Work-rate and accuracy models

Work-rate

The number of strikes, takedowns, submission attempts and other actions
are referred to as the 'work-rates'. While these "rates" may seem fighter-
specific, the ability to prevent one's opponent from attempting techniques is
a crucial skill in itself. This can be through range control or rendering the
opponent unable to attempt techniques through grappling. Consequently,
we allow for an attack and defence parameter in each of these models. With
the help of an appropriate distribution and the parameters, it is possible to
predict the number of actions in a round.

The Poisson distribution is a discrete distribution that calculates the
probability of a certain number of events occurring within a fixed interval.
It has only one parameter, λ, that is equal to both the mean and the variance.

$$\text{SA} \sim Poisson(\gamma_{str} + \lambda_{attack,blue} - \lambda_{defence,red})$$

Accuracy

Next, it is necessary to know the accuracy of each strike, takedown and
other possible actions. Again, we allow for an attack and defence parameter
in each of the accuracy models.

The binomial distribution is a discrete distribution that calculates the
probability of each of the possible number of successes on

$$\text{SL} \sim Binomial_logit(\text{SA}, \gamma_{sta} + \lambda_{attack,blue} - \lambda_{defence,red})$$

logit