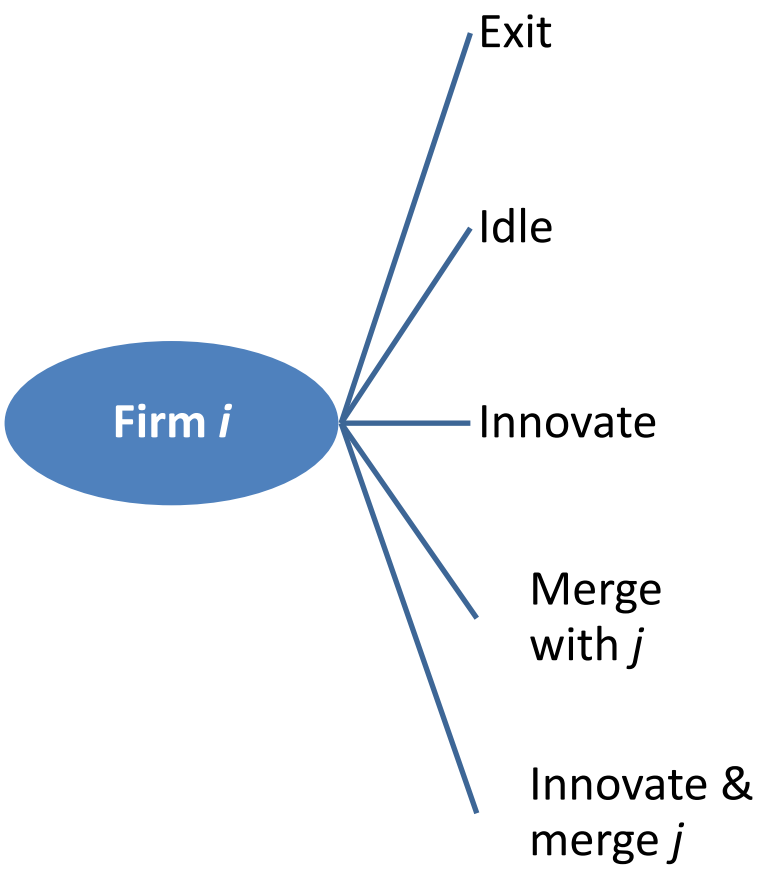
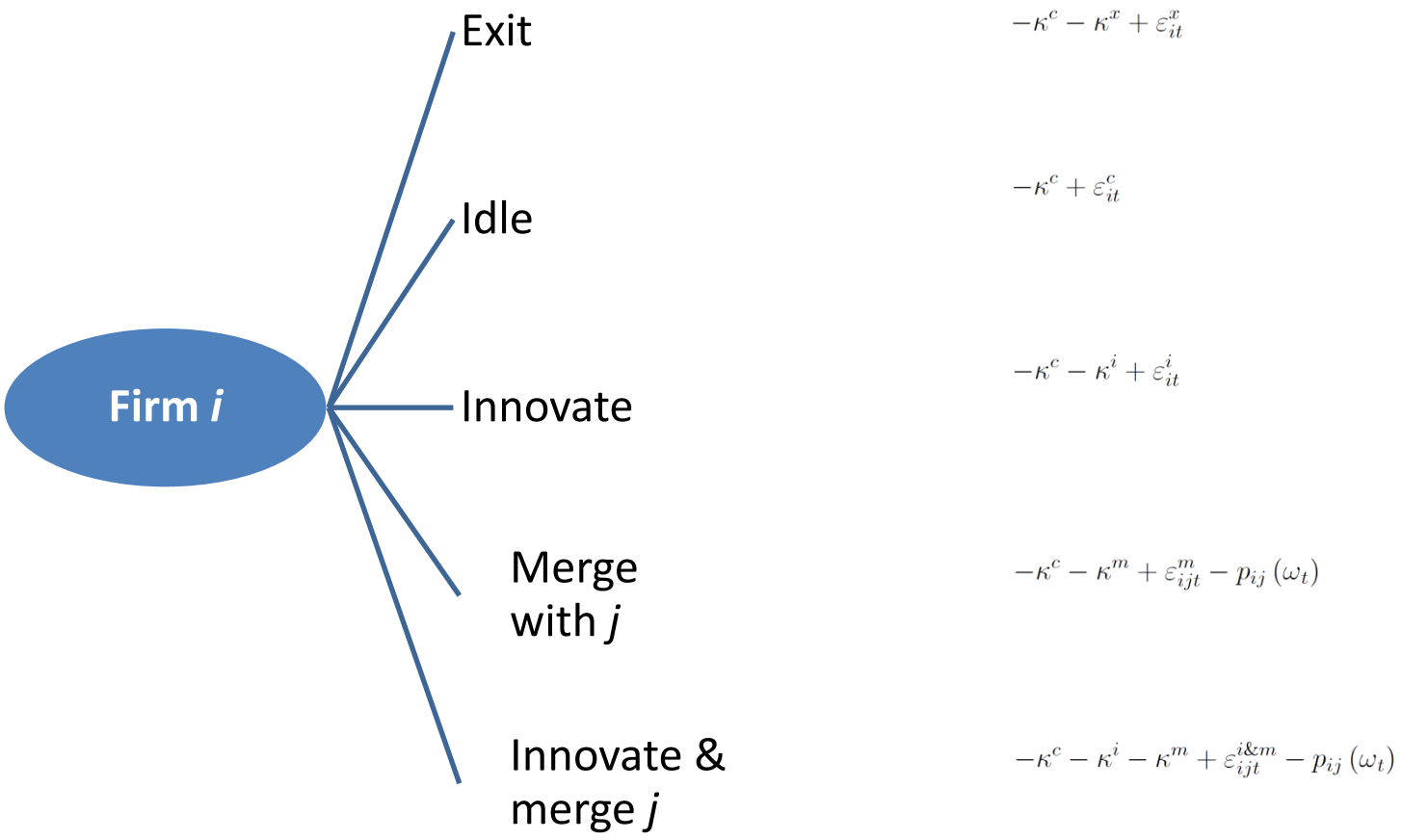
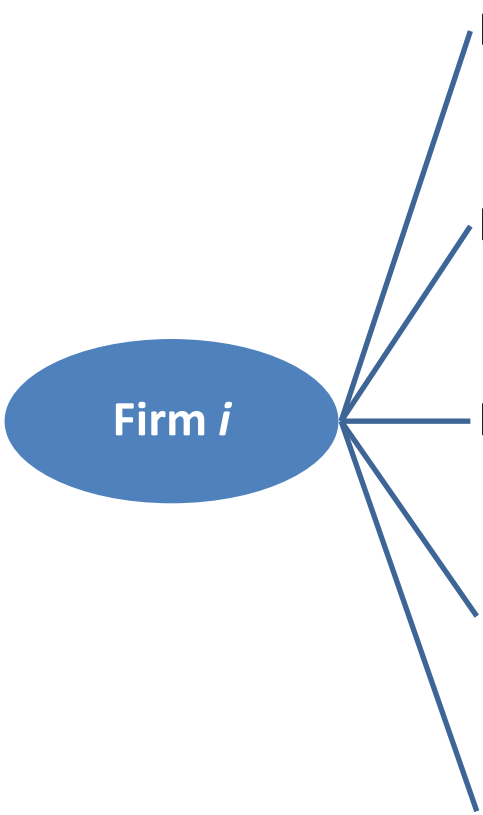
Discrete choice



Discrete choice



Discrete choice



Exit

Idle

Innovate

Merge with *j*

Innovate & merge *j*

Payoff

$$-\kappa^c - \kappa^x + \varepsilon^x_{it} + 0$$

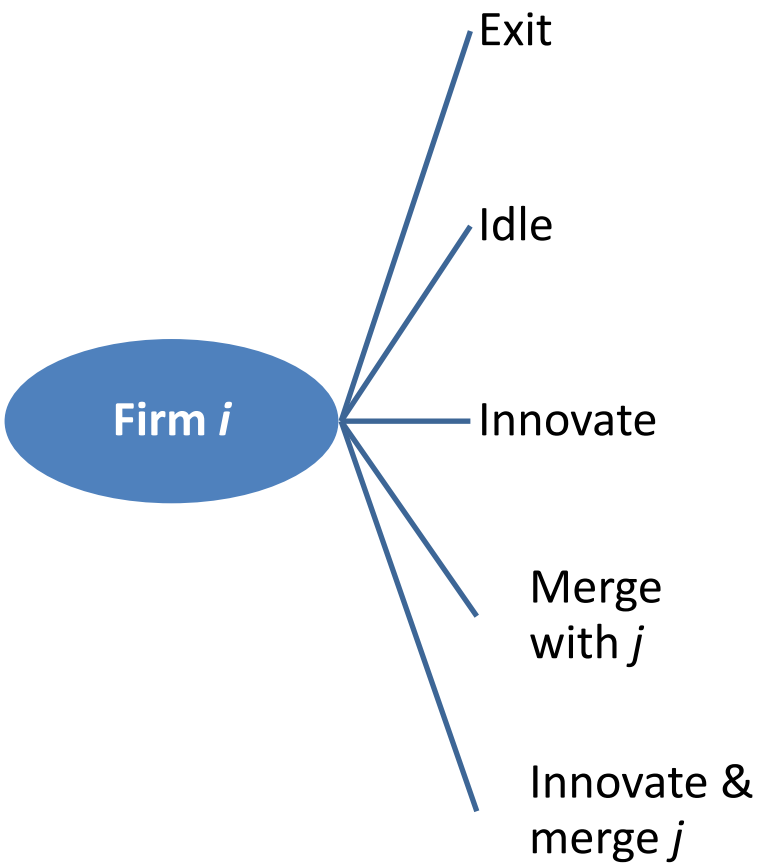
$$-\kappa^c + \varepsilon^c_{it} + \beta E\left[\Lambda_{i,t+1}\left(\omega_{t+1}\right)|idle\right]$$

$$-\kappa^c - \kappa^i + \varepsilon^i_{it} + \beta E\left[\Lambda_{i,t+1}\left(\omega_{t+1}\right)|innovate\right]$$

$$-\kappa^c - \kappa^m + \varepsilon^m_{ijt} - p_{ij}\left(\omega_t\right) + \beta E\left[\Lambda_{i,t+1}\left(\omega_{t+1}\right)|merge\ j\right]$$

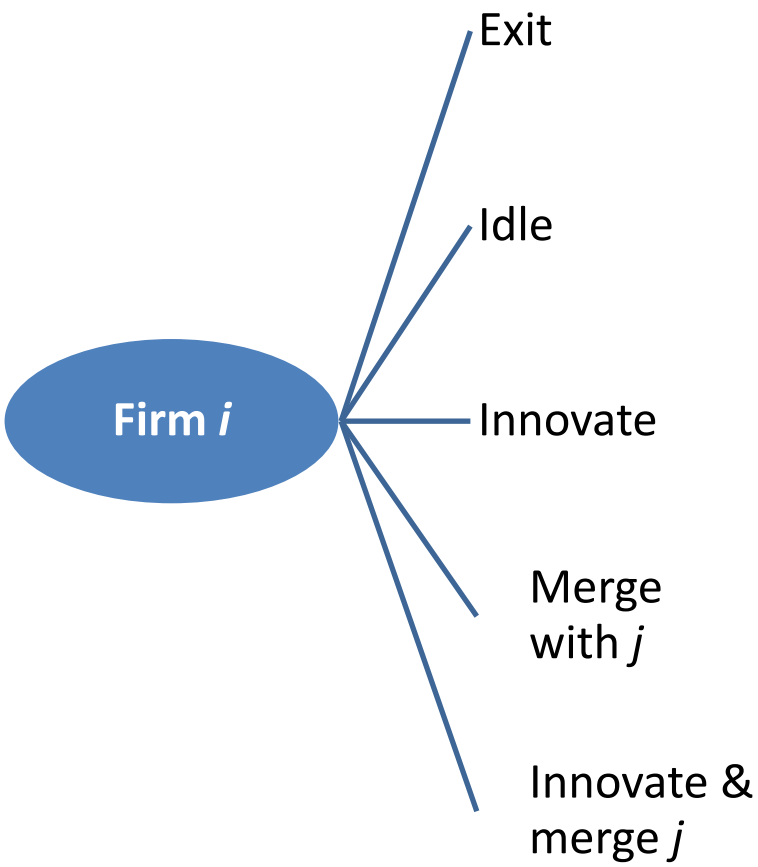
$$-\kappa^c - \kappa^i - \kappa^m + \varepsilon^{i\&m}_{ijt} - p_{ij}\left(\omega_t\right) + \beta E\left[\Lambda_{i,t+1}\left(\omega_{t+1}\right)|i\ \&\ m\right]$$

Discrete choice



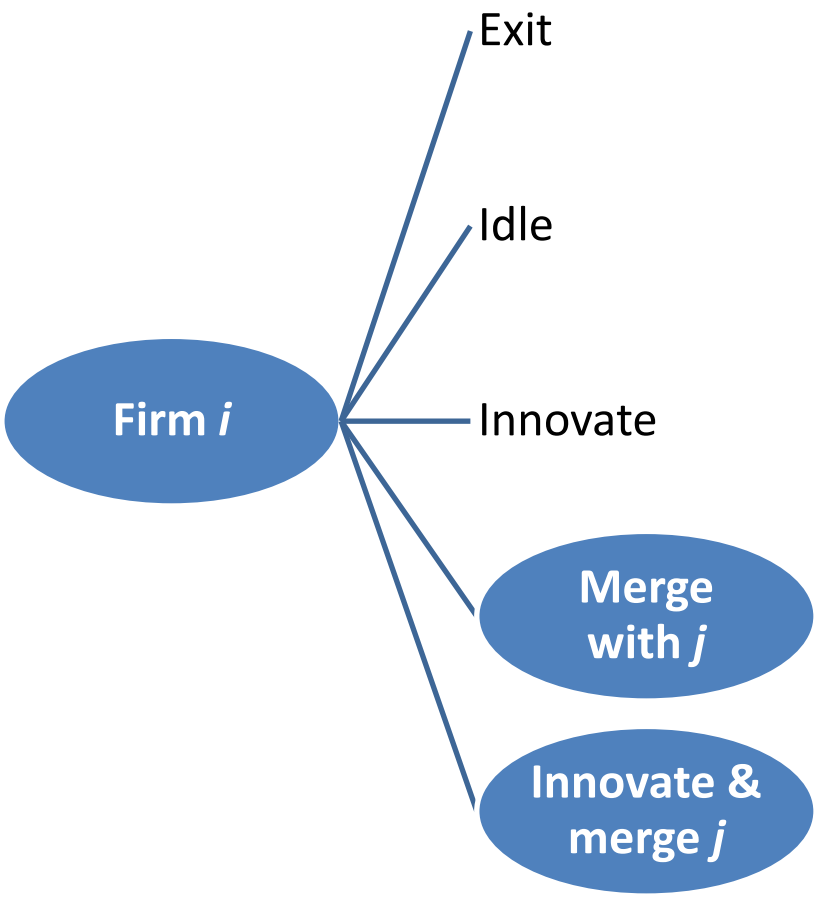
	Payoff	**State transition**
Exit	$-\kappa^c - \kappa^x + \varepsilon_{it}^x + 0$	$\omega_{i,t+1} = \omega_{00}$
Idle	$-\kappa^c + \varepsilon_{it}^c$ $+\beta E\left[\Lambda_{i,t+1}\left(\omega_{t+1}\right)\middle\vert idle\right]$	$\omega_{i,t+1} = \omega_{it}$
Innovate	$-\kappa^c - \kappa^i + \varepsilon_{it}^i$ $+\beta E\left[\Lambda_{i,t+1}\left(\omega_{t+1}\right)\middle\vert innovate\right]$	$\omega_{i,t+1} = \omega_{it} + 1$
Merge with *j*	$-\kappa^c - \kappa^m + \varepsilon_{ijt}^m - p_{ij}\left(\omega_t\right)$ $+\beta E\left[\Lambda_{i,t+1}\left(\omega_{t+1}\right)\middle\vert merge\ j\right]$	$\omega_{i,t+1} = \max\left\{\omega_{it}, \omega_{jt}\right\} + \Delta_{ijt}$
Innovate & merge *j*	$-\kappa^c - \kappa^i - \kappa^m + \varepsilon_{ijt}^{i\&m} - p_{ij}\left(\omega_t\right)$ $+\beta E\left[\Lambda_{i,t+1}\left(\omega_{t+1}\right)\middle\vert i\ \&\ m\right]$	$\omega_{i,t+1} = \max\left\{\omega_{it} + 1, \omega_{jt}\right\} + \Delta_{ijt}$

Dynamic discrete choice



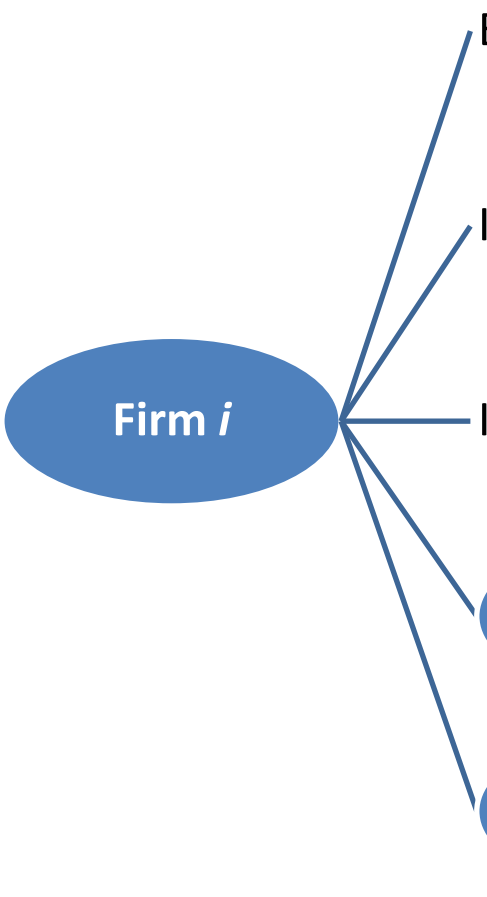
	Payoff	**State transition**
Exit	$-\kappa^c - \kappa^x + \varepsilon^x_{it} + 0$	$\omega_{i,t+1} = \omega_{00}$
Idle	$-\kappa^c + \varepsilon^c_{it} + \beta E\left[\Lambda_{i,t+1}\left(\omega_{t+1}\right)\middle\vert idle\right]$	$\omega_{i,t+1} = \omega_{it}$
Innovate	$-\kappa^c - \kappa^i + \varepsilon^i_{it} + \beta E\left[\Lambda_{i,t+1}\left(\omega_{t+1}\right)\middle\vert innovate\right]$	$\omega_{i,t+1} = \omega_{it} + 1$
Merge with *j*	$-\kappa^c - \kappa^m + \varepsilon^m_{ijt} - p_{ij}\left(\omega_t\right) + \beta E\left[\Lambda_{i,t+1}\left(\omega_{t+1}\right)\middle\vert merge\ j\right]$	$\omega_{i,t+1} = \max\left\{\omega_{it}, \omega_{jt}\right\} + \Delta_{ijt}$
Innovate & merge *j*	$-\kappa^c - \kappa^i - \kappa^m + \varepsilon^{i\&m}_{ijt} - p_{ij}\left(\omega_t\right) + \beta E\left[\Lambda_{i,t+1}\left(\omega_{t+1}\right)\middle\vert i\ \&\ m\right]$	$\omega_{i,t+1} = \max\left\{\omega_{it} + 1, \omega_{jt}\right\} + \Delta_{ijt}$

Dynamic discrete choice



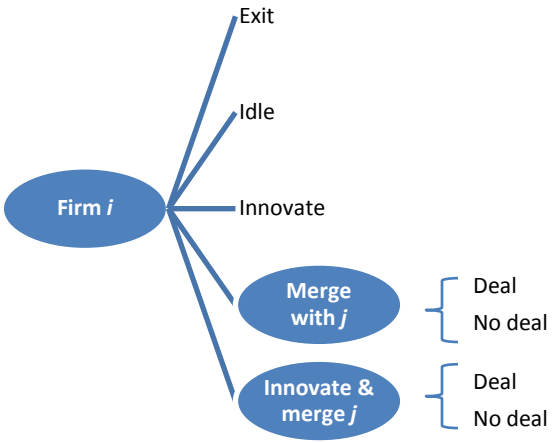
Payoff	**State transition**
$-\kappa^c - \kappa^x + \varepsilon^x_{it} + 0$	$\omega_{i,t+1} = \omega_{00}$
$-\kappa^c + \varepsilon^c_{it}$ $+\beta E\left[\Lambda_{i,t+1}\left(\omega_{t+1}\right)\middle\vert idle\right]$	$\omega_{i,t+1} = \omega_{it}$
$-\kappa^c - \kappa^i + \varepsilon^i_{it}$ $+\beta E\left[\Lambda_{i,t+1}\left(\omega_{t+1}\right)\middle\vert innovate\right]$	$\omega_{i,t+1} = \omega_{it} + 1$
$-\kappa^c - \kappa^m + \varepsilon^m_{ijt} - p_{ij}\left(\omega_t\right)$ $+\beta E\left[\Lambda_{i,t+1}\left(\omega_{t+1}\right)\middle\vert merge\ j\right]$	$\omega_{i,t+1} = \max\left\{\omega_{it}, \omega_{jt}\right\} + \Delta_{ijt}$
$-\kappa^c - \kappa^i - \kappa^m + \varepsilon^{i\&m}_{ijt} - p_{ij}\left(\omega_t\right)$ $+\beta E\left[\Lambda_{i,t+1}\left(\omega_{t+1}\right)\middle\vert i\ \&\ m\right]$	$\omega_{i,t+1} = \max\left\{\omega_{it} + 1, \omega_{jt}\right\} + \Delta_{ijt}$

Dynamic discrete game

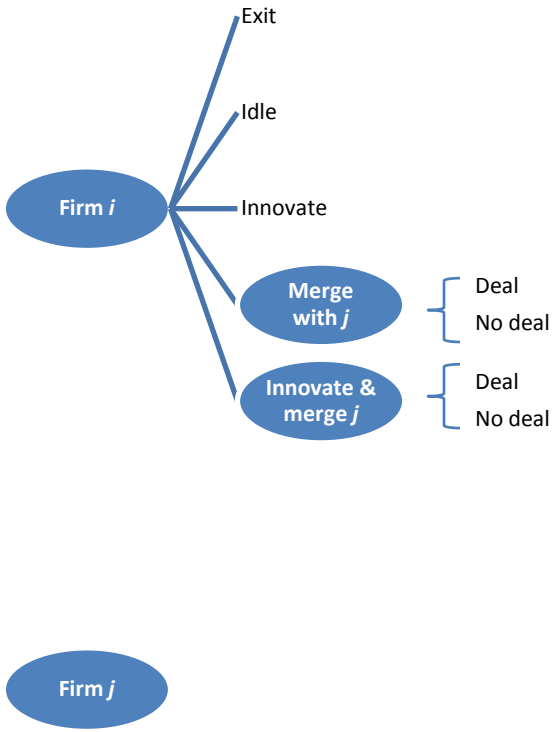


	Payoff	**State transition**
Exit	$-\kappa^c - \kappa^x + \varepsilon^x_{it} + 0$	$\omega_{i,t+1} = \omega_{00}$
Idle	$-\kappa^c + \varepsilon^c_{it}$ $+\beta E\left[\Lambda_{i,t+1}\left(\omega_{t+1}\right)\middle\vert idle\right]$	$\omega_{i,t+1} = \omega_{it}$
Innovate	$-\kappa^c - \kappa^i + \varepsilon^i_{it}$ $+\beta E\left[\Lambda_{i,t+1}\left(\omega_{t+1}\right)\middle\vert innovate\right]$	$\omega_{i,t+1} = \omega_{it} + 1$
Merge with *j*: Deal	$-\kappa^c - \kappa^m + \varepsilon^m_{ijt} - p_{ij}\left(\omega_t\right)$ $+\beta E\left[\Lambda_{i,t+1}\left(\omega_{t+1}\right)\middle\vert merge\ j\right]$	$\omega_{i,t+1} = \max\left\{\omega_{it}, \omega_{jt}\right\} + \Delta_{ijt}$ $\omega_{j,t+1} = \omega_{00}$
Merge with *j*: (No deal)	$\begin{pmatrix} -\kappa^c - \kappa^m + \varepsilon^m_{ijt} \\ +\beta E\left[\Lambda_{i,t+1}\left(\omega_{t+1}\right)\middle\vert idle\right] \end{pmatrix}$	$\begin{pmatrix} \omega_{i,t+1} = \omega_{it} \\ \omega_{j,t+1} = \omega_{jt} \end{pmatrix}$
Innovate & merge *j*: Deal	$-\kappa^c - \kappa^i - \kappa^m + \varepsilon^{i\&m}_{ijt} - p_{ij}\left(\omega_t\right)$ $+\beta E\left[\Lambda_{i,t+1}\left(\omega_{t+1}\right)\middle\vert i\ \&\ m\right]$	$\omega_{i,t+1} = \max\left\{\omega_{it} + 1, \omega_{jt}\right\} + \Delta_{ijt}$ $\omega_{j,t+1} = \omega_{00}$
Innovate & merge *j*: (No deal)	$\begin{pmatrix} -\kappa^c - \kappa^i - \kappa^m + \varepsilon^{i\&m}_{ijt} \\ +\beta E\left[\Lambda_{i,t+1}\left(\omega_{t+1}\right)\middle\vert innovate\right] \end{pmatrix}$	$\begin{pmatrix} \omega_{i,t+1} = \omega_{it} + 1 \\ \omega_{j,t+1} = \omega_{jt} \end{pmatrix}$

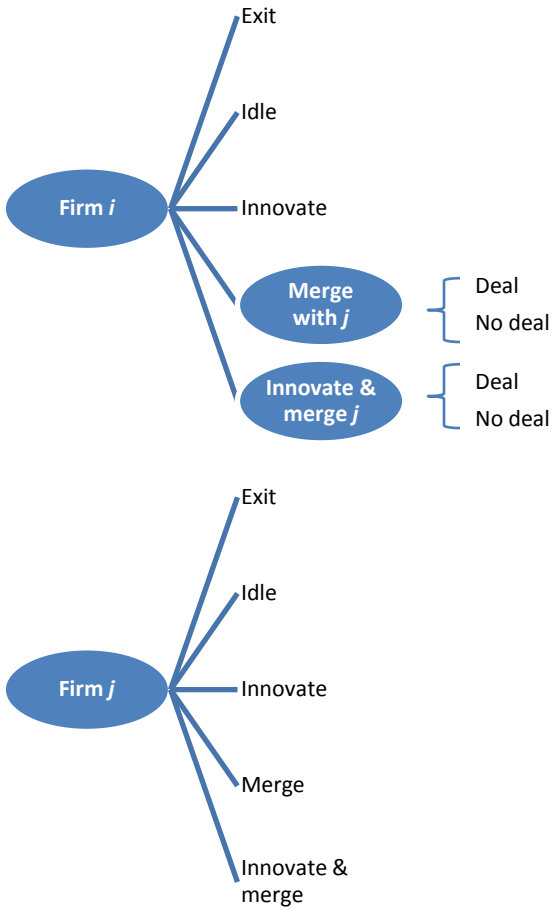
Dynamic discrete game



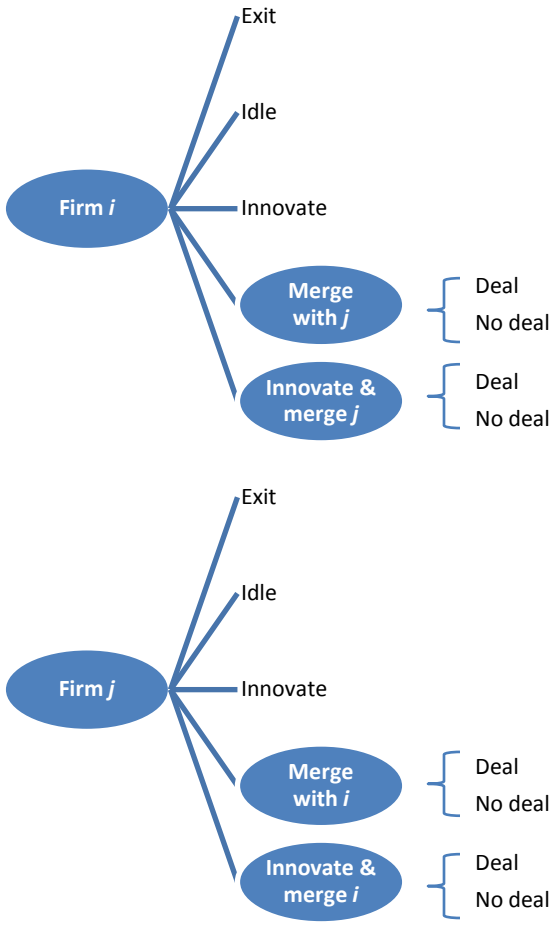
Dynamic discrete game



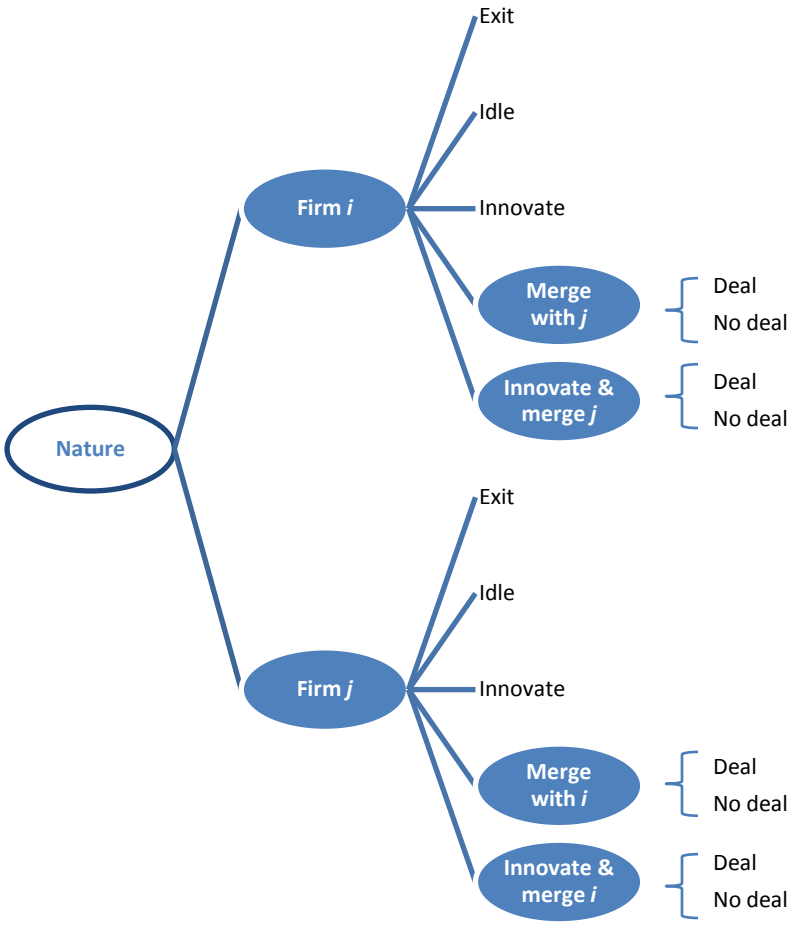
Dynamic discrete game



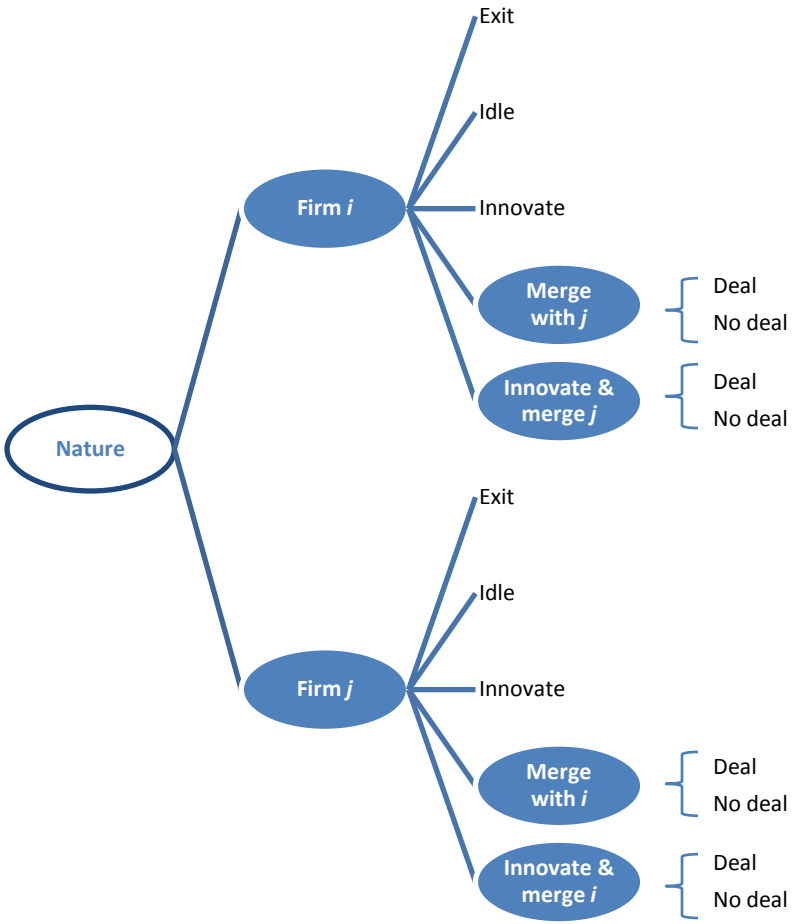
Dynamic discrete game



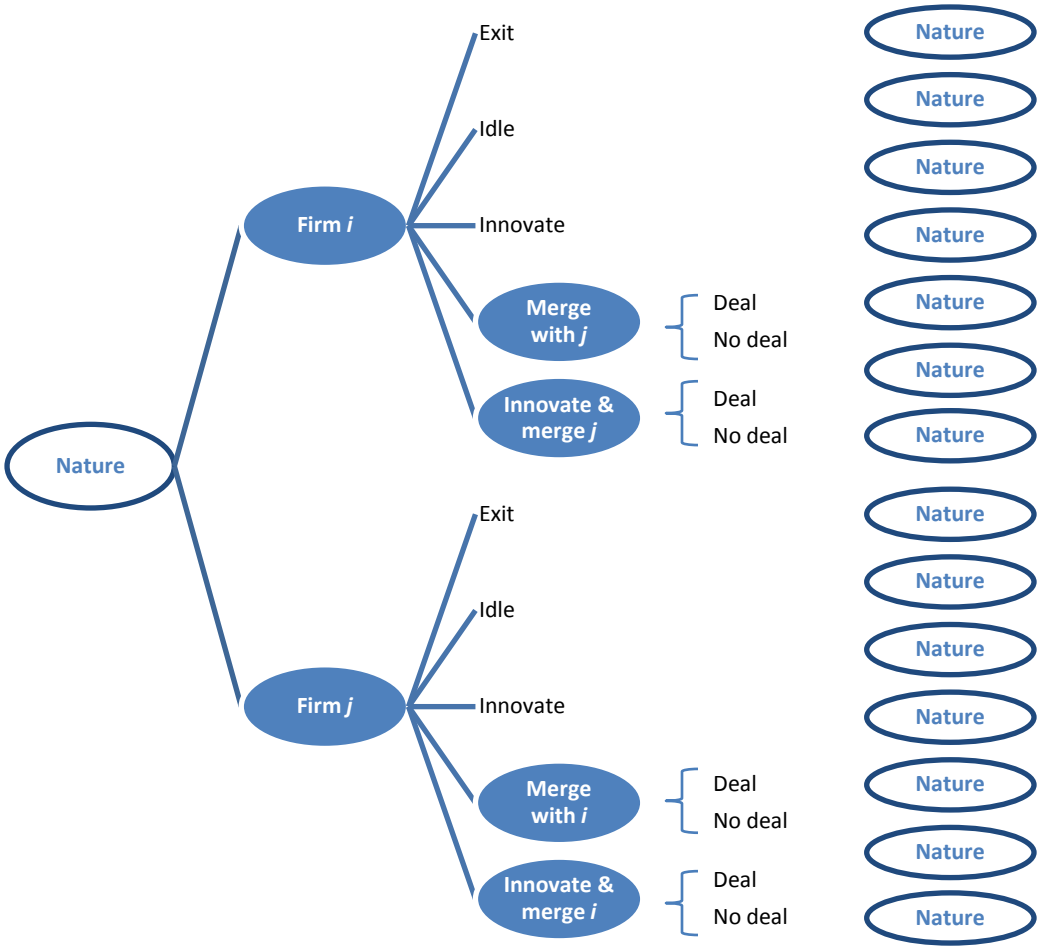
Dynamic discrete game



Random-mover dynamic game



Random-mover dynamic game



Multi-period random-mover dynamic game