$$\text{Define}\Big[am_{i,j\to k} = \mathbb{E}_{\{i,j\}\to\{k\}}\Big[(\alpha_i + \alpha_j)\, a_k,\ \big(\mathcal{A}_j^{-1}\, \xi_i + \xi_j\big)\, x_k,\ 1 \Big]_{\$k},$$

$$bm_{i,j\to k} = \mathbb{E}_{\{i,j\}\to\{k\}}\Big[(\beta_i + \beta_j)\, b_k,\ (\eta_i + \eta_j)\, y_k,\ \mathbb{e}^{\left(\mathbb{e}^{-\epsilon\,\beta_i}-1\right)\eta_j\, y_k} \Big]_{\$k} \Big]$$