$$
\begin{aligned}
N_i &\sim \text{Gamma-Poisson}(\mu, \phi) \\
V_i^{\text{e}} &= \text{EV}(N_i) \\
\lambda_i &= V_i^{\text{e}} + \text{erf}(A_i)\, V_i^{\text{e}}\, (1 - \frac{V_i^{\text{e}}}{N_i}) \\
V_i &\sim \text{Poisson}(\lambda_i)
\end{aligned}
$$

$$
\begin{aligned}
\mu_i &= \beta\, \text{logistic}(A_i) \\
N_i &\sim \text{Gamma-Poisson}(\mu, \phi) \\
V_i^{\text{e}} &= \text{EV}(N_i) \\
\lambda_i &= V_i^{\text{e}} + \text{erf}(A_i)\, V_i^{\text{e}}\, (1 - \frac{V_i^{\text{e}}}{N_i}) \\
V_i &\sim \text{Poisson}(\lambda_i)
\end{aligned}
$$