum_{si \in \mathit{SECTORS}} \beta^{\mathrm{x}\langle i,si,s\rangle} {X^{\langle i,si,s\rangle}}^{\rho^{\langle i\rangle}} \right)^{\eta^{\mathrm{x}\langle i,s\rangle}\rho^{\langle i\rangle}-1} = 0 \tag{4.12}$$

$$i \in \mathit{COUNTRIES}: \quad s \in \mathit{SECTORS}: \quad \pi^{\langle i,s\rangle} + L^{\langle i,s\rangle} + p^{\mathrm{k}} K^{\langle i,s\rangle} - p^{\langle i,s\rangle} Y^{\langle i,s\rangle} + \sum_{si \in \mathit{SECTORS}} p^{\langle i,si\rangle} X^{\langle i,si,s\rangle} = 0 \tag{4.13}$$

$$i \in \mathit{COUNTRIES}: \quad s \in \mathit{SECTORS}: \quad si \in \mathit{SECTORS}: \quad -p^{\langle i,si\rangle} + \beta^{\mathrm{x}\langle i,si,s\rangle} \eta^{\mathrm{x}\langle i,s\rangle} \gamma^{\langle i,s\rangle} p^{\langle i,s\rangle} {K^{\langle i,s\rangle}}^{\eta^{\mathrm{k}\langle i,s\rangle}} {L^{\langle i,s\rangle}}^{\eta^{\mathrm{l}\langle i,s\rangle}} {X^{\langle i,si,s\rangle}}^{-1+\rho^{\langle i\rangle}} \left(\sum_{si \in \mathit{SECTORS}} \beta^{\mathrm{x}\langle i,si,s\rangle} {X^{\langle i,si,s\rangle}}^{\rho^{\langle i\rangle}} \right)^{-1+\eta^{\mathrm{x}\langle i,s\rangle}\rho^{\langle i\rangle}-1} = 0 \tag{4.14}$$

$$s \in \mathit{SECTORS}: \quad 1 - p^{\langle \mathrm{AUT},s\rangle} = 0 \tag{4.15}$$

5 Equilibrium relationships (after expansion and reduction)

$$-1+\eta^{\mathrm{l}\langle \mathrm{AUT,A}\rangle} \gamma^{\langle \mathrm{AUT,A}\rangle} p^{\langle \mathrm{AUT,A}\rangle} {K^{\langle \mathrm{AUT,A}\rangle}}^{\eta^{\mathrm{k}\langle \mathrm{AUT,A}\rangle}} {L^{\langle \mathrm{AUT,A}\rangle}}^{-1+\eta^{\mathrm{l}\langle \mathrm{AUT,A}\rangle}} \left(\beta^{\mathrm{x}\langle \mathrm{AUT,A,A}\rangle} {X^{\langle \mathrm{AUT,A,A}\rangle}}^{\rho^{\langle \mathrm{AUT}\rangle}} + \beta^{\mathrm{x}\langle \mathrm{AUT,B,A}\rangle} {X^{\langle \mathrm{AUT,B,A}\rangle}}^{\rho^{\langle \mathrm{AUT}\rangle}} + \beta^{\mathrm{x}\langle \mathrm{AUT,C,A}\rangle} {X^{\langle \mathrm{AUT,C,A}\rangle}}^{\rho^{\langle \mathrm{AUT}\rangle}} \right)^{\eta^{\mathrm{x}\langle \mathrm{AUT,A}\rangle}\rho^{\langle \mathrm{A}} \tag{5.1}$$

$$-1+\eta^{\mathrm{l}\langle \mathrm{AUT,B}\rangle}\gamma^{\langle \mathrm{AUT,B}\rangle}p^{\langle \mathrm{AUT,B}\rangle}K^{\langle \mathrm{AUT,B}\rangle\eta^{\mathrm{k}\langle \mathrm{AUT,B}\rangle}}L^{\langle \mathrm{AUT,B}\rangle-1+\eta^{\mathrm{l}\langle \mathrm{AUT,B}\rangle}}\left(\beta^{\mathrm{x}\langle \mathrm{AUT,A,B}\rangle}X^{\langle \mathrm{AUT,A,B}\rangle\rho^{\langle \mathrm{AUT}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{AUT,B,B}\rangle}X^{\langle \mathrm{AUT,B,B}\rangle\rho^{\langle \mathrm{AUT}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{AUT,C,B}\rangle}X^{\langle \mathrm{AUT,C,B}\rangle\rho^{\langle \mathrm{AUT}\rangle}}\right)^{\eta^{\mathrm{x}\langle \mathrm{AUT,B}\rangle}\rho^{\langle \mathrm{AU}} \tag{5.2}$$

$$-1+\eta^{\mathrm{l}\langle \mathrm{AUT,C}\rangle}\gamma^{\langle \mathrm{AUT,C}\rangle}p^{\langle \mathrm{AUT,C}\rangle}K^{\langle \mathrm{AUT,C}\rangle\eta^{\mathrm{k}\langle \mathrm{AUT,C}\rangle}}L^{\langle \mathrm{AUT,C}\rangle-1+\eta^{\mathrm{l}\langle \mathrm{AUT,C}\rangle}}\left(\beta^{\mathrm{x}\langle \mathrm{AUT,A,C}\rangle}X^{\langle \mathrm{AUT,A,C}\rangle\rho^{\langle \mathrm{AUT}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{AUT,B,C}\rangle}X^{\langle \mathrm{AUT,B,C}\rangle\rho^{\langle \mathrm{AUT}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{AUT,C,C}\rangle}X^{\langle \mathrm{AUT,C,C}\rangle\rho^{\langle \mathrm{AUT}\rangle}}\right)^{\eta^{\mathrm{x}\langle \mathrm{AUT,C}\rangle}\rho^{\langle \mathrm{AU}} \tag{5.3}$$

$$-1+\eta^{\mathrm{l}\langle \mathrm{DEU,A}\rangle}\gamma^{\langle \mathrm{DEU,A}\rangle}p^{\langle \mathrm{DEU,A}\rangle}K^{\langle \mathrm{DEU,A}\rangle\eta^{\mathrm{k}\langle \mathrm{DEU,A}\rangle}}L^{\langle \mathrm{DEU,A}\rangle-1+\eta^{\mathrm{l}\langle \mathrm{DEU,A}\rangle}}\left(\beta^{\mathrm{x}\langle \mathrm{DEU,A,A}\rangle}X^{\langle \mathrm{DEU,A,A}\rangle\rho^{\langle \mathrm{DEU}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{DEU,B,A}\rangle}X^{\langle \mathrm{DEU,B,A}\rangle\rho^{\langle \mathrm{DEU}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{DEU,C,A}\rangle}X^{\langle \mathrm{DEU,C,A}\rangle\rho^{\langle \mathrm{DEU}\rangle}}\right)^{\eta^{\mathrm{x}\langle \mathrm{DEU,A}\rangle}\rho^{\langle \mathrm{D}} \tag{5.4}$$

$$-1+\eta^{\mathrm{l}\langle \mathrm{DEU,B}\rangle}\gamma^{\langle \mathrm{DEU,B}\rangle}p^{\langle \mathrm{DEU,B}\rangle}K^{\langle \mathrm{DEU,B}\rangle\eta^{\mathrm{k}\langle \mathrm{DEU,B}\rangle}}L^{\langle \mathrm{DEU,B}\rangle-1+\eta^{\mathrm{l}\langle \mathrm{DEU,B}\rangle}}\left(\beta^{\mathrm{x}\langle \mathrm{DEU,A,B}\rangle}X^{\langle \mathrm{DEU,A,B}\rangle\rho^{\langle \mathrm{DEU}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{DEU,B,B}\rangle}X^{\langle \mathrm{DEU,B,B}\rangle\rho^{\langle \mathrm{DEU}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{DEU,C,B}\rangle}X^{\langle \mathrm{DEU,C,B}\rangle\rho^{\langle \mathrm{DEU}\rangle}}\right)^{\eta^{\mathrm{x}\langle \mathrm{DEU,B}\rangle}\rho^{\langle \mathrm{DE}} \tag{5.5}$$

$$-1+\eta^{\mathrm{l}\langle \mathrm{DEU,C}\rangle}\gamma^{\langle \mathrm{DEU,C}\rangle}p^{\langle \mathrm{DEU,C}\rangle}K^{\langle \mathrm{DEU,C}\rangle\eta^{\mathrm{k}\langle \mathrm{DEU,C}\rangle}}L^{\langle \mathrm{DEU,C}\rangle-1+\eta^{\mathrm{l}\langle \mathrm{DEU,C}\rangle}}\left(\beta^{\mathrm{x}\langle \mathrm{DEU,A,C}\rangle}X^{\langle \mathrm{DEU,A,C}\rangle\rho^{\langle \mathrm{DEU}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{DEU,B,C}\rangle}X^{\langle \mathrm{DEU,B,C}\rangle\rho^{\langle \mathrm{DEU}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{DEU,C,C}\rangle}X^{\langle \mathrm{DEU,C,C}\rangle\rho^{\langle \mathrm{DEU}\rangle}}\right)^{\eta^{\mathrm{x}\langle \mathrm{DEU,C}\rangle}\rho^{\langle \mathrm{DE}} \tag{5.6}$$

$$-1+\eta^{\mathrm{l}\langle \mathrm{SVN,A}\rangle}\gamma^{\langle \mathrm{SVN,A}\rangle}p^{\langle \mathrm{SVN,A}\rangle}K^{\langle \mathrm{SVN,A}\rangle\eta^{\mathrm{k}\langle \mathrm{SVN,A}\rangle}}L^{\langle \mathrm{SVN,A}\rangle-1+\eta^{\mathrm{l}\langle \mathrm{SVN,A}\rangle}}\left(\beta^{\mathrm{x}\langle \mathrm{SVN,A,A}\rangle}X^{\langle \mathrm{SVN,A,A}\rangle\rho^{\langle \mathrm{SVN}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{SVN,B,A}\rangle}X^{\langle \mathrm{SVN,B,A}\rangle\rho^{\langle \mathrm{SVN}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{SVN,C,A}\rangle}X^{\langle \mathrm{SVN,C,A}\rangle\rho^{\langle \mathrm{SVN}\rangle}}\right)^{\eta^{\mathrm{x}\langle \mathrm{SVN,A}\rangle}\rho^{\langle \mathrm{SVN}\rangle-} \tag{5.7}$$

$$-1+\eta^{\mathrm{l}\langle \mathrm{SVN,B}\rangle}\gamma^{\langle \mathrm{SVN,B}\rangle}p^{\langle \mathrm{SVN,B}\rangle}K^{\langle \mathrm{SVN,B}\rangle\eta^{\mathrm{k}\langle \mathrm{SVN,B}\rangle}}L^{\langle \mathrm{SVN,B}\rangle-1+\eta^{\mathrm{l}\langle \mathrm{SVN,B}\rangle}}\left(\beta^{\mathrm{x}\langle \mathrm{SVN,A,B}\rangle}X^{\langle \mathrm{SVN,A,B}\rangle\rho^{\langle \mathrm{SVN}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{SVN,B,B}\rangle}X^{\langle \mathrm{SVN,B,B}\rangle\rho^{\langle \mathrm{SVN}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{SVN,C,B}\rangle}X^{\langle \mathrm{SVN,C,B}\rangle\rho^{\langle \mathrm{SVN}\rangle}}\right)^{\eta^{\mathrm{x}\langle \mathrm{SVN,B}\rangle}\rho^{\langle \mathrm{SVN}\rangle-1} \tag{5.8}$$

$$-1+\eta^{\mathrm{l}\langle \mathrm{SVN,C}\rangle}\gamma^{\langle \mathrm{SVN,C}\rangle}p^{\langle \mathrm{SVN,C}\rangle}K^{\langle \mathrm{SVN,C}\rangle\eta^{\mathrm{k}\langle \mathrm{SVN,C}\rangle}}L^{\langle \mathrm{SVN,C}\rangle-1+\eta^{\mathrm{l}\langle \mathrm{SVN,C}\rangle}}\left(\beta^{\mathrm{x}\langle \mathrm{SVN,A,C}\rangle}X^{\langle \mathrm{SVN,A,C}\rangle\rho^{\langle \mathrm{SVN}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{SVN,B,C}\rangle}X^{\langle \mathrm{SVN,B,C}\rangle\rho^{\langle \mathrm{SVN}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{SVN,C,C}\rangle}X^{\langle \mathrm{SVN,C,C}\rangle\rho^{\langle \mathrm{SVN}\rangle}}\right)^{\eta^{\mathrm{x}\langle \mathrm{SVN,C}\rangle}\rho^{\langle \mathrm{SVN}\rangle-} \tag{5.9}$$

$$1 - p^{\langle \mathrm{AUT,A} \rangle} = 0 \tag{5.10}$$

$$1 - p^{\langle \mathrm{AUT,B} \rangle} = 0 \tag{5.11}$$

$$1 - p^{\langle \mathrm{AUT,C} \rangle} = 0 \tag{5.12}$$

$$1 - p^{\langle \mathrm{DEU,B} \rangle} = 0 \tag{5.13}$$

$$1 - p^{\langle \mathrm{DEU,C} \rangle} = 0 \tag{5.14}$$

$$1 - p^{\langle \mathrm{SVN,B} \rangle} = 0 \tag{5.15}$$

$$1 - p^{\langle \mathrm{SVN,C} \rangle} = 0 \tag{5.16}$$

$$ks^{\mathrm{data}\langle \mathrm{AUT,1} \rangle} - K^{\langle \mathrm{AUT,1} \rangle} = 0 \tag{5.17}$$

$$ks^{\mathrm{data}\langle \mathrm{AUT,2} \rangle} - K^{\langle \mathrm{AUT,2} \rangle} = 0 \tag{5.18}$$

$$ks^{\mathrm{data}\langle \mathrm{AUT,3} \rangle} - K^{\langle \mathrm{AUT,3} \rangle} = 0 \tag{5.19}$$

$$ks^{\mathrm{data}\langle \mathrm{DEU,1} \rangle} - K^{\langle \mathrm{DEU,1} \rangle} = 0 \tag{5.20}$$

$$ks^{\mathrm{data}\langle \mathrm{DEU,2} \rangle} - K^{\langle \mathrm{DEU,2} \rangle} = 0 \tag{5.21}$$

$$ks^{\mathrm{data}\langle \mathrm{DEU,3} \rangle} - K^{\langle \mathrm{DEU,3} \rangle} = 0 \tag{5.22}$$

$$ks^{\mathrm{data}\langle \mathrm{SVN,1} \rangle} - K^{\langle \mathrm{SVN,1} \rangle} = 0 \tag{5.23}$$

$$ks^{\mathrm{data}\langle \mathrm{SVN,2} \rangle} - K^{\langle \mathrm{SVN,2} \rangle} = 0 \tag{5.24}$$

$$ks^{\mathrm{data}\langle \mathrm{SVN,3} \rangle} - K^{\langle \mathrm{SVN,3} \rangle} = 0 \tag{5.25}$$

$$ls^{\mathrm{data}\langle \mathrm{AUT},1\rangle} - L^{\langle \mathrm{AUT},1\rangle} = 0 \tag{5.26}$$

$$ls^{\mathrm{data}\langle \mathrm{AUT},2\rangle} - L^{\langle \mathrm{AUT},2\rangle} = 0 \tag{5.27}$$

$$ls^{\mathrm{data}\langle \mathrm{AUT},3\rangle} - L^{\langle \mathrm{AUT},3\rangle} = 0 \tag{5.28}$$

$$ls^{\mathrm{data}\langle \mathrm{DEU},1\rangle} - L^{\langle \mathrm{DEU},1\rangle} = 0 \tag{5.29}$$

$$ls^{\mathrm{data}\langle \mathrm{DEU},2\rangle} - L^{\langle \mathrm{DEU},2\rangle} = 0 \tag{5.30}$$

$$ls^{\mathrm{data}\langle \mathrm{DEU},3\rangle} - L^{\langle \mathrm{DEU},3\rangle} = 0 \tag{5.31}$$

$$ls^{\mathrm{data}\langle \mathrm{SVN},1\rangle} - L^{\langle \mathrm{SVN},1\rangle} = 0 \tag{5.32}$$

$$ls^{\mathrm{data}\langle \mathrm{SVN},2\rangle} - L^{\langle \mathrm{SVN},2\rangle} = 0 \tag{5.33}$$

$$ls^{\mathrm{data}\langle \mathrm{SVN},3\rangle} - L^{\langle \mathrm{SVN},3\rangle} = 0 \tag{5.34}$$

$$-p^{\mathrm{k}}+\eta^{\mathrm{k}\langle \mathrm{AUT,A}\rangle}\gamma^{\langle \mathrm{AUT,A}\rangle}p^{\langle \mathrm{AUT,A}\rangle}K^{\langle \mathrm{AUT,A}\rangle-1+\eta^{\mathrm{k}\langle \mathrm{AUT,A}\rangle}}L^{\langle \mathrm{AUT,A}\rangle\eta^{\mathrm{l}\langle \mathrm{AUT,A}\rangle}}\left(\beta^{\mathrm{x}\langle \mathrm{AUT,A,A}\rangle}X^{\langle \mathrm{AUT,A,A}\rangle\rho^{\langle \mathrm{AUT}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{AUT,B,A}\rangle}X^{\langle \mathrm{AUT,B,A}\rangle\rho^{\langle \mathrm{AUT}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{AUT,C,A}\rangle}X^{\langle \mathrm{AUT,C,A}\rangle\rho^{\langle \mathrm{AUT}\rangle}}\right)^{\eta^{\mathrm{x}\langle \mathrm{AUT,A}\rangle}\rho} \tag{5.35}$$

$$-p^{\mathrm{k}}+\eta^{\mathrm{k}\langle \mathrm{AUT,B}\rangle}\gamma^{\langle \mathrm{AUT,B}\rangle}p^{\langle \mathrm{AUT,B}\rangle}K^{\langle \mathrm{AUT,B}\rangle-1+\eta^{\mathrm{k}\langle \mathrm{AUT,B}\rangle}}L^{\langle \mathrm{AUT,B}\rangle\eta^{\mathrm{l}\langle \mathrm{AUT,B}\rangle}}\left(\beta^{\mathrm{x}\langle \mathrm{AUT,A,B}\rangle}X^{\langle \mathrm{AUT,A,B}\rangle\rho^{\langle \mathrm{AUT}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{AUT,B,B}\rangle}X^{\langle \mathrm{AUT,B,B}\rangle\rho^{\langle \mathrm{AUT}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{AUT,C,B}\rangle}X^{\langle \mathrm{AUT,C,B}\rangle\rho^{\langle \mathrm{AUT}\rangle}}\right)^{\eta^{\mathrm{x}\langle \mathrm{AUT,B}\rangle}\rho^{\langle} \tag{5.36}$$

$$-p^{\mathrm{k}}+\eta^{\mathrm{k}\langle \mathrm{AUT,C}\rangle}\gamma^{\langle \mathrm{AUT,C}\rangle}p^{\langle \mathrm{AUT,C}\rangle}K^{\langle \mathrm{AUT,C}\rangle-1+\eta^{\mathrm{k}\langle \mathrm{AUT,C}\rangle}}L^{\langle \mathrm{AUT,C}\rangle\eta^{\mathrm{l}\langle \mathrm{AUT,C}\rangle}}\left(\beta^{\mathrm{x}\langle \mathrm{AUT,A,C}\rangle}X^{\langle \mathrm{AUT,A,C}\rangle\rho^{\langle \mathrm{AUT}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{AUT,B,C}\rangle}X^{\langle \mathrm{AUT,B,C}\rangle\rho^{\langle \mathrm{AUT}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{AUT,C,C}\rangle}X^{\langle \mathrm{AUT,C,C}\rangle\rho^{\langle \mathrm{AUT}\rangle}}\right)^{\eta^{\mathrm{x}\langle \mathrm{AUT,C}\rangle}\rho^{\langle} \tag{5.37}$$

$$-p^{\mathrm{k}}+\eta^{\mathrm{k}\langle \mathrm{DEU,A}\rangle}\gamma^{\langle \mathrm{DEU,A}\rangle}p^{\langle \mathrm{DEU,A}\rangle}K^{\langle \mathrm{DEU,A}\rangle{}^{-1+\eta^{\mathrm{k}\langle \mathrm{DEU,A}\rangle}}}L^{\langle \mathrm{DEU,A}\rangle{}^{\eta^{\mathrm{l}\langle \mathrm{DEU,A}\rangle}}}\left(\beta^{\mathrm{x}\langle \mathrm{DEU,A,A}\rangle}X^{\langle \mathrm{DEU,A,A}\rangle{}^{\rho^{\langle \mathrm{DEU}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{DEU,B,A}\rangle}X^{\langle \mathrm{DEU,B,A}\rangle{}^{\rho^{\langle \mathrm{DEU}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{DEU,C,A}\rangle}X^{\langle \mathrm{DEU,C,A}\rangle{}^{\rho^{\langle \mathrm{DEU}\rangle}}}\right)^{\eta^{\mathrm{x}\langle \mathrm{DEU,A}\rangle}\rho} \tag{5.38}$$

$$-p^{\mathrm{k}}+\eta^{\mathrm{k}\langle \mathrm{DEU,B}\rangle}\gamma^{\langle \mathrm{DEU,B}\rangle}p^{\langle \mathrm{DEU,B}\rangle}K^{\langle \mathrm{DEU,B}\rangle{}^{-1+\eta^{\mathrm{k}\langle \mathrm{DEU,B}\rangle}}}L^{\langle \mathrm{DEU,B}\rangle{}^{\eta^{\mathrm{l}\langle \mathrm{DEU,B}\rangle}}}\left(\beta^{\mathrm{x}\langle \mathrm{DEU,A,B}\rangle}X^{\langle \mathrm{DEU,A,B}\rangle{}^{\rho^{\langle \mathrm{DEU}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{DEU,B,B}\rangle}X^{\langle \mathrm{DEU,B,B}\rangle{}^{\rho^{\langle \mathrm{DEU}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{DEU,C,B}\rangle}X^{\langle \mathrm{DEU,C,B}\rangle{}^{\rho^{\langle \mathrm{DEU}\rangle}}}\right)^{\eta^{\mathrm{x}\langle \mathrm{DEU,B}\rangle}\rho^{\langle} \tag{5.39}$$

$$-p^{\mathrm{k}}+\eta^{\mathrm{k}\langle \mathrm{DEU,C}\rangle}\gamma^{\langle \mathrm{DEU,C}\rangle}p^{\langle \mathrm{DEU,C}\rangle}K^{\langle \mathrm{DEU,C}\rangle{}^{-1+\eta^{\mathrm{k}\langle \mathrm{DEU,C}\rangle}}}L^{\langle \mathrm{DEU,C}\rangle{}^{\eta^{\mathrm{l}\langle \mathrm{DEU,C}\rangle}}}\left(\beta^{\mathrm{x}\langle \mathrm{DEU,A,C}\rangle}X^{\langle \mathrm{DEU,A,C}\rangle{}^{\rho^{\langle \mathrm{DEU}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{DEU,B,C}\rangle}X^{\langle \mathrm{DEU,B,C}\rangle{}^{\rho^{\langle \mathrm{DEU}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{DEU,C,C}\rangle}X^{\langle \mathrm{DEU,C,C}\rangle{}^{\rho^{\langle \mathrm{DEU}\rangle}}}\right)^{\eta^{\mathrm{x}\langle \mathrm{DEU,C}\rangle}\rho^{\langle} \tag{5.40}$$

$$-p^{\mathrm{k}}+\eta^{\mathrm{k}\langle \mathrm{SVN,A}\rangle}\gamma^{\langle \mathrm{SVN,A}\rangle}p^{\langle \mathrm{SVN,A}\rangle}K^{\langle \mathrm{SVN,A}\rangle{}^{-1+\eta^{\mathrm{k}\langle \mathrm{SVN,A}\rangle}}}L^{\langle \mathrm{SVN,A}\rangle{}^{\eta^{\mathrm{l}\langle \mathrm{SVN,A}\rangle}}}\left(\beta^{\mathrm{x}\langle \mathrm{SVN,A,A}\rangle}X^{\langle \mathrm{SVN,A,A}\rangle{}^{\rho^{\langle \mathrm{SVN}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{SVN,B,A}\rangle}X^{\langle \mathrm{SVN,B,A}\rangle{}^{\rho^{\langle \mathrm{SVN}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{SVN,C,A}\rangle}X^{\langle \mathrm{SVN,C,A}\rangle{}^{\rho^{\langle \mathrm{SVN}\rangle}}}\right)^{\eta^{\mathrm{x}\langle \mathrm{SVN,A}\rangle}\rho^{\langle \mathrm{SVN}} \tag{5.41}$$

$$-p^{\mathrm{k}}+\eta^{\mathrm{k}\langle \mathrm{SVN,B}\rangle}\gamma^{\langle \mathrm{SVN,B}\rangle}p^{\langle \mathrm{SVN,B}\rangle}K^{\langle \mathrm{SVN,B}\rangle{}^{-1+\eta^{\mathrm{k}\langle \mathrm{SVN,B}\rangle}}}L^{\langle \mathrm{SVN,B}\rangle{}^{\eta^{\mathrm{l}\langle \mathrm{SVN,B}\rangle}}}\left(\beta^{\mathrm{x}\langle \mathrm{SVN,A,B}\rangle}X^{\langle \mathrm{SVN,A,B}\rangle{}^{\rho^{\langle \mathrm{SVN}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{SVN,B,B}\rangle}X^{\langle \mathrm{SVN,B,B}\rangle{}^{\rho^{\langle \mathrm{SVN}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{SVN,C,B}\rangle}X^{\langle \mathrm{SVN,C,B}\rangle{}^{\rho^{\langle \mathrm{SVN}\rangle}}}\right)^{\eta^{\mathrm{x}\langle \mathrm{SVN,B}\rangle}\rho^{\langle \mathrm{SVN}\rangle}} \tag{5.42}$$

$$-p^{\mathrm{k}}+\eta^{\mathrm{k}\langle \mathrm{SVN,C}\rangle}\gamma^{\langle \mathrm{SVN,C}\rangle}p^{\langle \mathrm{SVN,C}\rangle}K^{\langle \mathrm{SVN,C}\rangle{}^{-1+\eta^{\mathrm{k}\langle \mathrm{SVN,C}\rangle}}}L^{\langle \mathrm{SVN,C}\rangle{}^{\eta^{\mathrm{l}\langle \mathrm{SVN,C}\rangle}}}\left(\beta^{\mathrm{x}\langle \mathrm{SVN,A,C}\rangle}X^{\langle \mathrm{SVN,A,C}\rangle{}^{\rho^{\langle \mathrm{SVN}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{SVN,B,C}\rangle}X^{\langle \mathrm{SVN,B,C}\rangle{}^{\rho^{\langle \mathrm{SVN}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{SVN,C,C}\rangle}X^{\langle \mathrm{SVN,C,C}\rangle{}^{\rho^{\langle \mathrm{SVN}\rangle}}}\right)^{\eta^{\mathrm{x}\langle \mathrm{SVN,C}\rangle}\rho^{\langle \mathrm{SVN}\rangle}} \tag{5.43}$$

$$-p^{\langle \mathrm{AUT,A}\rangle}+\beta^{\mathrm{x}\langle \mathrm{AUT,A,A}\rangle}\eta^{\mathrm{x}\langle \mathrm{AUT,A}\rangle}\gamma^{\langle \mathrm{AUT,A}\rangle}p^{\langle \mathrm{AUT,A}\rangle}K^{\langle \mathrm{AUT,A}\rangle{}^{\eta^{\mathrm{k}\langle \mathrm{AUT,A}\rangle}}}L^{\langle \mathrm{AUT,A}\rangle{}^{\eta^{\mathrm{l}\langle \mathrm{AUT,A}\rangle}}}X^{\langle \mathrm{AUT,A,A}\rangle{}^{-1+\rho^{\langle \mathrm{AUT}\rangle}}}\left(\beta^{\mathrm{x}\langle \mathrm{AUT,A,A}\rangle}X^{\langle \mathrm{AUT,A,A}\rangle{}^{\rho^{\langle \mathrm{AUT}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{AUT,B,A}\rangle}X^{\langle \mathrm{AUT,B,A}\rangle{}^{\rho^{\langle \mathrm{AUT}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{A} \tag{5.44}$$

$$-p^{\langle \mathrm{AUT,A}\rangle}+\beta^{\mathrm{x}\langle \mathrm{AUT,A,B}\rangle}\eta^{\mathrm{x}\langle \mathrm{AUT,B}\rangle}\gamma^{\langle \mathrm{AUT,B}\rangle}p^{\langle \mathrm{AUT,B}\rangle}K^{\langle \mathrm{AUT,B}\rangle{}^{\eta^{\mathrm{k}\langle \mathrm{AUT,B}\rangle}}}L^{\langle \mathrm{AUT,B}\rangle{}^{\eta^{\mathrm{l}\langle \mathrm{AUT,B}\rangle}}}X^{\langle \mathrm{AUT,A,B}\rangle{}^{-1+\rho^{\langle \mathrm{AUT}\rangle}}}\left(\beta^{\mathrm{x}\langle \mathrm{AUT,A,B}\rangle}X^{\langle \mathrm{AUT,A,B}\rangle{}^{\rho^{\langle \mathrm{AUT}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{AUT,B,B}\rangle}X^{\langle \mathrm{AUT,B,B}\rangle{}^{\rho^{\langle \mathrm{AUT}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{AU} \tag{5.45}$$

$$-p^{\langle \mathrm{AUT,A}\rangle}+\beta^{\mathrm{x}\langle \mathrm{AUT,A,C}\rangle}\eta^{\mathrm{x}\langle \mathrm{AUT,C}\rangle}\gamma^{\langle \mathrm{AUT,C}\rangle}p^{\langle \mathrm{AUT,C}\rangle}K^{\langle \mathrm{AUT,C}\rangle\eta^{\mathrm{k}\langle \mathrm{AUT,C}\rangle}}L^{\langle \mathrm{AUT,C}\rangle\eta^{\mathrm{l}\langle \mathrm{AUT,C}\rangle}}X^{\langle \mathrm{AUT,A,C}\rangle^{-1+\rho^{\langle \mathrm{AUT}\rangle}}}\left(\beta^{\mathrm{x}\langle \mathrm{AUT,A,C}\rangle}X^{\langle \mathrm{AUT,A,C}\rangle^{\rho^{\langle \mathrm{AUT}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{AUT,B,C}\rangle}X^{\langle \mathrm{AUT,B,C}\rangle^{\rho^{\langle \mathrm{AUT}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{AU}\right. \tag{5.46}$$

$$-p^{\langle \mathrm{AUT,B}\rangle}+\beta^{\mathrm{x}\langle \mathrm{AUT,B,A}\rangle}\eta^{\mathrm{x}\langle \mathrm{AUT,A}\rangle}\gamma^{\langle \mathrm{AUT,A}\rangle}p^{\langle \mathrm{AUT,A}\rangle}K^{\langle \mathrm{AUT,A}\rangle\eta^{\mathrm{k}\langle \mathrm{AUT,A}\rangle}}L^{\langle \mathrm{AUT,A}\rangle\eta^{\mathrm{l}\langle \mathrm{AUT,A}\rangle}}X^{\langle \mathrm{AUT,B,A}\rangle^{-1+\rho^{\langle \mathrm{AUT}\rangle}}}\left(\beta^{\mathrm{x}\langle \mathrm{AUT,A,A}\rangle}X^{\langle \mathrm{AUT,A,A}\rangle^{\rho^{\langle \mathrm{AUT}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{AUT,B,A}\rangle}X^{\langle \mathrm{AUT,B,A}\rangle^{\rho^{\langle \mathrm{AUT}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{A}\right. \tag{5.47}$$

$$-p^{\langle \mathrm{AUT,B}\rangle}+\beta^{\mathrm{x}\langle \mathrm{AUT,B,B}\rangle}\eta^{\mathrm{x}\langle \mathrm{AUT,B}\rangle}\gamma^{\langle \mathrm{AUT,B}\rangle}p^{\langle \mathrm{AUT,B}\rangle}K^{\langle \mathrm{AUT,B}\rangle\eta^{\mathrm{k}\langle \mathrm{AUT,B}\rangle}}L^{\langle \mathrm{AUT,B}\rangle\eta^{\mathrm{l}\langle \mathrm{AUT,B}\rangle}}X^{\langle \mathrm{AUT,B,B}\rangle^{-1+\rho^{\langle \mathrm{AUT}\rangle}}}\left(\beta^{\mathrm{x}\langle \mathrm{AUT,A,B}\rangle}X^{\langle \mathrm{AUT,A,B}\rangle^{\rho^{\langle \mathrm{AUT}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{AUT,B,B}\rangle}X^{\langle \mathrm{AUT,B,B}\rangle^{\rho^{\langle \mathrm{AUT}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{AU}\right. \tag{5.48}$$

$$-p^{\langle \mathrm{AUT,B}\rangle}+\beta^{\mathrm{x}\langle \mathrm{AUT,B,C}\rangle}\eta^{\mathrm{x}\langle \mathrm{AUT,C}\rangle}\gamma^{\langle \mathrm{AUT,C}\rangle}p^{\langle \mathrm{AUT,C}\rangle}K^{\langle \mathrm{AUT,C}\rangle\eta^{\mathrm{k}\langle \mathrm{AUT,C}\rangle}}L^{\langle \mathrm{AUT,C}\rangle\eta^{\mathrm{l}\langle \mathrm{AUT,C}\rangle}}X^{\langle \mathrm{AUT,B,C}\rangle^{-1+\rho^{\langle \mathrm{AUT}\rangle}}}\left(\beta^{\mathrm{x}\langle \mathrm{AUT,A,C}\rangle}X^{\langle \mathrm{AUT,A,C}\rangle^{\rho^{\langle \mathrm{AUT}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{AUT,B,C}\rangle}X^{\langle \mathrm{AUT,B,C}\rangle^{\rho^{\langle \mathrm{AUT}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{AU}\right. \tag{5.49}$$

$$-p^{\langle \mathrm{AUT,C}\rangle}+\beta^{\mathrm{x}\langle \mathrm{AUT,C,A}\rangle}\eta^{\mathrm{x}\langle \mathrm{AUT,A}\rangle}\gamma^{\langle \mathrm{AUT,A}\rangle}p^{\langle \mathrm{AUT,A}\rangle}K^{\langle \mathrm{AUT,A}\rangle\eta^{\mathrm{k}\langle \mathrm{AUT,A}\rangle}}L^{\langle \mathrm{AUT,A}\rangle\eta^{\mathrm{l}\langle \mathrm{AUT,A}\rangle}}X^{\langle \mathrm{AUT,C,A}\rangle^{-1+\rho^{\langle \mathrm{AUT}\rangle}}}\left(\beta^{\mathrm{x}\langle \mathrm{AUT,A,A}\rangle}X^{\langle \mathrm{AUT,A,A}\rangle^{\rho^{\langle \mathrm{AUT}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{AUT,B,A}\rangle}X^{\langle \mathrm{AUT,B,A}\rangle^{\rho^{\langle \mathrm{AUT}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{A}\right. \tag{5.50}$$

$$-p^{\langle \mathrm{AUT,C}\rangle}+\beta^{\mathrm{x}\langle \mathrm{AUT,C,B}\rangle}\eta^{\mathrm{x}\langle \mathrm{AUT,B}\rangle}\gamma^{\langle \mathrm{AUT,B}\rangle}p^{\langle \mathrm{AUT,B}\rangle}K^{\langle \mathrm{AUT,B}\rangle\eta^{\mathrm{k}\langle \mathrm{AUT,B}\rangle}}L^{\langle \mathrm{AUT,B}\rangle\eta^{\mathrm{l}\langle \mathrm{AUT,B}\rangle}}X^{\langle \mathrm{AUT,C,B}\rangle^{-1+\rho^{\langle \mathrm{AUT}\rangle}}}\left(\beta^{\mathrm{x}\langle \mathrm{AUT,A,B}\rangle}X^{\langle \mathrm{AUT,A,B}\rangle^{\rho^{\langle \mathrm{AUT}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{AUT,B,B}\rangle}X^{\langle \mathrm{AUT,B,B}\rangle^{\rho^{\langle \mathrm{AUT}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{AU}\right. \tag{5.51}$$

$$-p^{\langle \mathrm{AUT,C}\rangle}+\beta^{\mathrm{x}\langle \mathrm{AUT,C,C}\rangle}\eta^{\mathrm{x}\langle \mathrm{AUT,C}\rangle}\gamma^{\langle \mathrm{AUT,C}\rangle}p^{\langle \mathrm{AUT,C}\rangle}K^{\langle \mathrm{AUT,C}\rangle\eta^{\mathrm{k}\langle \mathrm{AUT,C}\rangle}}L^{\langle \mathrm{AUT,C}\rangle\eta^{\mathrm{l}\langle \mathrm{AUT,C}\rangle}}X^{\langle \mathrm{AUT,C,C}\rangle^{-1+\rho^{\langle \mathrm{AUT}\rangle}}}\left(\beta^{\mathrm{x}\langle \mathrm{AUT,A,C}\rangle}X^{\langle \mathrm{AUT,A,C}\rangle^{\rho^{\langle \mathrm{AUT}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{AUT,B,C}\rangle}X^{\langle \mathrm{AUT,B,C}\rangle^{\rho^{\langle \mathrm{AUT}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{AU}\right. \tag{5.52}$$

$$-p^{\langle \mathrm{DEU,A}\rangle}+\beta^{\mathrm{x}\langle \mathrm{DEU,A,A}\rangle}\eta^{\mathrm{x}\langle \mathrm{DEU,A}\rangle}\gamma^{\langle \mathrm{DEU,A}\rangle}p^{\langle \mathrm{DEU,A}\rangle}K^{\langle \mathrm{DEU,A}\rangle\eta^{\mathrm{k}\langle \mathrm{DEU,A}\rangle}}L^{\langle \mathrm{DEU,A}\rangle\eta^{\mathrm{l}\langle \mathrm{DEU,A}\rangle}}X^{\langle \mathrm{DEU,A,A}\rangle^{-1+\rho^{\langle \mathrm{DEU}\rangle}}}\left(\beta^{\mathrm{x}\langle \mathrm{DEU,A,A}\rangle}X^{\langle \mathrm{DEU,A,A}\rangle^{\rho^{\langle \mathrm{DEU}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{DEU,B,A}\rangle}X^{\langle \mathrm{DEU,B,A}\rangle^{\rho^{\langle \mathrm{DEU}\rangle}}}+\beta^{\mathrm{x}\langle \mathrm{D}\right. \tag{5.53}$$

$$-p^{\langle \mathrm{DEU,A}\rangle}+\beta^{\mathrm{x}\langle \mathrm{DEU,A,B}\rangle}\eta^{\mathrm{x}\langle \mathrm{DEU,B}\rangle}\gamma^{\langle \mathrm{DEU,B}\rangle}p^{\langle \mathrm{DEU,B}\rangle}K^{\langle \mathrm{DEU,B}\rangle\eta^{\mathrm{k}\langle \mathrm{DEU,B}\rangle}}L^{\langle \mathrm{DEU,B}\rangle\eta^{\mathrm{l}\langle \mathrm{DEU,B}\rangle}}X^{\langle \mathrm{DEU,A,B}\rangle-1+\rho^{\langle \mathrm{DEU}\rangle}}\left(\beta^{\mathrm{x}\langle \mathrm{DEU,A,B}\rangle}X^{\langle \mathrm{DEU,A,B}\rangle\rho^{\langle \mathrm{DEU}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{DEU,B,B}\rangle}X^{\langle \mathrm{DEU,B,B}\rangle\rho^{\langle \mathrm{DEU}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{DE}\right. \tag{5.54}$$

$$-p^{\langle \mathrm{DEU,A}\rangle}+\beta^{\mathrm{x}\langle \mathrm{DEU,A,C}\rangle}\eta^{\mathrm{x}\langle \mathrm{DEU,C}\rangle}\gamma^{\langle \mathrm{DEU,C}\rangle}p^{\langle \mathrm{DEU,C}\rangle}K^{\langle \mathrm{DEU,C}\rangle\eta^{\mathrm{k}\langle \mathrm{DEU,C}\rangle}}L^{\langle \mathrm{DEU,C}\rangle\eta^{\mathrm{l}\langle \mathrm{DEU,C}\rangle}}X^{\langle \mathrm{DEU,A,C}\rangle-1+\rho^{\langle \mathrm{DEU}\rangle}}\left(\beta^{\mathrm{x}\langle \mathrm{DEU,A,C}\rangle}X^{\langle \mathrm{DEU,A,C}\rangle\rho^{\langle \mathrm{DEU}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{DEU,B,C}\rangle}X^{\langle \mathrm{DEU,B,C}\rangle\rho^{\langle \mathrm{DEU}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{DE}\right. \tag{5.55}$$

$$-p^{\langle \mathrm{DEU,B}\rangle}+\beta^{\mathrm{x}\langle \mathrm{DEU,B,A}\rangle}\eta^{\mathrm{x}\langle \mathrm{DEU,A}\rangle}\gamma^{\langle \mathrm{DEU,A}\rangle}p^{\langle \mathrm{DEU,A}\rangle}K^{\langle \mathrm{DEU,A}\rangle\eta^{\mathrm{k}\langle \mathrm{DEU,A}\rangle}}L^{\langle \mathrm{DEU,A}\rangle\eta^{\mathrm{l}\langle \mathrm{DEU,A}\rangle}}X^{\langle \mathrm{DEU,B,A}\rangle-1+\rho^{\langle \mathrm{DEU}\rangle}}\left(\beta^{\mathrm{x}\langle \mathrm{DEU,A,A}\rangle}X^{\langle \mathrm{DEU,A,A}\rangle\rho^{\langle \mathrm{DEU}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{DEU,B,A}\rangle}X^{\langle \mathrm{DEU,B,A}\rangle\rho^{\langle \mathrm{DEU}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{D}\right. \tag{5.56}$$

$$-p^{\langle \mathrm{DEU,B}\rangle}+\beta^{\mathrm{x}\langle \mathrm{DEU,B,B}\rangle}\eta^{\mathrm{x}\langle \mathrm{DEU,B}\rangle}\gamma^{\langle \mathrm{DEU,B}\rangle}p^{\langle \mathrm{DEU,B}\rangle}K^{\langle \mathrm{DEU,B}\rangle\eta^{\mathrm{k}\langle \mathrm{DEU,B}\rangle}}L^{\langle \mathrm{DEU,B}\rangle\eta^{\mathrm{l}\langle \mathrm{DEU,B}\rangle}}X^{\langle \mathrm{DEU,B,B}\rangle-1+\rho^{\langle \mathrm{DEU}\rangle}}\left(\beta^{\mathrm{x}\langle \mathrm{DEU,A,B}\rangle}X^{\langle \mathrm{DEU,A,B}\rangle\rho^{\langle \mathrm{DEU}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{DEU,B,B}\rangle}X^{\langle \mathrm{DEU,B,B}\rangle\rho^{\langle \mathrm{DEU}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{DE}\right. \tag{5.57}$$

$$-p^{\langle \mathrm{DEU,B}\rangle}+\beta^{\mathrm{x}\langle \mathrm{DEU,B,C}\rangle}\eta^{\mathrm{x}\langle \mathrm{DEU,C}\rangle}\gamma^{\langle \mathrm{DEU,C}\rangle}p^{\langle \mathrm{DEU,C}\rangle}K^{\langle \mathrm{DEU,C}\rangle\eta^{\mathrm{k}\langle \mathrm{DEU,C}\rangle}}L^{\langle \mathrm{DEU,C}\rangle\eta^{\mathrm{l}\langle \mathrm{DEU,C}\rangle}}X^{\langle \mathrm{DEU,B,C}\rangle-1+\rho^{\langle \mathrm{DEU}\rangle}}\left(\beta^{\mathrm{x}\langle \mathrm{DEU,A,C}\rangle}X^{\langle \mathrm{DEU,A,C}\rangle\rho^{\langle \mathrm{DEU}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{DEU,B,C}\rangle}X^{\langle \mathrm{DEU,B,C}\rangle\rho^{\langle \mathrm{DEU}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{DE}\right. \tag{5.58}$$

$$-p^{\langle \mathrm{DEU,C}\rangle}+\beta^{\mathrm{x}\langle \mathrm{DEU,C,A}\rangle}\eta^{\mathrm{x}\langle \mathrm{DEU,A}\rangle}\gamma^{\langle \mathrm{DEU,A}\rangle}p^{\langle \mathrm{DEU,A}\rangle}K^{\langle \mathrm{DEU,A}\rangle\eta^{\mathrm{k}\langle \mathrm{DEU,A}\rangle}}L^{\langle \mathrm{DEU,A}\rangle\eta^{\mathrm{l}\langle \mathrm{DEU,A}\rangle}}X^{\langle \mathrm{DEU,C,A}\rangle-1+\rho^{\langle \mathrm{DEU}\rangle}}\left(\beta^{\mathrm{x}\langle \mathrm{DEU,A,A}\rangle}X^{\langle \mathrm{DEU,A,A}\rangle\rho^{\langle \mathrm{DEU}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{DEU,B,A}\rangle}X^{\langle \mathrm{DEU,B,A}\rangle\rho^{\langle \mathrm{DEU}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{D}\right. \tag{5.59}$$

$$-p^{\langle \mathrm{DEU,C}\rangle}+\beta^{\mathrm{x}\langle \mathrm{DEU,C,B}\rangle}\eta^{\mathrm{x}\langle \mathrm{DEU,B}\rangle}\gamma^{\langle \mathrm{DEU,B}\rangle}p^{\langle \mathrm{DEU,B}\rangle}K^{\langle \mathrm{DEU,B}\rangle\eta^{\mathrm{k}\langle \mathrm{DEU,B}\rangle}}L^{\langle \mathrm{DEU,B}\rangle\eta^{\mathrm{l}\langle \mathrm{DEU,B}\rangle}}X^{\langle \mathrm{DEU,C,B}\rangle-1+\rho^{\langle \mathrm{DEU}\rangle}}\left(\beta^{\mathrm{x}\langle \mathrm{DEU,A,B}\rangle}X^{\langle \mathrm{DEU,A,B}\rangle\rho^{\langle \mathrm{DEU}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{DEU,B,B}\rangle}X^{\langle \mathrm{DEU,B,B}\rangle\rho^{\langle \mathrm{DEU}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{DE}\right. \tag{5.60}$$

$$-p^{\langle \mathrm{DEU,C}\rangle}+\beta^{\mathrm{x}\langle \mathrm{DEU,C,C}\rangle}\eta^{\mathrm{x}\langle \mathrm{DEU,C}\rangle}\gamma^{\langle \mathrm{DEU,C}\rangle}p^{\langle \mathrm{DEU,C}\rangle}K^{\langle \mathrm{DEU,C}\rangle\eta^{\mathrm{k}\langle \mathrm{DEU,C}\rangle}}L^{\langle \mathrm{DEU,C}\rangle\eta^{\mathrm{l}\langle \mathrm{DEU,C}\rangle}}X^{\langle \mathrm{DEU,C,C}\rangle-1+\rho^{\langle \mathrm{DEU}\rangle}}\left(\beta^{\mathrm{x}\langle \mathrm{DEU,A,C}\rangle}X^{\langle \mathrm{DEU,A,C}\rangle\rho^{\langle \mathrm{DEU}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{DEU,B,C}\rangle}X^{\langle \mathrm{DEU,B,C}\rangle\rho^{\langle \mathrm{DEU}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{DE}\right. \tag{5.61}$$

$$-p^{\langle \mathrm{SVN,A}\rangle}+\beta^{\mathrm{x}\langle \mathrm{SVN,A,A}\rangle}\eta^{\mathrm{x}\langle \mathrm{SVN,A}\rangle}\gamma^{\langle \mathrm{SVN,A}\rangle}p^{\langle \mathrm{SVN,A}\rangle}K^{\langle \mathrm{SVN,A}\rangle\eta^{\mathrm{k}\langle \mathrm{SVN,A}\rangle}}L^{\langle \mathrm{SVN,A}\rangle\eta^{\mathrm{l}\langle \mathrm{SVN,A}\rangle}}X^{\langle \mathrm{SVN,A,A}\rangle-1+\rho^{\langle \mathrm{SVN}\rangle}}\left(\beta^{\mathrm{x}\langle \mathrm{SVN,A,A}\rangle}X^{\langle \mathrm{SVN,A,A}\rangle\rho^{\langle \mathrm{SVN}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{SVN,B,A}\rangle}X^{\langle \mathrm{SVN,B,A}\rangle\rho^{\langle \mathrm{SVN}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{SVN,C}\right. \tag{5.62}$$

$$-p^{\langle \mathrm{SVN,A}\rangle}+\beta^{\mathrm{x}\langle \mathrm{SVN,A,B}\rangle}\eta^{\mathrm{x}\langle \mathrm{SVN,B}\rangle}\gamma^{\langle \mathrm{SVN,B}\rangle}p^{\langle \mathrm{SVN,B}\rangle}K^{\langle \mathrm{SVN,B}\rangle\eta^{\mathrm{k}\langle \mathrm{SVN,B}\rangle}}L^{\langle \mathrm{SVN,B}\rangle\eta^{\mathrm{l}\langle \mathrm{SVN,B}\rangle}}X^{\langle \mathrm{SVN,A,B}\rangle-1+\rho^{\langle \mathrm{SVN}\rangle}}\left(\beta^{\mathrm{x}\langle \mathrm{SVN,A,B}\rangle}X^{\langle \mathrm{SVN,A,B}\rangle\rho^{\langle \mathrm{SVN}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{SVN,B,B}\rangle}X^{\langle \mathrm{SVN,B,B}\rangle\rho^{\langle \mathrm{SVN}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{SVN,C,}\right. \tag{5.63}$$

$$-p^{\langle \mathrm{SVN,A}\rangle}+\beta^{\mathrm{x}\langle \mathrm{SVN,A,C}\rangle}\eta^{\mathrm{x}\langle \mathrm{SVN,C}\rangle}\gamma^{\langle \mathrm{SVN,C}\rangle}p^{\langle \mathrm{SVN,C}\rangle}K^{\langle \mathrm{SVN,C}\rangle\eta^{\mathrm{k}\langle \mathrm{SVN,C}\rangle}}L^{\langle \mathrm{SVN,C}\rangle\eta^{\mathrm{l}\langle \mathrm{SVN,C}\rangle}}X^{\langle \mathrm{SVN,A,C}\rangle-1+\rho^{\langle \mathrm{SVN}\rangle}}\left(\beta^{\mathrm{x}\langle \mathrm{SVN,A,C}\rangle}X^{\langle \mathrm{SVN,A,C}\rangle\rho^{\langle \mathrm{SVN}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{SVN,B,C}\rangle}X^{\langle \mathrm{SVN,B,C}\rangle\rho^{\langle \mathrm{SVN}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{SVN,C}\right. \tag{5.64}$$

$$-p^{\langle \mathrm{SVN,B}\rangle}+\beta^{\mathrm{x}\langle \mathrm{SVN,B,A}\rangle}\eta^{\mathrm{x}\langle \mathrm{SVN,A}\rangle}\gamma^{\langle \mathrm{SVN,A}\rangle}p^{\langle \mathrm{SVN,A}\rangle}K^{\langle \mathrm{SVN,A}\rangle\eta^{\mathrm{k}\langle \mathrm{SVN,A}\rangle}}L^{\langle \mathrm{SVN,A}\rangle\eta^{\mathrm{l}\langle \mathrm{SVN,A}\rangle}}X^{\langle \mathrm{SVN,B,A}\rangle-1+\rho^{\langle \mathrm{SVN}\rangle}}\left(\beta^{\mathrm{x}\langle \mathrm{SVN,A,A}\rangle}X^{\langle \mathrm{SVN,A,A}\rangle\rho^{\langle \mathrm{SVN}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{SVN,B,A}\rangle}X^{\langle \mathrm{SVN,B,A}\rangle\rho^{\langle \mathrm{SVN}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{SVN,C}\right. \tag{5.65}$$

$$-p^{\langle \mathrm{SVN,B}\rangle}+\beta^{\mathrm{x}\langle \mathrm{SVN,B,B}\rangle}\eta^{\mathrm{x}\langle \mathrm{SVN,B}\rangle}\gamma^{\langle \mathrm{SVN,B}\rangle}p^{\langle \mathrm{SVN,B}\rangle}K^{\langle \mathrm{SVN,B}\rangle\eta^{\mathrm{k}\langle \mathrm{SVN,B}\rangle}}L^{\langle \mathrm{SVN,B}\rangle\eta^{\mathrm{l}\langle \mathrm{SVN,B}\rangle}}X^{\langle \mathrm{SVN,B,B}\rangle-1+\rho^{\langle \mathrm{SVN}\rangle}}\left(\beta^{\mathrm{x}\langle \mathrm{SVN,A,B}\rangle}X^{\langle \mathrm{SVN,A,B}\rangle\rho^{\langle \mathrm{SVN}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{SVN,B,B}\rangle}X^{\langle \mathrm{SVN,B,B}\rangle\rho^{\langle \mathrm{SVN}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{SVN,C,}\right. \tag{5.66}$$

$$-p^{\langle \mathrm{SVN,B}\rangle}+\beta^{\mathrm{x}\langle \mathrm{SVN,B,C}\rangle}\eta^{\mathrm{x}\langle \mathrm{SVN,C}\rangle}\gamma^{\langle \mathrm{SVN,C}\rangle}p^{\langle \mathrm{SVN,C}\rangle}K^{\langle \mathrm{SVN,C}\rangle\eta^{\mathrm{k}\langle \mathrm{SVN,C}\rangle}}L^{\langle \mathrm{SVN,C}\rangle\eta^{\mathrm{l}\langle \mathrm{SVN,C}\rangle}}X^{\langle \mathrm{SVN,B,C}\rangle-1+\rho^{\langle \mathrm{SVN}\rangle}}\left(\beta^{\mathrm{x}\langle \mathrm{SVN,A,C}\rangle}X^{\langle \mathrm{SVN,A,C}\rangle\rho^{\langle \mathrm{SVN}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{SVN,B,C}\rangle}X^{\langle \mathrm{SVN,B,C}\rangle\rho^{\langle \mathrm{SVN}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{SVN,C,}\right. \tag{5.67}$$

$$-p^{\langle \mathrm{SVN,C}\rangle}+\beta^{\mathrm{x}\langle \mathrm{SVN,C,A}\rangle}\eta^{\mathrm{x}\langle \mathrm{SVN,A}\rangle}\gamma^{\langle \mathrm{SVN,A}\rangle}p^{\langle \mathrm{SVN,A}\rangle}K^{\langle \mathrm{SVN,A}\rangle\eta^{\mathrm{k}\langle \mathrm{SVN,A}\rangle}}L^{\langle \mathrm{SVN,A}\rangle\eta^{\mathrm{l}\langle \mathrm{SVN,A}\rangle}}X^{\langle \mathrm{SVN,C,A}\rangle-1+\rho^{\langle \mathrm{SVN}\rangle}}\left(\beta^{\mathrm{x}\langle \mathrm{SVN,A,A}\rangle}X^{\langle \mathrm{SVN,A,A}\rangle\rho^{\langle \mathrm{SVN}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{SVN,B,A}\rangle}X^{\langle \mathrm{SVN,B,A}\rangle\rho^{\langle \mathrm{SVN}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{SVN,C}\right. \tag{5.68}$$

$$-p^{\langle \mathrm{SVN,C}\rangle}+\beta^{\mathrm{x}\langle \mathrm{SVN,C,B}\rangle}\eta^{\mathrm{x}\langle \mathrm{SVN,B}\rangle}\gamma^{\langle \mathrm{SVN,B}\rangle}p^{\langle \mathrm{SVN,B}\rangle}K^{\langle \mathrm{SVN,B}\rangle\eta^{\mathrm{k}\langle \mathrm{SVN,B}\rangle}}L^{\langle \mathrm{SVN,B}\rangle\eta^{\mathrm{l}\langle \mathrm{SVN,B}\rangle}}X^{\langle \mathrm{SVN,C,B}\rangle-1+\rho^{\langle \mathrm{SVN}\rangle}}\left(\beta^{\mathrm{x}\langle \mathrm{SVN,A,B}\rangle}X^{\langle \mathrm{SVN,A,B}\rangle\rho^{\langle \mathrm{SVN}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{SVN,B,B}\rangle}X^{\langle \mathrm{SVN,B,B}\rangle\rho^{\langle \mathrm{SVN}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{SVN,C,}\right. \tag{5.69}$$

$$-p^{\langle \mathrm{SVN,C}\rangle}+\beta^{\mathrm{x}\langle \mathrm{SVN,C,C}\rangle}\eta^{\mathrm{x}\langle \mathrm{SVN,C}\rangle}\gamma^{\langle \mathrm{SVN,C}\rangle}p^{\langle \mathrm{SVN,C}\rangle}K^{\langle \mathrm{SVN,C}\rangle\eta^{\mathrm{k}\langle \mathrm{SVN,C}\rangle}}L^{\langle \mathrm{SVN,C}\rangle\eta^{\mathrm{l}\langle \mathrm{SVN,C}\rangle}}X^{\langle \mathrm{SVN,C,C}\rangle-1+\rho^{\langle \mathrm{SVN}\rangle}}\left(\beta^{\mathrm{x}\langle \mathrm{SVN,A,C}\rangle}X^{\langle \mathrm{SVN,A,C}\rangle\rho^{\langle \mathrm{SVN}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{SVN,B,C}\rangle}X^{\langle \mathrm{SVN,B,C}\rangle\rho^{\langle \mathrm{SVN}\rangle}}+\beta^{\mathrm{x}\langle \mathrm{SVN,C,}\right. \tag{5.70}$$

$$-\Pi^{\langle \mathrm{AUT,1}\rangle}+\pi^{\mathrm{h}\langle \mathrm{AUT,1}\rangle}\left(\pi^{\langle \mathrm{AUT,A}\rangle}+\pi^{\langle \mathrm{AUT,B}\rangle}+\pi^{\langle \mathrm{AUT,C}\rangle}\right)=0 \tag{5.71}$$

$$-\Pi^{\langle \mathrm{AUT,2}\rangle}+\pi^{\mathrm{h}\langle \mathrm{AUT,2}\rangle}\left(\pi^{\langle \mathrm{AUT,A}\rangle}+\pi^{\langle \mathrm{AUT,B}\rangle}+\pi^{\langle \mathrm{AUT,C}\rangle}\right)=0 \tag{5.72}$$

$$-\Pi^{\langle \mathrm{AUT,3}\rangle}+\pi^{\mathrm{h}\langle \mathrm{AUT,3}\rangle}\left(\pi^{\langle \mathrm{AUT,A}\rangle}+\pi^{\langle \mathrm{AUT,B}\rangle}+\pi^{\langle \mathrm{AUT,C}\rangle}\right)=0 \tag{5.73}$$

$$-\Pi^{\langle \mathrm{DEU,1}\rangle}+\pi^{\mathrm{h}\langle \mathrm{DEU,1}\rangle}\left(\pi^{\langle \mathrm{DEU,A}\rangle}+\pi^{\langle \mathrm{DEU,B}\rangle}+\pi^{\langle \mathrm{DEU,C}\rangle}\right)=0 \tag{5.74}$$

$$-\Pi^{\langle \mathrm{DEU,2}\rangle}+\pi^{\mathrm{h}\langle \mathrm{DEU,2}\rangle}\left(\pi^{\langle \mathrm{DEU,A}\rangle}+\pi^{\langle \mathrm{DEU,B}\rangle}+\pi^{\langle \mathrm{DEU,C}\rangle}\right)=0 \tag{5.75}$$

$$-\Pi^{\langle \mathrm{DEU,3}\rangle}+\pi^{\mathrm{h}\langle \mathrm{DEU,3}\rangle}\left(\pi^{\langle \mathrm{DEU,A}\rangle}+\pi^{\langle \mathrm{DEU,B}\rangle}+\pi^{\langle \mathrm{DEU,C}\rangle}\right)=0 \tag{5.76}$$

$$-\Pi^{\langle \mathrm{SVN,1}\rangle}+\pi^{\mathrm{h}\langle \mathrm{SVN,1}\rangle}\left(\pi^{\langle \mathrm{SVN,A}\rangle}+\pi^{\langle \mathrm{SVN,B}\rangle}+\pi^{\langle \mathrm{SVN,C}\rangle}\right)=0 \tag{5.77}$$

$$-\Pi^{\langle \mathrm{SVN,2}\rangle}+\pi^{\mathrm{h}\langle \mathrm{SVN,2}\rangle}\left(\pi^{\langle \mathrm{SVN,A}\rangle}+\pi^{\langle \mathrm{SVN,B}\rangle}+\pi^{\langle \mathrm{SVN,C}\rangle}\right)=0 \tag{5.78}$$

$$-\Pi^{\langle \mathrm{SVN,3}\rangle}+\pi^{\mathrm{h}\langle \mathrm{SVN,3}\rangle}\left(\pi^{\langle \mathrm{SVN,A}\rangle}+\pi^{\langle \mathrm{SVN,B}\rangle}+\pi^{\langle \mathrm{SVN,C}\rangle}\right)=0 \tag{5.79}$$

$$U^{\langle \mathrm{AUT,1}\rangle}-\left(\alpha^{\langle \mathrm{AUT,A,1}\rangle}D^{\langle \mathrm{AUT,A,1}\rangle\omega^{-1}(-1+\omega)}+\alpha^{\langle \mathrm{AUT,B,1}\rangle}D^{\langle \mathrm{AUT,B,1}\rangle\omega^{-1}(-1+\omega)}+\alpha^{\langle \mathrm{AUT,C,1}\rangle}D^{\langle \mathrm{AUT,C,1}\rangle\omega^{-1}(-1+\omega)}\right)^{\omega(-1+\omega)^{-1}}=0 \tag{5.80}$$

$$U^{\langle \mathrm{AUT,2}\rangle}-\left(\alpha^{\langle \mathrm{AUT,A,2}\rangle}D^{\langle \mathrm{AUT,A,2}\rangle\omega^{-1}(-1+\omega)}+\alpha^{\langle \mathrm{AUT,B,2}\rangle}D^{\langle \mathrm{AUT,B,2}\rangle\omega^{-1}(-1+\omega)}+\alpha^{\langle \mathrm{AUT,C,2}\rangle}D^{\langle \mathrm{AUT,C,2}\rangle\omega^{-1}(-1+\omega)}\right)^{\omega(-1+\omega)^{-1}}=0 \tag{5.81}$$

$$U^{\langle \mathrm{AUT,3}\rangle}-\left(\alpha^{\langle \mathrm{AUT,A,3}\rangle}D^{\langle \mathrm{AUT,A,3}\rangle\omega^{-1}(-1+\omega)}+\alpha^{\langle \mathrm{AUT,B,3}\rangle}D^{\langle \mathrm{AUT,B,3}\rangle\omega^{-1}(-1+\omega)}+\alpha^{\langle \mathrm{AUT,C,3}\rangle}D^{\langle \mathrm{AUT,C,3}\rangle\omega^{-1}(-1+\omega)}\right)^{\omega(-1+\omega)^{-1}}=0 \tag{5.82}$$

$$U^{\langle \mathrm{DEU,1}\rangle}-\left(\alpha^{\langle \mathrm{DEU,A,1}\rangle}D^{\langle \mathrm{DEU,A,1}\rangle\omega^{-1}(-1+\omega)}+\alpha^{\langle \mathrm{DEU,B,1}\rangle}D^{\langle \mathrm{DEU,B,1}\rangle\omega^{-1}(-1+\omega)}+\alpha^{\langle \mathrm{DEU,C,1}\rangle}D^{\langle \mathrm{DEU,C,1}\rangle\omega^{-1}(-1+\omega)}\right)^{\omega(-1+\omega)^{-1}}=0 \tag{5.83}$$

$$U^{\langle \mathrm{DEU},2\rangle} - \left(\alpha^{\langle \mathrm{DEU,A},2\rangle} D^{\langle \mathrm{DEU,A},2\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \mathrm{DEU,B},2\rangle} D^{\langle \mathrm{DEU,B},2\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \mathrm{DEU,C},2\rangle} D^{\langle \mathrm{DEU,C},2\rangle^{\omega^{-1}(-1+\omega)}}\right)^{\omega(-1+\omega)^{-1}} = 0 \tag{5.84}$$

$$U^{\langle \mathrm{DEU},3\rangle} - \left(\alpha^{\langle \mathrm{DEU,A},3\rangle} D^{\langle \mathrm{DEU,A},3\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \mathrm{DEU,B},3\rangle} D^{\langle \mathrm{DEU,B},3\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \mathrm{DEU,C},3\rangle} D^{\langle \mathrm{DEU,C},3\rangle^{\omega^{-1}(-1+\omega)}}\right)^{\omega(-1+\omega)^{-1}} = 0 \tag{5.85}$$

$$U^{\langle \mathrm{SVN},1\rangle} - \left(\alpha^{\langle \mathrm{SVN,A},1\rangle} D^{\langle \mathrm{SVN,A},1\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \mathrm{SVN,B},1\rangle} D^{\langle \mathrm{SVN,B},1\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \mathrm{SVN,C},1\rangle} D^{\langle \mathrm{SVN,C},1\rangle^{\omega^{-1}(-1+\omega)}}\right)^{\omega(-1+\omega)^{-1}} = 0 \tag{5.86}$$

$$U^{\langle \mathrm{SVN},2\rangle} - \left(\alpha^{\langle \mathrm{SVN,A},2\rangle} D^{\langle \mathrm{SVN,A},2\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \mathrm{SVN,B},2\rangle} D^{\langle \mathrm{SVN,B},2\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \mathrm{SVN,C},2\rangle} D^{\langle \mathrm{SVN,C},2\rangle^{\omega^{-1}(-1+\omega)}}\right)^{\omega(-1+\omega)^{-1}} = 0 \tag{5.87}$$

$$U^{\langle \mathrm{SVN},3\rangle} - \left(\alpha^{\langle \mathrm{SVN,A},3\rangle} D^{\langle \mathrm{SVN,A},3\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \mathrm{SVN,B},3\rangle} D^{\langle \mathrm{SVN,B},3\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \mathrm{SVN,C},3\rangle} D^{\langle \mathrm{SVN,C},3\rangle^{\omega^{-1}(-1+\omega)}}\right)^{\omega(-1+\omega)^{-1}} = 0 \tag{5.88}$$

$$-Y^{\langle \mathrm{AUT,A}\rangle} + \gamma^{\langle \mathrm{AUT,A}\rangle} K^{\langle \mathrm{AUT,A}\rangle^{\eta^{\mathrm{k}\langle \mathrm{AUT,A}\rangle}}} L^{\langle \mathrm{AUT,A}\rangle^{\eta^{\mathrm{l}\langle \mathrm{AUT,A}\rangle}}} \left(\beta^{\mathrm{x}\langle \mathrm{AUT,A,A}\rangle} X^{\langle \mathrm{AUT,A,A}\rangle^{\rho^{\langle \mathrm{AUT}\rangle}}} + \beta^{\mathrm{x}\langle \mathrm{AUT,B,A}\rangle} X^{\langle \mathrm{AUT,B,A}\rangle^{\rho^{\langle \mathrm{AUT}\rangle}}} + \beta^{\mathrm{x}\langle \mathrm{AUT,C,A}\rangle} X^{\langle \mathrm{AUT,C,A}\rangle^{\rho^{\langle \mathrm{AUT}\rangle}}}\right)^{\eta^{\mathrm{x}\langle \mathrm{AUT,A}\rangle}\rho^{\langle \mathrm{AUT}\rangle^{-1}}} = 0 \tag{5.89}$$

$$-Y^{\langle \mathrm{AUT,B}\rangle} + \gamma^{\langle \mathrm{AUT,B}\rangle} K^{\langle \mathrm{AUT,B}\rangle^{\eta^{\mathrm{k}\langle \mathrm{AUT,B}\rangle}}} L^{\langle \mathrm{AUT,B}\rangle^{\eta^{\mathrm{l}\langle \mathrm{AUT,B}\rangle}}} \left(\beta^{\mathrm{x}\langle \mathrm{AUT,A,B}\rangle} X^{\langle \mathrm{AUT,A,B}\rangle^{\rho^{\langle \mathrm{AUT}\rangle}}} + \beta^{\mathrm{x}\langle \mathrm{AUT,B,B}\rangle} X^{\langle \mathrm{AUT,B,B}\rangle^{\rho^{\langle \mathrm{AUT}\rangle}}} + \beta^{\mathrm{x}\langle \mathrm{AUT,C,B}\rangle} X^{\langle \mathrm{AUT,C,B}\rangle^{\rho^{\langle \mathrm{AUT}\rangle}}}\right)^{\eta^{\mathrm{x}\langle \mathrm{AUT,B}\rangle}\rho^{\langle \mathrm{AUT}\rangle^{-1}}} = 0 \tag{5.90}$$

$$-Y^{\langle \mathrm{AUT,C}\rangle} + \gamma^{\langle \mathrm{AUT,C}\rangle} K^{\langle \mathrm{AUT,C}\rangle^{\eta^{\mathrm{k}\langle \mathrm{AUT,C}\rangle}}} L^{\langle \mathrm{AUT,C}\rangle^{\eta^{\mathrm{l}\langle \mathrm{AUT,C}\rangle}}} \left(\beta^{\mathrm{x}\langle \mathrm{AUT,A,C}\rangle} X^{\langle \mathrm{AUT,A,C}\rangle^{\rho^{\langle \mathrm{AUT}\rangle}}} + \beta^{\mathrm{x}\langle \mathrm{AUT,B,C}\rangle} X^{\langle \mathrm{AUT,B,C}\rangle^{\rho^{\langle \mathrm{AUT}\rangle}}} + \beta^{\mathrm{x}\langle \mathrm{AUT,C,C}\rangle} X^{\langle \mathrm{AUT,C,C}\rangle^{\rho^{\langle \mathrm{AUT}\rangle}}}\right)^{\eta^{\mathrm{x}\langle \mathrm{AUT,C}\rangle}\rho^{\langle \mathrm{AUT}\rangle^{-1}}} = 0 \tag{5.91}$$

$$-Y^{\langle \mathrm{DEU,A}\rangle} + \gamma^{\langle \mathrm{DEU,A}\rangle} K^{\langle \mathrm{DEU,A}\rangle^{\eta^{\mathrm{k}\langle \mathrm{DEU,A}\rangle}}} L^{\langle \mathrm{DEU,A}\rangle^{\eta^{\mathrm{l}\langle \mathrm{DEU,A}\rangle}}} \left(\beta^{\mathrm{x}\langle \mathrm{DEU,A,A}\rangle} X^{\langle \mathrm{DEU,A,A}\rangle^{\rho^{\langle \mathrm{DEU}\rangle}}} + \beta^{\mathrm{x}\langle \mathrm{DEU,B,A}\rangle} X^{\langle \mathrm{DEU,B,A}\rangle^{\rho^{\langle \mathrm{DEU}\rangle}}} + \beta^{\mathrm{x}\langle \mathrm{DEU,C,A}\rangle} X^{\langle \mathrm{DEU,C,A}\rangle^{\rho^{\langle \mathrm{DEU}\rangle}}}\right)^{\eta^{\mathrm{x}\langle \mathrm{DEU,A}\rangle}\rho^{\langle \mathrm{DEU}\rangle^{-1}}} = 0 \tag{5.92}$$

$$-Y^{\langle \mathrm{DEU,B}\rangle} + \gamma^{\langle \mathrm{DEU,B}\rangle} K^{\langle \mathrm{DEU,B}\rangle^{\eta^{\mathrm{k}\langle \mathrm{DEU,B}\rangle}}} L^{\langle \mathrm{DEU,B}\rangle^{\eta^{\mathrm{l}\langle \mathrm{DEU,B}\rangle}}} \left(\beta^{\mathrm{x}\langle \mathrm{DEU,A,B}\rangle} X^{\langle \mathrm{DEU,A,B}\rangle^{\rho^{\langle \mathrm{DEU}\rangle}}} + \beta^{\mathrm{x}\langle \mathrm{DEU,B,B}\rangle} X^{\langle \mathrm{DEU,B,B}\rangle^{\rho^{\langle \mathrm{DEU}\rangle}}} + \beta^{\mathrm{x}\langle \mathrm{DEU,C,B}\rangle} X^{\langle \mathrm{DEU,C,B}\rangle^{\rho^{\langle \mathrm{DEU}\rangle}}}\right)^{\eta^{\mathrm{x}\langle \mathrm{DEU,B}\rangle}\rho^{\langle \mathrm{DEU}\rangle^{-1}}} = 0 \tag{5.93}$$

$$-Y^{\langle \mathrm{DEU,C} \rangle}+\gamma^{\langle \mathrm{DEU,C} \rangle}K^{\langle \mathrm{DEU,C} \rangle^{\eta^{\mathrm{k}\langle \mathrm{DEU,C} \rangle}}}L^{\langle \mathrm{DEU,C} \rangle^{\eta^{\mathrm{l}\langle \mathrm{DEU,C} \rangle}}}\left(\beta^{\mathrm{x}\langle \mathrm{DEU,A,C} \rangle}X^{\langle \mathrm{DEU,A,C} \rangle^{\rho^{\langle \mathrm{DEU} \rangle}}}+\beta^{\mathrm{x}\langle \mathrm{DEU,B,C} \rangle}X^{\langle \mathrm{DEU,B,C} \rangle^{\rho^{\langle \mathrm{DEU} \rangle}}}+\beta^{\mathrm{x}\langle \mathrm{DEU,C,C} \rangle}X^{\langle \mathrm{DEU,C,C} \rangle^{\rho^{\langle \mathrm{DEU} \rangle}}}\right)^{\eta^{\mathrm{x}\langle \mathrm{DEU,C} \rangle}\rho^{\langle \mathrm{DEU} \rangle-1}}=0 \tag{5.94}$$

$$-Y^{\langle \mathrm{SVN,A} \rangle}+\gamma^{\langle \mathrm{SVN,A} \rangle}K^{\langle \mathrm{SVN,A} \rangle^{\eta^{\mathrm{k}\langle \mathrm{SVN,A} \rangle}}}L^{\langle \mathrm{SVN,A} \rangle^{\eta^{\mathrm{l}\langle \mathrm{SVN,A} \rangle}}}\left(\beta^{\mathrm{x}\langle \mathrm{SVN,A,A} \rangle}X^{\langle \mathrm{SVN,A,A} \rangle^{\rho^{\langle \mathrm{SVN} \rangle}}}+\beta^{\mathrm{x}\langle \mathrm{SVN,B,A} \rangle}X^{\langle \mathrm{SVN,B,A} \rangle^{\rho^{\langle \mathrm{SVN} \rangle}}}+\beta^{\mathrm{x}\langle \mathrm{SVN,C,A} \rangle}X^{\langle \mathrm{SVN,C,A} \rangle^{\rho^{\langle \mathrm{SVN} \rangle}}}\right)^{\eta^{\mathrm{x}\langle \mathrm{SVN,A} \rangle}\rho^{\langle \mathrm{SVN} \rangle-1}}=0 \tag{5.95}$$

$$-Y^{\langle \mathrm{SVN,B} \rangle}+\gamma^{\langle \mathrm{SVN,B} \rangle}K^{\langle \mathrm{SVN,B} \rangle^{\eta^{\mathrm{k}\langle \mathrm{SVN,B} \rangle}}}L^{\langle \mathrm{SVN,B} \rangle^{\eta^{\mathrm{l}\langle \mathrm{SVN,B} \rangle}}}\left(\beta^{\mathrm{x}\langle \mathrm{SVN,A,B} \rangle}X^{\langle \mathrm{SVN,A,B} \rangle^{\rho^{\langle \mathrm{SVN} \rangle}}}+\beta^{\mathrm{x}\langle \mathrm{SVN,B,B} \rangle}X^{\langle \mathrm{SVN,B,B} \rangle^{\rho^{\langle \mathrm{SVN} \rangle}}}+\beta^{\mathrm{x}\langle \mathrm{SVN,C,B} \rangle}X^{\langle \mathrm{SVN,C,B} \rangle^{\rho^{\langle \mathrm{SVN} \rangle}}}\right)^{\eta^{\mathrm{x}\langle \mathrm{SVN,B} \rangle}\rho^{\langle \mathrm{SVN} \rangle-1}}=0 \tag{5.96}$$

$$-Y^{\langle \mathrm{SVN,C} \rangle}+\gamma^{\langle \mathrm{SVN,C} \rangle}K^{\langle \mathrm{SVN,C} \rangle^{\eta^{\mathrm{k}\langle \mathrm{SVN,C} \rangle}}}L^{\langle \mathrm{SVN,C} \rangle^{\eta^{\mathrm{l}\langle \mathrm{SVN,C} \rangle}}}\left(\beta^{\mathrm{x}\langle \mathrm{SVN,A,C} \rangle}X^{\langle \mathrm{SVN,A,C} \rangle^{\rho^{\langle \mathrm{SVN} \rangle}}}+\beta^{\mathrm{x}\langle \mathrm{SVN,B,C} \rangle}X^{\langle \mathrm{SVN,B,C} \rangle^{\rho^{\langle \mathrm{SVN} \rangle}}}+\beta^{\mathrm{x}\langle \mathrm{SVN,C,C} \rangle}X^{\langle \mathrm{SVN,C,C} \rangle^{\rho^{\langle \mathrm{SVN} \rangle}}}\right)^{\eta^{\mathrm{x}\langle \mathrm{SVN,C} \rangle}\rho^{\langle \mathrm{SVN} \rangle-1}}=0 \tag{5.97}$$

$$\lambda^{\mathrm{CONSUMER}^{1}\langle \mathrm{AUT,1} \rangle}p^{\langle \mathrm{AUT,A} \rangle}+\alpha^{\langle \mathrm{AUT,A,1} \rangle}D^{\langle \mathrm{AUT,A,1} \rangle^{-1+\omega^{-1}(-1+\omega)}}\left(\alpha^{\langle \mathrm{AUT,A,1} \rangle}D^{\langle \mathrm{AUT,A,1} \rangle^{\omega^{-1}(-1+\omega)}}+\alpha^{\langle \mathrm{AUT,B,1} \rangle}D^{\langle \mathrm{AUT,B,1} \rangle^{\omega^{-1}(-1+\omega)}}+\alpha^{\langle \mathrm{AUT,C,1} \rangle}D^{\langle \mathrm{AUT,C,1} \rangle^{\omega^{-1}(-1+\omega)}}\right)^{-1+\omega(-1+\omega} \tag{5.98}$$

$$\lambda^{\mathrm{CONSUMER}^{1}\langle \mathrm{AUT,1} \rangle}p^{\langle \mathrm{AUT,B} \rangle}+\alpha^{\langle \mathrm{AUT,B,1} \rangle}D^{\langle \mathrm{AUT,B,1} \rangle^{-1+\omega^{-1}(-1+\omega)}}\left(\alpha^{\langle \mathrm{AUT,A,1} \rangle}D^{\langle \mathrm{AUT,A,1} \rangle^{\omega^{-1}(-1+\omega)}}+\alpha^{\langle \mathrm{AUT,B,1} \rangle}D^{\langle \mathrm{AUT,B,1} \rangle^{\omega^{-1}(-1+\omega)}}+\alpha^{\langle \mathrm{AUT,C,1} \rangle}D^{\langle \mathrm{AUT,C,1} \rangle^{\omega^{-1}(-1+\omega)}}\right)^{-1+\omega(-1+\omega} \tag{5.99}$$

$$\lambda^{\mathrm{CONSUMER}^{1}\langle \mathrm{AUT,1} \rangle}p^{\langle \mathrm{AUT,C} \rangle}+\alpha^{\langle \mathrm{AUT,C,1} \rangle}D^{\langle \mathrm{AUT,C,1} \rangle^{-1+\omega^{-1}(-1+\omega)}}\left(\alpha^{\langle \mathrm{AUT,A,1} \rangle}D^{\langle \mathrm{AUT,A,1} \rangle^{\omega^{-1}(-1+\omega)}}+\alpha^{\langle \mathrm{AUT,B,1} \rangle}D^{\langle \mathrm{AUT,B,1} \rangle^{\omega^{-1}(-1+\omega)}}+\alpha^{\langle \mathrm{AUT,C,1} \rangle}D^{\langle \mathrm{AUT,C,1} \rangle^{\omega^{-1}(-1+\omega)}}\right)^{-1+\omega(-1+\omega} \tag{5.100}$$

$$\lambda^{\mathrm{CONSUMER}^{1}\langle \mathrm{AUT,2} \rangle}p^{\langle \mathrm{AUT,A} \rangle}+\alpha^{\langle \mathrm{AUT,A,2} \rangle}D^{\langle \mathrm{AUT,A,2} \rangle^{-1+\omega^{-1}(-1+\omega)}}\left(\alpha^{\langle \mathrm{AUT,A,2} \rangle}D^{\langle \mathrm{AUT,A,2} \rangle^{\omega^{-1}(-1+\omega)}}+\alpha^{\langle \mathrm{AUT,B,2} \rangle}D^{\langle \mathrm{AUT,B,2} \rangle^{\omega^{-1}(-1+\omega)}}+\alpha^{\langle \mathrm{AUT,C,2} \rangle}D^{\langle \mathrm{AUT,C,2} \rangle^{\omega^{-1}(-1+\omega)}}\right)^{-1+\omega(-1+\omega} \tag{5.101}$$

$$\lambda^{\text{CONSUMER}^1\langle \text{AUT,2}\rangle} p^{\langle \text{AUT,B}\rangle} + \alpha^{\langle \text{AUT,B,2}\rangle} D^{\langle \text{AUT,B,2}\rangle^{-1+\omega^{-1}(-1+\omega)}} \left(\alpha^{\langle \text{AUT,A,2}\rangle} D^{\langle \text{AUT,A,2}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{AUT,B,2}\rangle} D^{\langle \text{AUT,B,2}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{AUT,C,2}\rangle} D^{\langle \text{AUT,C,2}\rangle^{\omega^{-1}(-1+\omega)}} \right)^{-1+\omega(-1+\omega} \tag{5.102}$$

$$\lambda^{\text{CONSUMER}^1\langle \text{AUT,2}\rangle} p^{\langle \text{AUT,C}\rangle} + \alpha^{\langle \text{AUT,C,2}\rangle} D^{\langle \text{AUT,C,2}\rangle^{-1+\omega^{-1}(-1+\omega)}} \left(\alpha^{\langle \text{AUT,A,2}\rangle} D^{\langle \text{AUT,A,2}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{AUT,B,2}\rangle} D^{\langle \text{AUT,B,2}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{AUT,C,2}\rangle} D^{\langle \text{AUT,C,2}\rangle^{\omega^{-1}(-1+\omega)}} \right)^{-1+\omega(-1+\omega} \tag{5.103}$$

$$\lambda^{\text{CONSUMER}^1\langle \text{AUT,3}\rangle} p^{\langle \text{AUT,A}\rangle} + \alpha^{\langle \text{AUT,A,3}\rangle} D^{\langle \text{AUT,A,3}\rangle^{-1+\omega^{-1}(-1+\omega)}} \left(\alpha^{\langle \text{AUT,A,3}\rangle} D^{\langle \text{AUT,A,3}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{AUT,B,3}\rangle} D^{\langle \text{AUT,B,3}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{AUT,C,3}\rangle} D^{\langle \text{AUT,C,3}\rangle^{\omega^{-1}(-1+\omega)}} \right)^{-1+\omega(-1+\omega} \tag{5.104}$$

$$\lambda^{\text{CONSUMER}^1\langle \text{AUT,3}\rangle} p^{\langle \text{AUT,B}\rangle} + \alpha^{\langle \text{AUT,B,3}\rangle} D^{\langle \text{AUT,B,3}\rangle^{-1+\omega^{-1}(-1+\omega)}} \left(\alpha^{\langle \text{AUT,A,3}\rangle} D^{\langle \text{AUT,A,3}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{AUT,B,3}\rangle} D^{\langle \text{AUT,B,3}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{AUT,C,3}\rangle} D^{\langle \text{AUT,C,3}\rangle^{\omega^{-1}(-1+\omega)}} \right)^{-1+\omega(-1+\omega} \tag{5.105}$$

$$\lambda^{\text{CONSUMER}^1\langle \text{AUT,3}\rangle} p^{\langle \text{AUT,C}\rangle} + \alpha^{\langle \text{AUT,C,3}\rangle} D^{\langle \text{AUT,C,3}\rangle^{-1+\omega^{-1}(-1+\omega)}} \left(\alpha^{\langle \text{AUT,A,3}\rangle} D^{\langle \text{AUT,A,3}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{AUT,B,3}\rangle} D^{\langle \text{AUT,B,3}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{AUT,C,3}\rangle} D^{\langle \text{AUT,C,3}\rangle^{\omega^{-1}(-1+\omega)}} \right)^{-1+\omega(-1+\omega} \tag{5.106}$$

$$\lambda^{\text{CONSUMER}^1\langle \text{DEU,1}\rangle} p^{\langle \text{DEU,A}\rangle} + \alpha^{\langle \text{DEU,A,1}\rangle} D^{\langle \text{DEU,A,1}\rangle^{-1+\omega^{-1}(-1+\omega)}} \left(\alpha^{\langle \text{DEU,A,1}\rangle} D^{\langle \text{DEU,A,1}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{DEU,B,1}\rangle} D^{\langle \text{DEU,B,1}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{DEU,C,1}\rangle} D^{\langle \text{DEU,C,1}\rangle^{\omega^{-1}(-1+\omega)}} \right)^{-1+\omega(-1+\omega} \tag{5.107}$$

$$\lambda^{\text{CONSUMER}^1\langle \text{DEU,1}\rangle} p^{\langle \text{DEU,B}\rangle} + \alpha^{\langle \text{DEU,B,1}\rangle} D^{\langle \text{DEU,B,1}\rangle^{-1+\omega^{-1}(-1+\omega)}} \left(\alpha^{\langle \text{DEU,A,1}\rangle} D^{\langle \text{DEU,A,1}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{DEU,B,1}\rangle} D^{\langle \text{DEU,B,1}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{DEU,C,1}\rangle} D^{\langle \text{DEU,C,1}\rangle^{\omega^{-1}(-1+\omega)}} \right)^{-1+\omega(-1+\omega} \tag{5.108}$$

$$\lambda^{\text{CONSUMER}^1\langle \text{DEU,1}\rangle} p^{\langle \text{DEU,C}\rangle} + \alpha^{\langle \text{DEU,C,1}\rangle} D^{\langle \text{DEU,C,1}\rangle^{-1+\omega^{-1}(-1+\omega)}} \left(\alpha^{\langle \text{DEU,A,1}\rangle} D^{\langle \text{DEU,A,1}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{DEU,B,1}\rangle} D^{\langle \text{DEU,B,1}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{DEU,C,1}\rangle} D^{\langle \text{DEU,C,1}\rangle^{\omega^{-1}(-1+\omega)}} \right)^{-1+\omega(-1+\omega} \tag{5.109}$$

$$\lambda^{\text{CONSUMER}^1\langle \text{DEU},2\rangle} p^{\langle \text{DEU,A}\rangle} + \alpha^{\langle \text{DEU,A,2}\rangle} D^{\langle \text{DEU,A,2}\rangle^{-1+\omega^{-1}(-1+\omega)}} \left(\alpha^{\langle \text{DEU,A,2}\rangle} D^{\langle \text{DEU,A,2}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{DEU,B,2}\rangle} D^{\langle \text{DEU,B,2}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{DEU,C,2}\rangle} D^{\langle \text{DEU,C,2}\rangle^{\omega^{-1}(-1+\omega)}} \right)^{-1+\omega(-1+\omega)^{-}} \tag{5.110}$$

$$\lambda^{\text{CONSUMER}^1\langle \text{DEU},2\rangle} p^{\langle \text{DEU,B}\rangle} + \alpha^{\langle \text{DEU,B,2}\rangle} D^{\langle \text{DEU,B,2}\rangle^{-1+\omega^{-1}(-1+\omega)}} \left(\alpha^{\langle \text{DEU,A,2}\rangle} D^{\langle \text{DEU,A,2}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{DEU,B,2}\rangle} D^{\langle \text{DEU,B,2}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{DEU,C,2}\rangle} D^{\langle \text{DEU,C,2}\rangle^{\omega^{-1}(-1+\omega)}} \right)^{-1+\omega(-1+\omega)^{-}} \tag{5.111}$$

$$\lambda^{\text{CONSUMER}^1\langle \text{DEU},2\rangle} p^{\langle \text{DEU,C}\rangle} + \alpha^{\langle \text{DEU,C,2}\rangle} D^{\langle \text{DEU,C,2}\rangle^{-1+\omega^{-1}(-1+\omega)}} \left(\alpha^{\langle \text{DEU,A,2}\rangle} D^{\langle \text{DEU,A,2}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{DEU,B,2}\rangle} D^{\langle \text{DEU,B,2}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{DEU,C,2}\rangle} D^{\langle \text{DEU,C,2}\rangle^{\omega^{-1}(-1+\omega)}} \right)^{-1+\omega(-1+\omega)^{-}} \tag{5.112}$$

$$\lambda^{\text{CONSUMER}^1\langle \text{DEU},3\rangle} p^{\langle \text{DEU,A}\rangle} + \alpha^{\langle \text{DEU,A,3}\rangle} D^{\langle \text{DEU,A,3}\rangle^{-1+\omega^{-1}(-1+\omega)}} \left(\alpha^{\langle \text{DEU,A,3}\rangle} D^{\langle \text{DEU,A,3}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{DEU,B,3}\rangle} D^{\langle \text{DEU,B,3}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{DEU,C,3}\rangle} D^{\langle \text{DEU,C,3}\rangle^{\omega^{-1}(-1+\omega)}} \right)^{-1+\omega(-1+\omega)^{-}} \tag{5.113}$$

$$\lambda^{\text{CONSUMER}^1\langle \text{DEU},3\rangle} p^{\langle \text{DEU,B}\rangle} + \alpha^{\langle \text{DEU,B,3}\rangle} D^{\langle \text{DEU,B,3}\rangle^{-1+\omega^{-1}(-1+\omega)}} \left(\alpha^{\langle \text{DEU,A,3}\rangle} D^{\langle \text{DEU,A,3}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{DEU,B,3}\rangle} D^{\langle \text{DEU,B,3}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{DEU,C,3}\rangle} D^{\langle \text{DEU,C,3}\rangle^{\omega^{-1}(-1+\omega)}} \right)^{-1+\omega(-1+\omega)^{-}} \tag{5.114}$$

$$\lambda^{\text{CONSUMER}^1\langle \text{DEU},3\rangle} p^{\langle \text{DEU,C}\rangle} + \alpha^{\langle \text{DEU,C,3}\rangle} D^{\langle \text{DEU,C,3}\rangle^{-1+\omega^{-1}(-1+\omega)}} \left(\alpha^{\langle \text{DEU,A,3}\rangle} D^{\langle \text{DEU,A,3}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{DEU,B,3}\rangle} D^{\langle \text{DEU,B,3}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{DEU,C,3}\rangle} D^{\langle \text{DEU,C,3}\rangle^{\omega^{-1}(-1+\omega)}} \right)^{-1+\omega(-1+\omega)^{-}} \tag{5.115}$$

$$\lambda^{\text{CONSUMER}^1\langle \text{SVN},1\rangle} p^{\langle \text{SVN,A}\rangle} + \alpha^{\langle \text{SVN,A,1}\rangle} D^{\langle \text{SVN,A,1}\rangle^{-1+\omega^{-1}(-1+\omega)}} \left(\alpha^{\langle \text{SVN,A,1}\rangle} D^{\langle \text{SVN,A,1}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{SVN,B,1}\rangle} D^{\langle \text{SVN,B,1}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{SVN,C,1}\rangle} D^{\langle \text{SVN,C,1}\rangle^{\omega^{-1}(-1+\omega)}} \right)^{-1+\omega(-1+\omega)^{-}} \tag{5.116}$$

$$\lambda^{\text{CONSUMER}^1\langle \text{SVN},1\rangle} p^{\langle \text{SVN,B}\rangle} + \alpha^{\langle \text{SVN,B,1}\rangle} D^{\langle \text{SVN,B,1}\rangle^{-1+\omega^{-1}(-1+\omega)}} \left(\alpha^{\langle \text{SVN,A,1}\rangle} D^{\langle \text{SVN,A,1}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{SVN,B,1}\rangle} D^{\langle \text{SVN,B,1}\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \text{SVN,C,1}\rangle} D^{\langle \text{SVN,C,1}\rangle^{\omega^{-1}(-1+\omega)}} \right)^{-1+\omega(-1+\omega)^{-}} \tag{5.117}$$

$$\lambda^{\text{CONSUMER}^{1}\langle \text{SVN},1\rangle} p^{\langle \text{SVN,C}\rangle} + \alpha^{\langle \text{SVN,C},1\rangle} D^{\langle \text{SVN,C},1\rangle -1+\omega^{-1}(-1+\omega)} \left(\alpha^{\langle \text{SVN,A},1\rangle} D^{\langle \text{SVN,A},1\rangle \omega^{-1}(-1+\omega)} + \alpha^{\langle \text{SVN,B},1\rangle} D^{\langle \text{SVN,B},1\rangle \omega^{-1}(-1+\omega)} + \alpha^{\langle \text{SVN,C},1\rangle} D^{\langle \text{SVN,C},1\rangle \omega^{-1}(-1+\omega)} \right)^{-1+\omega(-1+\omega)^{-}} \tag{5.118}$$

$$\lambda^{\text{CONSUMER}^{1}\langle \text{SVN},2\rangle} p^{\langle \text{SVN,A}\rangle} + \alpha^{\langle \text{SVN,A},2\rangle} D^{\langle \text{SVN,A},2\rangle -1+\omega^{-1}(-1+\omega)} \left(\alpha^{\langle \text{SVN,A},2\rangle} D^{\langle \text{SVN,A},2\rangle \omega^{-1}(-1+\omega)} + \alpha^{\langle \text{SVN,B},2\rangle} D^{\langle \text{SVN,B},2\rangle \omega^{-1}(-1+\omega)} + \alpha^{\langle \text{SVN,C},2\rangle} D^{\langle \text{SVN,C},2\rangle \omega^{-1}(-1+\omega)} \right)^{-1+\omega(-1+\omega)^{-}} \tag{5.119}$$

$$\lambda^{\text{CONSUMER}^{1}\langle \text{SVN},2\rangle} p^{\langle \text{SVN,B}\rangle} + \alpha^{\langle \text{SVN,B},2\rangle} D^{\langle \text{SVN,B},2\rangle -1+\omega^{-1}(-1+\omega)} \left(\alpha^{\langle \text{SVN,A},2\rangle} D^{\langle \text{SVN,A},2\rangle \omega^{-1}(-1+\omega)} + \alpha^{\langle \text{SVN,B},2\rangle} D^{\langle \text{SVN,B},2\rangle \omega^{-1}(-1+\omega)} + \alpha^{\langle \text{SVN,C},2\rangle} D^{\langle \text{SVN,C},2\rangle \omega^{-1}(-1+\omega)} \right)^{-1+\omega(-1+\omega)^{-}} \tag{5.120}$$

$$\lambda^{\text{CONSUMER}^{1}\langle \text{SVN},2\rangle} p^{\langle \text{SVN,C}\rangle} + \alpha^{\langle \text{SVN,C},2\rangle} D^{\langle \text{SVN,C},2\rangle -1+\omega^{-1}(-1+\omega)} \left(\alpha^{\langle \text{SVN,A},2\rangle} D^{\langle \text{SVN,A},2\rangle \omega^{-1}(-1+\omega)} + \alpha^{\langle \text{SVN,B},2\rangle} D^{\langle \text{SVN,B},2\rangle \omega^{-1}(-1+\omega)} + \alpha^{\langle \text{SVN,C},2\rangle} D^{\langle \text{SVN,C},2\rangle \omega^{-1}(-1+\omega)} \right)^{-1+\omega(-1+\omega)^{-}} \tag{5.121}$$

$$\lambda^{\text{CONSUMER}^{1}\langle \text{SVN},3\rangle} p^{\langle \text{SVN,A}\rangle} + \alpha^{\langle \text{SVN,A},3\rangle} D^{\langle \text{SVN,A},3\rangle -1+\omega^{-1}(-1+\omega)} \left(\alpha^{\langle \text{SVN,A},3\rangle} D^{\langle \text{SVN,A},3\rangle \omega^{-1}(-1+\omega)} + \alpha^{\langle \text{SVN,B},3\rangle} D^{\langle \text{SVN,B},3\rangle \omega^{-1}(-1+\omega)} + \alpha^{\langle \text{SVN,C},3\rangle} D^{\langle \text{SVN,C},3\rangle \omega^{-1}(-1+\omega)} \right)^{-1+\omega(-1+\omega)^{-}} \tag{5.122}$$

$$\lambda^{\text{CONSUMER}^{1}\langle \text{SVN},3\rangle} p^{\langle \text{SVN,B}\rangle} + \alpha^{\langle \text{SVN,B},3\rangle} D^{\langle \text{SVN,B},3\rangle -1+\omega^{-1}(-1+\omega)} \left(\alpha^{\langle \text{SVN,A},3\rangle} D^{\langle \text{SVN,A},3\rangle \omega^{-1}(-1+\omega)} + \alpha^{\langle \text{SVN,B},3\rangle} D^{\langle \text{SVN,B},3\rangle \omega^{-1}(-1+\omega)} + \alpha^{\langle \text{SVN,C},3\rangle} D^{\langle \text{SVN,C},3\rangle \omega^{-1}(-1+\omega)} \right)^{-1+\omega(-1+\omega)^{-}} \tag{5.123}$$

$$\lambda^{\text{CONSUMER}^{1}\langle \text{SVN},3\rangle} p^{\langle \text{SVN,C}\rangle} + \alpha^{\langle \text{SVN,C},3\rangle} D^{\langle \text{SVN,C},3\rangle -1+\omega^{-1}(-1+\omega)} \left(\alpha^{\langle \text{SVN,A},3\rangle} D^{\langle \text{SVN,A},3\rangle \omega^{-1}(-1+\omega)} + \alpha^{\langle \text{SVN,B},3\rangle} D^{\langle \text{SVN,B},3\rangle \omega^{-1}(-1+\omega)} + \alpha^{\langle \text{SVN,C},3\rangle} D^{\langle \text{SVN,C},3\rangle \omega^{-1}(-1+\omega)} \right)^{-1+\omega(-1+\omega)^{-}} \tag{5.124}$$

$$-INC^{\langle \text{AUT},1\rangle} + L^{\langle \text{AUT},1\rangle} + p^{\text{k}} K^{\langle \text{AUT},1\rangle} = 0 \tag{5.125}$$

$$-INC^{\langle \text{AUT},2\rangle} + L^{\langle \text{AUT},2\rangle} + p^{\text{k}} K^{\langle \text{AUT},2\rangle} = 0 \tag{5.126}$$

$$-INC^{\langle \text{AUT},3\rangle} + L^{\langle \text{AUT},3\rangle} + p^{\text{k}} K^{\langle \text{AUT},3\rangle} = 0 \tag{5.127}$$

$$-INC^{\langle \mathrm{DEU},1\rangle} + L^{\langle \mathrm{DEU},1\rangle} + p^{\mathrm{k}} K^{\langle \mathrm{DEU},1\rangle} = 0 \tag{5.128}$$

$$-INC^{\langle \mathrm{DEU},2\rangle} + L^{\langle \mathrm{DEU},2\rangle} + p^{\mathrm{k}} K^{\langle \mathrm{DEU},2\rangle} = 0 \tag{5.129}$$

$$-INC^{\langle \mathrm{DEU},3\rangle} + L^{\langle \mathrm{DEU},3\rangle} + p^{\mathrm{k}} K^{\langle \mathrm{DEU},3\rangle} = 0 \tag{5.130}$$

$$-INC^{\langle \mathrm{SVN},1\rangle} + L^{\langle \mathrm{SVN},1\rangle} + p^{\mathrm{k}} K^{\langle \mathrm{SVN},1\rangle} = 0 \tag{5.131}$$

$$-INC^{\langle \mathrm{SVN},2\rangle} + L^{\langle \mathrm{SVN},2\rangle} + p^{\mathrm{k}} K^{\langle \mathrm{SVN},2\rangle} = 0 \tag{5.132}$$

$$-INC^{\langle \mathrm{SVN},3\rangle} + L^{\langle \mathrm{SVN},3\rangle} + p^{\mathrm{k}} K^{\langle \mathrm{SVN},3\rangle} = 0 \tag{5.133}$$

$$-INC^{\langle \mathrm{AUT},1\rangle} - \Pi^{\langle \mathrm{AUT},1\rangle} + p^{\langle \mathrm{AUT,A}\rangle} D^{\langle \mathrm{AUT,A},1\rangle} + p^{\langle \mathrm{AUT,B}\rangle} D^{\langle \mathrm{AUT,B},1\rangle} + p^{\langle \mathrm{AUT,C}\rangle} D^{\langle \mathrm{AUT,C},1\rangle} = 0 \tag{5.134}$$

$$-INC^{\langle \mathrm{AUT},2\rangle} - \Pi^{\langle \mathrm{AUT},2\rangle} + p^{\langle \mathrm{AUT,A}\rangle} D^{\langle \mathrm{AUT,A},2\rangle} + p^{\langle \mathrm{AUT,B}\rangle} D^{\langle \mathrm{AUT,B},2\rangle} + p^{\langle \mathrm{AUT,C}\rangle} D^{\langle \mathrm{AUT,C},2\rangle} = 0 \tag{5.135}$$

$$-INC^{\langle \mathrm{AUT},3\rangle} - \Pi^{\langle \mathrm{AUT},3\rangle} + p^{\langle \mathrm{AUT,A}\rangle} D^{\langle \mathrm{AUT,A},3\rangle} + p^{\langle \mathrm{AUT,B}\rangle} D^{\langle \mathrm{AUT,B},3\rangle} + p^{\langle \mathrm{AUT,C}\rangle} D^{\langle \mathrm{AUT,C},3\rangle} = 0 \tag{5.136}$$

$$-INC^{\langle \mathrm{DEU},1\rangle} - \Pi^{\langle \mathrm{DEU},1\rangle} + p^{\langle \mathrm{DEU,A}\rangle} D^{\langle \mathrm{DEU,A},1\rangle} + p^{\langle \mathrm{DEU,B}\rangle} D^{\langle \mathrm{DEU,B},1\rangle} + p^{\langle \mathrm{DEU,C}\rangle} D^{\langle \mathrm{DEU,C},1\rangle} = 0 \tag{5.137}$$

$$-INC^{\langle \mathrm{DEU},2\rangle} - \Pi^{\langle \mathrm{DEU},2\rangle} + p^{\langle \mathrm{DEU,A}\rangle} D^{\langle \mathrm{DEU,A},2\rangle} + p^{\langle \mathrm{DEU,B}\rangle} D^{\langle \mathrm{DEU,B},2\rangle} + p^{\langle \mathrm{DEU,C}\rangle} D^{\langle \mathrm{DEU,C},2\rangle} = 0 \tag{5.138}$$

$$-INC^{\langle \mathrm{DEU},3\rangle} - \Pi^{\langle \mathrm{DEU},3\rangle} + p^{\langle \mathrm{DEU,A}\rangle} D^{\langle \mathrm{DEU,A},3\rangle} + p^{\langle \mathrm{DEU,B}\rangle} D^{\langle \mathrm{DEU,B},3\rangle} + p^{\langle \mathrm{DEU,C}\rangle} D^{\langle \mathrm{DEU,C},3\rangle} = 0 \tag{5.139}$$

$$-INC^{\langle \mathrm{SVN},1\rangle} - \Pi^{\langle \mathrm{SVN},1\rangle} + p^{\langle \mathrm{SVN,A}\rangle} D^{\langle \mathrm{SVN,A},1\rangle} + p^{\langle \mathrm{SVN,B}\rangle} D^{\langle \mathrm{SVN,B},1\rangle} + p^{\langle \mathrm{SVN,C}\rangle} D^{\langle \mathrm{SVN,C},1\rangle} = 0 \tag{5.140}$$

$$-INC^{\langle \mathrm{SVN},2\rangle} - \Pi^{\langle \mathrm{SVN},2\rangle} + p^{\langle \mathrm{SVN,A}\rangle} D^{\langle \mathrm{SVN,A},2\rangle} + p^{\langle \mathrm{SVN,B}\rangle} D^{\langle \mathrm{SVN,B},2\rangle} + p^{\langle \mathrm{SVN,C}\rangle} D^{\langle \mathrm{SVN,C},2\rangle} = 0 \tag{5.141}$$

$$-INC^{\langle \mathrm{SVN},3\rangle} - \Pi^{\langle \mathrm{SVN},3\rangle} + p^{\langle \mathrm{SVN,A}\rangle} D^{\langle \mathrm{SVN,A},3\rangle} + p^{\langle \mathrm{SVN,B}\rangle} D^{\langle \mathrm{SVN,B},3\rangle} + p^{\langle \mathrm{SVN,C}\rangle} D^{\langle \mathrm{SVN,C},3\rangle} = 0 \tag{5.142}$$

$$-K^{\langle \mathrm{AUT},1\rangle} - K^{\langle \mathrm{AUT},2\rangle} - K^{\langle \mathrm{AUT},3\rangle} + K^{\langle \mathrm{AUT,A}\rangle} + K^{\langle \mathrm{AUT,B}\rangle} + K^{\langle \mathrm{AUT,C}\rangle} = 0 \tag{5.143}$$

$$-K^{\langle \mathrm{DEU,1} \rangle} - K^{\langle \mathrm{DEU,2} \rangle} - K^{\langle \mathrm{DEU,3} \rangle} + K^{\langle \mathrm{DEU,A} \rangle} + K^{\langle \mathrm{DEU,B} \rangle} + K^{\langle \mathrm{DEU,C} \rangle} = 0 \tag{5.144}$$

$$-K^{\langle \mathrm{SVN,1} \rangle} - K^{\langle \mathrm{SVN,2} \rangle} - K^{\langle \mathrm{SVN,3} \rangle} + K^{\langle \mathrm{SVN,A} \rangle} + K^{\langle \mathrm{SVN,B} \rangle} + K^{\langle \mathrm{SVN,C} \rangle} = 0 \tag{5.145}$$

$$\pi^{\langle \mathrm{AUT,A} \rangle} + L^{\langle \mathrm{AUT,A} \rangle} + p^{\mathrm{k}} K^{\langle \mathrm{AUT,A} \rangle} + p^{\langle \mathrm{AUT,A} \rangle} X^{\langle \mathrm{AUT,A,A} \rangle} - p^{\langle \mathrm{AUT,A} \rangle} Y^{\langle \mathrm{AUT,A} \rangle} + p^{\langle \mathrm{AUT,B} \rangle} X^{\langle \mathrm{AUT,B,A} \rangle} + p^{\langle \mathrm{AUT,C} \rangle} X^{\langle \mathrm{AUT,C,A} \rangle} = 0 \tag{5.146}$$

$$\pi^{\langle \mathrm{AUT,B} \rangle} + L^{\langle \mathrm{AUT,B} \rangle} + p^{\mathrm{k}} K^{\langle \mathrm{AUT,B} \rangle} + p^{\langle \mathrm{AUT,A} \rangle} X^{\langle \mathrm{AUT,A,B} \rangle} + p^{\langle \mathrm{AUT,B} \rangle} X^{\langle \mathrm{AUT,B,B} \rangle} - p^{\langle \mathrm{AUT,B} \rangle} Y^{\langle \mathrm{AUT,B} \rangle} + p^{\langle \mathrm{AUT,C} \rangle} X^{\langle \mathrm{AUT,C,B} \rangle} = 0 \tag{5.147}$$

$$\pi^{\langle \mathrm{AUT,C} \rangle} + L^{\langle \mathrm{AUT,C} \rangle} + p^{\mathrm{k}} K^{\langle \mathrm{AUT,C} \rangle} + p^{\langle \mathrm{AUT,A} \rangle} X^{\langle \mathrm{AUT,A,C} \rangle} + p^{\langle \mathrm{AUT,B} \rangle} X^{\langle \mathrm{AUT,B,C} \rangle} + p^{\langle \mathrm{AUT,C} \rangle} X^{\langle \mathrm{AUT,C,C} \rangle} - p^{\langle \mathrm{AUT,C} \rangle} Y^{\langle \mathrm{AUT,C} \rangle} = 0 \tag{5.148}$$

$$\pi^{\langle \mathrm{DEU,A} \rangle} + L^{\langle \mathrm{DEU,A} \rangle} + p^{\mathrm{k}} K^{\langle \mathrm{DEU,A} \rangle} + p^{\langle \mathrm{DEU,A} \rangle} X^{\langle \mathrm{DEU,A,A} \rangle} - p^{\langle \mathrm{DEU,A} \rangle} Y^{\langle \mathrm{DEU,A} \rangle} + p^{\langle \mathrm{DEU,B} \rangle} X^{\langle \mathrm{DEU,B,A} \rangle} + p^{\langle \mathrm{DEU,C} \rangle} X^{\langle \mathrm{DEU,C,A} \rangle} = 0 \tag{5.149}$$

$$\pi^{\langle \mathrm{DEU,B} \rangle} + L^{\langle \mathrm{DEU,B} \rangle} + p^{\mathrm{k}} K^{\langle \mathrm{DEU,B} \rangle} + p^{\langle \mathrm{DEU,A} \rangle} X^{\langle \mathrm{DEU,A,B} \rangle} + p^{\langle \mathrm{DEU,B} \rangle} X^{\langle \mathrm{DEU,B,B} \rangle} - p^{\langle \mathrm{DEU,B} \rangle} Y^{\langle \mathrm{DEU,B} \rangle} + p^{\langle \mathrm{DEU,C} \rangle} X^{\langle \mathrm{DEU,C,B} \rangle} = 0 \tag{5.150}$$

$$\pi^{\langle \mathrm{DEU,C} \rangle} + L^{\langle \mathrm{DEU,C} \rangle} + p^{\mathrm{k}} K^{\langle \mathrm{DEU,C} \rangle} + p^{\langle \mathrm{DEU,A} \rangle} X^{\langle \mathrm{DEU,A,C} \rangle} + p^{\langle \mathrm{DEU,B} \rangle} X^{\langle \mathrm{DEU,B,C} \rangle} + p^{\langle \mathrm{DEU,C} \rangle} X^{\langle \mathrm{DEU,C,C} \rangle} - p^{\langle \mathrm{DEU,C} \rangle} Y^{\langle \mathrm{DEU,C} \rangle} = 0 \tag{5.151}$$

$$\pi^{\langle \mathrm{SVN,A} \rangle} + L^{\langle \mathrm{SVN,A} \rangle} + p^{\mathrm{k}} K^{\langle \mathrm{SVN,A} \rangle} + p^{\langle \mathrm{SVN,A} \rangle} X^{\langle \mathrm{SVN,A,A} \rangle} - p^{\langle \mathrm{SVN,A} \rangle} Y^{\langle \mathrm{SVN,A} \rangle} + p^{\langle \mathrm{SVN,B} \rangle} X^{\langle \mathrm{SVN,B,A} \rangle} + p^{\langle \mathrm{SVN,C} \rangle} X^{\langle \mathrm{SVN,C,A} \rangle} = 0 \tag{5.152}$$

$$\pi^{\langle \mathrm{SVN,B} \rangle} + L^{\langle \mathrm{SVN,B} \rangle} + p^{\mathrm{k}} K^{\langle \mathrm{SVN,B} \rangle} + p^{\langle \mathrm{SVN,A} \rangle} X^{\langle \mathrm{SVN,A,B} \rangle} + p^{\langle \mathrm{SVN,B} \rangle} X^{\langle \mathrm{SVN,B,B} \rangle} - p^{\langle \mathrm{SVN,B} \rangle} Y^{\langle \mathrm{SVN,B} \rangle} + p^{\langle \mathrm{SVN,C} \rangle} X^{\langle \mathrm{SVN,C,B} \rangle} = 0 \tag{5.153}$$

$$\pi^{\langle \mathrm{SVN,C} \rangle} + L^{\langle \mathrm{SVN,C} \rangle} + p^{\mathrm{k}} K^{\langle \mathrm{SVN,C} \rangle} + p^{\langle \mathrm{SVN,A} \rangle} X^{\langle \mathrm{SVN,A,C} \rangle} + p^{\langle \mathrm{SVN,B} \rangle} X^{\langle \mathrm{SVN,B,C} \rangle} + p^{\langle \mathrm{SVN,C} \rangle} X^{\langle \mathrm{SVN,C,C} \rangle} - p^{\langle \mathrm{SVN,C} \rangle} Y^{\langle \mathrm{SVN,C} \rangle} = 0 \tag{5.154}$$

6 Calibrating equations

$$-d^{\mathrm{data}\langle \mathrm{AUT,B,1} \rangle} + D^{\langle \mathrm{AUT,B,1} \rangle} = 0 \tag{6.1}$$

$$-d^{\mathrm{data}\langle \mathrm{AUT,B,2} \rangle} + D^{\langle \mathrm{AUT,B,2} \rangle} = 0 \tag{6.2}$$

$$-d^{\mathrm{data}\langle \mathrm{AUT,B,3} \rangle} + D^{\langle \mathrm{AUT,B,3} \rangle} = 0 \tag{6.3}$$

$$-d^{\mathrm{data}\langle \mathrm{AUT,C,1} \rangle} + D^{\langle \mathrm{AUT,C,1} \rangle} = 0 \tag{6.4}$$

$$-d^{\text{data}\langle \text{AUT,C,2} \rangle} + D^{\langle \text{AUT,C,2} \rangle} = 0 \tag{6.5}$$

$$-d^{\text{data}\langle \text{AUT,C,3} \rangle} + D^{\langle \text{AUT,C,3} \rangle} = 0 \tag{6.6}$$

$$-d^{\text{data}\langle \text{DEU,B,1} \rangle} + D^{\langle \text{DEU,B,1} \rangle} = 0 \tag{6.7}$$

$$-d^{\text{data}\langle \text{DEU,B,2} \rangle} + D^{\langle \text{DEU,B,2} \rangle} = 0 \tag{6.8}$$

$$-d^{\text{data}\langle \text{DEU,B,3} \rangle} + D^{\langle \text{DEU,B,3} \rangle} = 0 \tag{6.9}$$

$$-d^{\text{data}\langle \text{DEU,C,1} \rangle} + D^{\langle \text{DEU,C,1} \rangle} = 0 \tag{6.10}$$

$$-d^{\text{data}\langle \text{DEU,C,2} \rangle} + D^{\langle \text{DEU,C,2} \rangle} = 0 \tag{6.11}$$

$$-d^{\text{data}\langle \text{DEU,C,3} \rangle} + D^{\langle \text{DEU,C,3} \rangle} = 0 \tag{6.12}$$

$$-d^{\text{data}\langle \text{SVN,B,1} \rangle} + D^{\langle \text{SVN,B,1} \rangle} = 0 \tag{6.13}$$

$$-d^{\text{data}\langle \text{SVN,B,2} \rangle} + D^{\langle \text{SVN,B,2} \rangle} = 0 \tag{6.14}$$

$$-d^{\text{data}\langle \text{SVN,B,3} \rangle} + D^{\langle \text{SVN,B,3} \rangle} = 0 \tag{6.15}$$

$$-d^{\text{data}\langle \text{SVN,C,1} \rangle} + D^{\langle \text{SVN,C,1} \rangle} = 0 \tag{6.16}$$

$$-d^{\text{data}\langle \text{SVN,C,2} \rangle} + D^{\langle \text{SVN,C,2} \rangle} = 0 \tag{6.17}$$

$$-d^{\text{data}\langle \text{SVN,C,3} \rangle} + D^{\langle \text{SVN,C,3} \rangle} = 0 \tag{6.18}$$

$$-k^{\text{data}\langle \text{AUT,A} \rangle} + K^{\langle \text{AUT,A} \rangle} = 0 \tag{6.19}$$

$$-k^{\text{data}\langle \text{AUT,B} \rangle} + K^{\langle \text{AUT,B} \rangle} = 0 \tag{6.20}$$

$$-k^{\text{data}\langle \text{AUT,C} \rangle} + K^{\langle \text{AUT,C} \rangle} = 0 \tag{6.21}$$

$$-k^{\text{data}\langle \text{DEU,A} \rangle} + K^{\langle \text{DEU,A} \rangle} = 0 \tag{6.22}$$

$$-k^{\text{data}\langle \text{DEU,B} \rangle} + K^{\langle \text{DEU,B} \rangle} = 0 \tag{6.23}$$

$$-k^{\text{data}\langle \text{DEU,C} \rangle} + K^{\langle \text{DEU,C} \rangle} = 0 \tag{6.24}$$

$$-k^{\text{data}\langle \text{SVN,A} \rangle} + K^{\langle \text{SVN,A} \rangle} = 0 \tag{6.25}$$

$$-k^{\text{data}\langle \text{SVN,B} \rangle} + K^{\langle \text{SVN,B} \rangle} = 0 \tag{6.26}$$

$$-k^{\text{data}\langle \text{SVN,C} \rangle} + K^{\langle \text{SVN,C} \rangle} = 0 \tag{6.27}$$

$$-l^{\text{data}\langle \text{AUT,A} \rangle} + L^{\langle \text{AUT,A} \rangle} = 0 \tag{6.28}$$

$$-l^{\text{data}\langle \text{AUT,B} \rangle} + L^{\langle \text{AUT,B} \rangle} = 0 \tag{6.29}$$

$$-l^{\text{data}\langle \text{AUT,C} \rangle} + L^{\langle \text{AUT,C} \rangle} = 0 \tag{6.30}$$

$$-l^{\text{data}\langle \text{DEU,A} \rangle} + L^{\langle \text{DEU,A} \rangle} = 0 \tag{6.31}$$

$$-l^{\text{data}\langle \text{DEU,B} \rangle} + L^{\langle \text{DEU,B} \rangle} = 0 \tag{6.32}$$

$$-l^{\text{data}\langle \text{DEU,C} \rangle} + L^{\langle \text{DEU,C} \rangle} = 0 \tag{6.33}$$

$$-l^{\text{data}\langle \text{SVN,A} \rangle} + L^{\langle \text{SVN,A} \rangle} = 0 \tag{6.34}$$

$$-l^{\text{data}\langle \text{SVN,B} \rangle} + L^{\langle \text{SVN,B} \rangle} = 0 \tag{6.35}$$

$$-l^{\text{data}\langle \text{SVN,C} \rangle} + L^{\langle \text{SVN,C} \rangle} = 0 \tag{6.36}$$

$$-x^{\text{data}\langle \text{AUT,A,B} \rangle} + X^{\langle \text{AUT,A,B} \rangle} = 0 \tag{6.37}$$

$$-x^{\text{data}\langle \text{AUT,A,C} \rangle} + X^{\langle \text{AUT,A,C} \rangle} = 0 \tag{6.38}$$

$$-x^{\text{data}\langle \text{AUT,B,A} \rangle} + X^{\langle \text{AUT,B,A} \rangle} = 0 \tag{6.39}$$

$$-x^{\text{data}\langle \text{AUT,B,C} \rangle} + X^{\langle \text{AUT,B,C} \rangle} = 0 \tag{6.40}$$

$$-x^{\text{data}\langle \text{AUT,C,A} \rangle} + X^{\langle \text{AUT,C,A} \rangle} = 0 \tag{6.41}$$

$$-x^{\text{data}\langle \text{AUT,C,B} \rangle} + X^{\langle \text{AUT,C,B} \rangle} = 0 \tag{6.42}$$

$$-x^{\text{data}\langle \text{DEU,A,B} \rangle} + X^{\langle \text{DEU,A,B} \rangle} = 0 \tag{6.43}$$

$$-x^{\text{data}\langle \text{DEU,A,C} \rangle} + X^{\langle \text{DEU,A,C} \rangle} = 0 \tag{6.44}$$

$$-x^{\text{data}\langle \text{DEU,B,A} \rangle} + X^{\langle \text{DEU,B,A} \rangle} = 0 \tag{6.45}$$

$$-x^{\text{data}\langle \text{DEU,B,C} \rangle} + X^{\langle \text{DEU,B,C} \rangle} = 0 \tag{6.46}$$

$$-x^{\text{data}\langle \text{DEU,C,A} \rangle} + X^{\langle \text{DEU,C,A} \rangle} = 0 \tag{6.47}$$

$$-x^{\text{data}\langle \text{DEU,C,B} \rangle} + X^{\langle \text{DEU,C,B} \rangle} = 0 \tag{6.48}$$

$$-x^{\text{data}\langle \text{SVN,A,B} \rangle} + X^{\langle \text{SVN,A,B} \rangle} = 0 \tag{6.49}$$

$$-x^{\text{data}\langle \text{SVN,A,C} \rangle} + X^{\langle \text{SVN,A,C} \rangle} = 0 \tag{6.50}$$

$$-x^{\text{data}\langle \text{SVN,B,A} \rangle} + X^{\langle \text{SVN,B,A} \rangle} = 0 \tag{6.51}$$

$$-x^{\text{data}\langle \text{SVN,B,C} \rangle} + X^{\langle \text{SVN,B,C} \rangle} = 0 \tag{6.52}$$

$$-x^{\text{data}\langle \text{SVN,C,A} \rangle} + X^{\langle \text{SVN,C,A} \rangle} = 0 \tag{6.53}$$

$$-x^{\text{data}\langle \text{SVN,C,B} \rangle} + X^{\langle \text{SVN,C,B} \rangle} = 0 \tag{6.54}$$

$$-y^{\text{data}\langle \text{AUT,A} \rangle} + Y^{\langle \text{AUT,A} \rangle} = 0 \tag{6.55}$$

$$-y^{\text{data}\langle \text{AUT,B} \rangle} + Y^{\langle \text{AUT,B} \rangle} = 0 \tag{6.56}$$

$$-y^{\text{data}\langle \text{AUT,C} \rangle} + Y^{\langle \text{AUT,C} \rangle} = 0 \tag{6.57}$$

$$-y^{\text{data}\langle \text{DEU,A} \rangle} + Y^{\langle \text{DEU,A} \rangle} = 0 \tag{6.58}$$

$$-y^{\text{data}\langle \text{DEU,B} \rangle} + Y^{\langle \text{DEU,B} \rangle} = 0 \tag{6.59}$$

$$-y^{\text{data}\langle \text{DEU,C} \rangle} + Y^{\langle \text{DEU,C} \rangle} = 0 \tag{6.60}$$

$$-y^{\text{data}\langle \text{SVN,A} \rangle} + Y^{\langle \text{SVN,A} \rangle} = 0 \tag{6.61}$$

$$-y^{\text{data}\langle \text{SVN,B} \rangle} + Y^{\langle \text{SVN,B} \rangle} = 0 \tag{6.62}$$

$$-y^{\text{data}\langle \text{SVN,C} \rangle} + Y^{\langle \text{SVN,C} \rangle} = 0 \tag{6.63}$$

$$-1 + \beta^{\text{x}\langle \text{AUT,A,A} \rangle} + \beta^{\text{x}\langle \text{AUT,B,A} \rangle} + \beta^{\text{x}\langle \text{AUT,C,A} \rangle} = 0 \tag{6.64}$$

$$-1 + \beta^{\text{x}\langle \text{AUT,A,B} \rangle} + \beta^{\text{x}\langle \text{AUT,B,B} \rangle} + \beta^{\text{x}\langle \text{AUT,C,B} \rangle} = 0 \tag{6.65}$$

$$-1 + \beta^{\text{x}\langle \text{AUT,A,C} \rangle} + \beta^{\text{x}\langle \text{AUT,B,C} \rangle} + \beta^{\text{x}\langle \text{AUT,C,C} \rangle} = 0 \tag{6.66}$$

$$-1 + \beta^{\text{x}\langle \text{DEU,A,A} \rangle} + \beta^{\text{x}\langle \text{DEU,B,A} \rangle} + \beta^{\text{x}\langle \text{DEU,C,A} \rangle} = 0 \tag{6.67}$$

$$-1 + \beta^{\text{x}\langle \text{DEU,A,B} \rangle} + \beta^{\text{x}\langle \text{DEU,B,B} \rangle} + \beta^{\text{x}\langle \text{DEU,C,B} \rangle} = 0 \tag{6.68}$$

$$-1+\beta^{\mathrm{x}\langle \mathrm{DEU,A,C}\rangle}+\beta^{\mathrm{x}\langle \mathrm{DEU,B,C}\rangle}+\beta^{\mathrm{x}\langle \mathrm{DEU,C,C}\rangle}=0 \tag{6.69}$$

$$-1+\beta^{\mathrm{x}\langle \mathrm{SVN,A,A}\rangle}+\beta^{\mathrm{x}\langle \mathrm{SVN,B,A}\rangle}+\beta^{\mathrm{x}\langle \mathrm{SVN,C,A}\rangle}=0 \tag{6.70}$$

$$-1+\beta^{\mathrm{x}\langle \mathrm{SVN,A,B}\rangle}+\beta^{\mathrm{x}\langle \mathrm{SVN,B,B}\rangle}+\beta^{\mathrm{x}\langle \mathrm{SVN,C,B}\rangle}=0 \tag{6.71}$$

$$-1+\beta^{\mathrm{x}\langle \mathrm{SVN,A,C}\rangle}+\beta^{\mathrm{x}\langle \mathrm{SVN,B,C}\rangle}+\beta^{\mathrm{x}\langle \mathrm{SVN,C,C}\rangle}=0 \tag{6.72}$$

$$-1+\eta^{\mathrm{k}\langle \mathrm{AUT,A}\rangle}+\eta^{\mathrm{l}\langle \mathrm{AUT,A}\rangle}+\eta^{\mathrm{x}\langle \mathrm{AUT,A}\rangle}=0 \tag{6.73}$$

$$-1+\eta^{\mathrm{k}\langle \mathrm{AUT,B}\rangle}+\eta^{\mathrm{l}\langle \mathrm{AUT,B}\rangle}+\eta^{\mathrm{x}\langle \mathrm{AUT,B}\rangle}=0 \tag{6.74}$$

$$-1+\eta^{\mathrm{k}\langle \mathrm{AUT,C}\rangle}+\eta^{\mathrm{l}\langle \mathrm{AUT,C}\rangle}+\eta^{\mathrm{x}\langle \mathrm{AUT,C}\rangle}=0 \tag{6.75}$$

$$-1+\eta^{\mathrm{k}\langle \mathrm{DEU,A}\rangle}+\eta^{\mathrm{l}\langle \mathrm{DEU,A}\rangle}+\eta^{\mathrm{x}\langle \mathrm{DEU,A}\rangle}=0 \tag{6.76}$$

$$-1+\eta^{\mathrm{k}\langle \mathrm{DEU,B}\rangle}+\eta^{\mathrm{l}\langle \mathrm{DEU,B}\rangle}+\eta^{\mathrm{x}\langle \mathrm{DEU,B}\rangle}=0 \tag{6.77}$$

$$-1+\eta^{\mathrm{k}\langle \mathrm{DEU,C}\rangle}+\eta^{\mathrm{l}\langle \mathrm{DEU,C}\rangle}+\eta^{\mathrm{x}\langle \mathrm{DEU,C}\rangle}=0 \tag{6.78}$$

$$-1+\eta^{\mathrm{k}\langle \mathrm{SVN,A}\rangle}+\eta^{\mathrm{l}\langle \mathrm{SVN,A}\rangle}+\eta^{\mathrm{x}\langle \mathrm{SVN,A}\rangle}=0 \tag{6.79}$$

$$-1+\eta^{\mathrm{k}\langle \mathrm{SVN,B}\rangle}+\eta^{\mathrm{l}\langle \mathrm{SVN,B}\rangle}+\eta^{\mathrm{x}\langle \mathrm{SVN,B}\rangle}=0 \tag{6.80}$$

$$-1+\eta^{\mathrm{k}\langle \mathrm{SVN,C}\rangle}+\eta^{\mathrm{l}\langle \mathrm{SVN,C}\rangle}+\eta^{\mathrm{x}\langle \mathrm{SVN,C}\rangle}=0 \tag{6.81}$$

$$-1+\pi^{\mathrm{h}\langle \mathrm{AUT},1\rangle}+\pi^{\mathrm{h}\langle \mathrm{AUT},2\rangle}+\pi^{\mathrm{h}\langle \mathrm{AUT},3\rangle}=0 \tag{6.82}$$

$$-1+\pi^{\mathrm{h}\langle \mathrm{DEU},1\rangle}+\pi^{\mathrm{h}\langle \mathrm{DEU},2\rangle}+\pi^{\mathrm{h}\langle \mathrm{DEU},3\rangle}=0 \tag{6.83}$$

$$-1+\pi^{\mathrm{h}\langle \mathrm{SVN},1\rangle}+\pi^{\mathrm{h}\langle \mathrm{SVN},2\rangle}+\pi^{\mathrm{h}\langle \mathrm{SVN},3\rangle}=0 \tag{6.84}$$

$$-1+\alpha^{\langle \mathrm{AUT,A,1}\rangle^{\omega}}+\alpha^{\langle \mathrm{AUT,B,1}\rangle^{\omega}}+\alpha^{\langle \mathrm{AUT,C,1}\rangle^{\omega}}=0 \tag{6.85}$$

$$-1+\alpha^{\langle \mathrm{AUT,A,2}\rangle^{\omega}}+\alpha^{\langle \mathrm{AUT,B,2}\rangle^{\omega}}+\alpha^{\langle \mathrm{AUT,C,2}\rangle^{\omega}}=0 \tag{6.86}$$

$$-1+\alpha^{\langle \mathrm{AUT,A,3}\rangle^{\omega}}+\alpha^{\langle \mathrm{AUT,B,3}\rangle^{\omega}}+\alpha^{\langle \mathrm{AUT,C,3}\rangle^{\omega}}=0 \tag{6.87}$$

$$-1+\alpha^{\langle \mathrm{DEU,A,1}\rangle^{\omega}}+\alpha^{\langle \mathrm{DEU,B,1}\rangle^{\omega}}+\alpha^{\langle \mathrm{DEU,C,1}\rangle^{\omega}}=0 \tag{6.88}$$

$$-1+\alpha^{\langle \mathrm{DEU,A,2}\rangle^{\omega}}+\alpha^{\langle \mathrm{DEU,B,2}\rangle^{\omega}}+\alpha^{\langle \mathrm{DEU,C,2}\rangle^{\omega}}=0 \tag{6.89}$$

$$-1+\alpha^{\langle \mathrm{DEU,A,3}\rangle^{\omega}}+\alpha^{\langle \mathrm{DEU,B,3}\rangle^{\omega}}+\alpha^{\langle \mathrm{DEU,C,3}\rangle^{\omega}}=0 \tag{6.90}$$

$$-1+\alpha^{\langle \mathrm{SVN,A,1}\rangle^{\omega}}+\alpha^{\langle \mathrm{SVN,B,1}\rangle^{\omega}}+\alpha^{\langle \mathrm{SVN,C,1}\rangle^{\omega}}=0 \tag{6.91}$$

$$-1+\alpha^{\langle \mathrm{SVN,A,2}\rangle^{\omega}}+\alpha^{\langle \mathrm{SVN,B,2}\rangle^{\omega}}+\alpha^{\langle \mathrm{SVN,C,2}\rangle^{\omega}}=0 \tag{6.92}$$

$$-1+\alpha^{\langle \mathrm{SVN,A,3}\rangle^{\omega}}+\alpha^{\langle \mathrm{SVN,B,3}\rangle^{\omega}}+\alpha^{\langle \mathrm{SVN,C,3}\rangle^{\omega}}=0 \tag{6.93}$$