The alternative hypothesis specifies the efficacy rate \( \text{Pr}(\text{Eff}) \) that is deemed efficacious, and the toxicity rate \( \text{Pr}(\text{Tox}) \) that is deemed safe. \( \text{Pr}(\text{Eff} \ & \ \text{Tox}) \) quantifies the correlation between efficacy and toxicity. Setting \( \text{Pr}(\text{Eff} \ & \ \text{Tox}) = \text{Pr}(\text{Eff}) \times \text{Pr}(\text{Tox}) \) means that efficacy and toxicity are independent; setting \( \text{Pr}(\text{Eff} \ & \ \text{Tox}) > \text{Pr}(\text{Eff}) \times \text{Pr}(\text{Tox}) \) means that efficacy and toxicity are positively correlated; and setting \( \text{Pr}(\text{Eff} \ & \ \text{Tox}) < \text{Pr}(\text{Eff}) \times \text{Pr}(\text{Tox}) \) means that efficacy and toxicity are negatively correlated. The default value of \( \text{Pr}(\text{Eff} \ & \ \text{Tox}) \) provided by software is moderately positively correlated.

Note that given the values of \( \text{Pr}(\text{Eff}) \) and \( \text{Pr}(\text{Tox}) \), \( \text{Pr}(\text{Eff} \ & \ \text{Tox}) \) must satisfy the constraint \( \text{Pr}(\text{Eff}) + \text{Pr}(\text{Tox}) - 1 < \text{Pr}(\text{Eff} \ & \ \text{Tox}) < \min\{\text{Pr}(\text{Eff}), \text{Pr}(\text{Tox})\} \). The left-hand side of the constraint is to ensure that \( \text{Pr}(\text{no Eff} \ & \ \text{no Tox}) > 0 \).