RMA adjusted (log) expression value

**RMA Expression levels**

Up Down Probabilities are calculated from the RMA levels

\[
p(x, \text{Up}) = p(\text{Up}) \times f(x \mid a_U, b_U) = \frac{N_U}{N} \times \frac{1}{b_U \Gamma(a_U)} X^{a_U-1} e^{-\frac{x}{b_U}}
\]

\[
p(x, \text{Down}) = p(\text{Down}) \times f(x \mid a_D, b_D) = \frac{N_D}{N} \times \frac{1}{b_D \Gamma(a_D)} X^{a_D-1} e^{-\frac{x}{b_D}}
\]

**Gene A**

**Gene B**

Activity

Interaction Activity = P(GeneA) × P(GeneB)

Consistency


**Gene C**

**Gene E**

**Gene D**

**Gene F**

Pathway Activity = Average(InteractionA + ... + InteractionN)

Pathway Consistency = Average(InteractionA + ... + InteractionN)