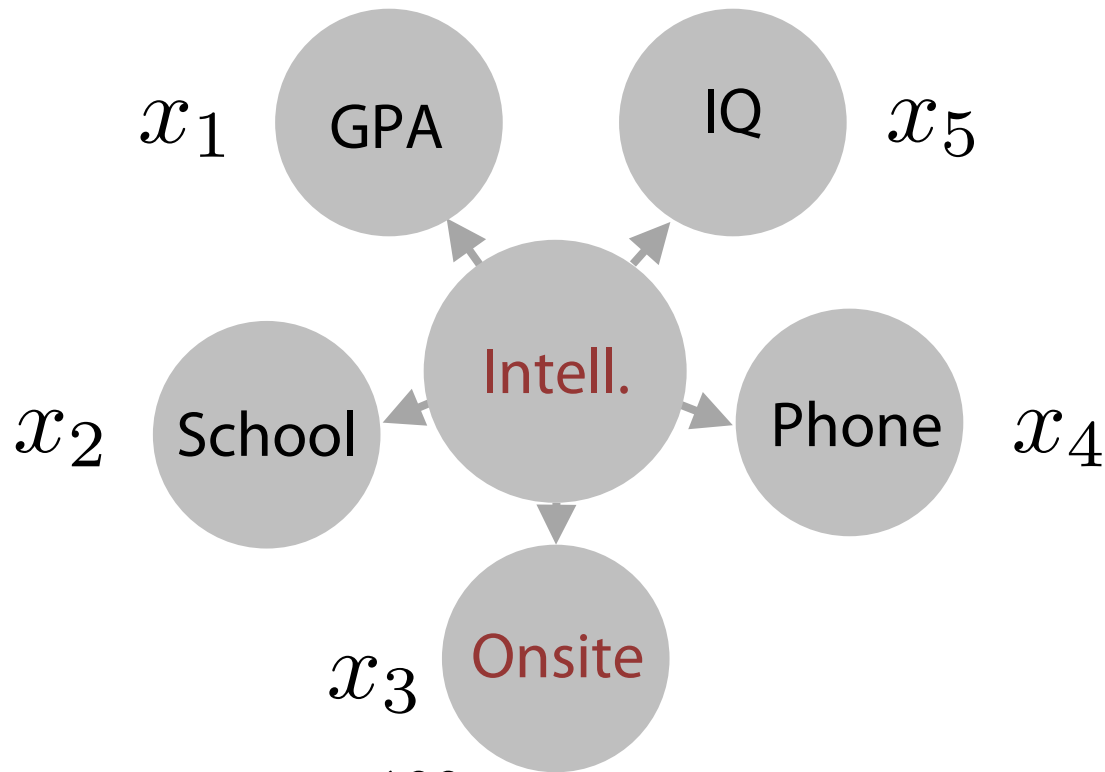# Probabilistic model

$$p(x_1, x_2, x_3, x_4, x_5) = \sum_{I=1}^{100} p(x_1, x_2, x_3, x_4, x_5 \mid I)\, p(I) =$$

$$\sum_{I=1}^{100} p(x_1 \mid I) \dots p(x_5 \mid I)\, p(I)$$