

]

Table 3: Summary of skills models

Skill	Model
psr	$PSA \sim \text{NegativeBinomialAlt}(\eta_{psr}, \psi_{psr})$ $\eta_{psr} = \gamma_{psr} + psr_{att} - psr_{def} + \log(ST)$
pgr	$PGA \sim \text{NegativeBinomialAlt}(\eta_{pgr}, \psi_{pgr})$ $\eta_{pgr} = \gamma_{pgr} + pgr_{att} - pgr_{def} + \log(FT)$
esr	$ESA \sim \text{NegativeBinomialAlt}(\eta_{esr}, \psi_{esr})$ $\eta_{esr} = \gamma_{esr} + esr_{att} - esr_{def} + \log(ST)$
egr	$EGA \sim \text{NegativeBinomialAlt}(\eta_{egr}, \psi_{egr})$ $\eta_{egr} = \gamma_{egr} + egr_{att} - egr_{def} + \log(FT)$
kisr	$KISA \sim \text{NegativeBinomialAlt}(\eta_{kisr}, \psi_{kisr})$ $\eta_{kisr} = \gamma_{kisr} + kisr_{att} - kisr_{def} + \log(ST)$
knsr	$KNSA \sim \text{NegativeBinomialAlt}(\eta_{knsr}, \psi_{knsr})$ $\eta_{knsr} = \gamma_{knsr} + knsr_{att} - knsr_{def} + \log(ST)$
tdr	$TDA \sim \text{NegativeBinomialAlt}(\eta_{tdr}, \psi_{tdr})$ $\eta_{tdr} = \gamma_{tdr} + tdr_{att} - tdr_{def} + \log(ST)$
smr	$SMA \sim \text{NegativeBinomial}(\eta_{smr}, \psi_{smr})$ $\eta_{smr} = \gamma_{smr} + smr_{att} - smr_{def} + \log(GRC)$
rvr	$RVL \sim \text{NegativeBinomial}(\eta_{rvr}, \psi_{rvr})$ $\eta_{rvr} = \gamma_{rvr} + rvr_{att} - rvr_{def} + \log(GRC_{opponent})$
sur	$SUL \sim \text{NegativeBinomial}(\eta_{sur}, \psi_{sur})$ $\eta_{sur} = \gamma_{sur} + sur_{att} - sur_{def} + \log(GRC_{opponent})$
psha	$PSHL \sim \text{BetaBinomialAlt}(PSHA, \alpha_{psha}, \psi_{psha})$ $\alpha_{psha} = \gamma_{psha} + psha_{att} - psha_{def}$
pgha	$PGHL \sim \text{BetaBinomialAlt}(PGHA, \alpha_{pgha}, \psi_{pgha})$ $\alpha_{sgha} = \gamma_{pgha} + pgha_{att} - pgha_{def}$
psba	$PSBL \sim \text{BetaBinomialAlt}(PSBA, \alpha_{psba}, \psi_{psba})$ $\alpha_{psba} = \gamma_{psba} + psba_{att} - psba_{def}$
pgba	$PGBL \sim \text{BetaBinomialAlt}(PGBA, \alpha_{pgba}, \psi_{pgba})$ $\alpha_{pgba} = \gamma_{pgba} + pgba_{att} - pgba_{def}$
esha	$ESHL \sim \text{BetaBinomialAlt}(ESHA, \alpha_{esha}, \psi_{esha})$ $\alpha_{esha} = \gamma_{esha} + esha_{att} - esha_{def}$
egha	$EGHL \sim \text{BetaBinomialAlt}(EGHA, \alpha_{egha}, \psi_{egha})$ $\alpha_{egha} = \gamma_{egha} + egha_{att} - egha_{def}$
esba	$ESBL \sim \text{BetaBinomialAlt}(ESBA, \alpha_{esba}, \psi_{esba})$ $\alpha_{esba} = \gamma_{esba} + esba_{att} - esba_{def}$
egba	$EGBL \sim \text{BetaBinomialAlt}(EGBA, \alpha_{egba}, \psi_{egba})$

	$\alpha_{egba} = \gamma_{egba} + egba_{att} - egba_{def}$
kisha	$KISHL \sim BetaBinomialAlt(KISHA, \alpha_{kisha}, \psi_{kisha})$
	$\alpha_{kisha} = \gamma_{kisha} + kisha_{att} - kisha_{def}$
kisba	$KISBL \sim BetaBinomialAlt(KISBA, \alpha_{kisba}, \psi_{kisba})$
	$\alpha_{kisba} = \gamma_{kisba} + kisba_{att} - kisba_{def}$
knsha	$KNSHL \sim BetaBinomialAlt(KNSHA, \alpha_{knsha}, \psi_{knsha})$
	$\alpha_{knsha} = \gamma_{knsha} + knsha_{att} - knsha_{def}$
knsha	$KNSBL \sim BetaBinomialAlt(KNSBA, \alpha_{knsha}, \psi_{knsha})$
	$\alpha_{knsha} = \gamma_{knsha} + knsha_{att} - knsha_{def}$
tda	$TDL \sim BetaBinomialAlt(TDA, \alpha_{tda}, \psi_{tda})$
	$\alpha_{tda} = \gamma_{tda} + tda_{att} - tda_{def}$
sma	$SML \sim BetaBinomialAlt(SMA, \alpha_{sma}, \psi_{sma})$
	$\alpha_{sma} = \gamma_{sma} + sma_{att} - sma_{def}$
pskd	$KDL \sim BetaBinomialAlt(PSHL, \alpha_{pskd}, \psi_{pskd})$
	$\alpha_{pskd} = \gamma_{pskd} + pskd_{att} - pskd_{def}$
psko	$KOL \sim BetaBinomialAlt(PSHL, \alpha_{psko}, \psi_{psko})$
	$\alpha_{psko} = \gamma_{psko} + psko_{att} - psko_{def}$
pgko	$KOL \sim BetaBinomialAlt(PGHL, \alpha_{pgko}, \psi_{pgko})$
	$\alpha_{pgko} = \gamma_{pgko} + pgko_{att} - pgko_{def}$
eskd	$KDL \sim BetaBinomialAlt(ESHL, \alpha_{eskd}, \psi_{eskd})$
	$\alpha_{eskd} = \gamma_{eskd} + eskd_{att} - eskd_{def}$
esko	$KOL \sim BetaBinomialAlt(ESHL, \alpha_{esko}, \psi_{esko})$
	$\alpha_{esko} = \gamma_{esko} + esko_{att} - esko_{def}$
egko	$KOL \sim BetaBinomialAlt(EGHL, \alpha_{egko}, \psi_{egko})$
	$\alpha_{egko} = \gamma_{egko} + egko_{att} - egko_{def}$
kiskd	$KDL \sim BetaBinomialAlt(KISHL, \alpha_{kiskd}, \psi_{kiskd})$
	$\alpha_{kiskd} = \gamma_{kiskd} + kiskd_{att} - kiskd_{def}$
kisko	$KOL \sim BetaBinomialAlt(KISHL, \alpha_{kisko}, \psi_{kisko})$
	$\alpha_{kisko} = \gamma_{kisko} + kisko_{att} - kisko_{def}$
knskd	$KDL \sim BetaBinomialAlt(KNSHL, \alpha_{knskd}, \psi_{knskd})$
	$\alpha_{knskd} = \gamma_{knskd} + knskd_{att} - knskd_{def}$
knsko	$KOL \sim BetaBinomialAlt(KNSHL, \alpha_{knsko}, \psi_{knsko})$
	$\alpha_{knsko} = \gamma_{knsko} + knsko_{att} - knsko_{def}$
pst	$PSHA \sim BetaBinomialAlt(PSA, \alpha_{pst}, \psi_{pst})$
	$\alpha_{pst} = \gamma_{psht} + pst_{att} - pst_{def}$
pgt	$PGHA \sim BetaBinomialAlt(PGA, \alpha_{pgr}, \psi_{pgt})$
	$\alpha_{pgt} = \gamma_{pgt} + pgt_{att} - pgt_{def}$
est	$ESHA \sim BetaBinomialAlt(ESA, \alpha_{est}, \psi_{est})$
	$\alpha_{est} = \gamma_{esht} + est_{att} - est_{def}$

egt	$EGHA \sim BetaBinomialAlt(EGA, \alpha_{egr}, \psi_{egt})$ $\alpha_{egt} = \gamma_{egt} + egt_{att} - egt_{def}$
kist	$KISHA \sim BetaBinomialAlt(KISA, \alpha_{kist}, \psi_{kist})$ $\alpha_{kist} = \gamma_{kisht} + kist_{att} - kist_{def}$
knst	$KNSHA \sim BetaBinomialAlt(KNSA, \alpha_{knst}, \psi_{knst})$ $\alpha_{knst} = \gamma_{knsht} + knst_{att} - knst_{def}$

---

Table 1: Summary of variables

Variable	Definition
EGA	Ground elbows attempted
EGBA	Ground elbows at body attempted
EGBL	Ground elbows at body landed
EGHA	Ground elbows at head attempted
EGHL	Ground elbows at head landed
ESA	Standing elbows attempted
ESBA	Standing elbows at body attempted
ESBL	Standing elbows at body landed
ESHA	Standing elbows at head attempted
ESHL	Standing elbows at head landed
FT	Time on ground and opponent not in control (in seconds)
GRC	Time on ground and fighter in control (in seconds)
KDL	Knockdowns landed
KOL	Knockouts landed
KISA	Standing kicks attempted
KIBA	Standing kicks at body attempted
KIBL	Standing kicks at body landed
KIHA	Standing kicks at head attempted
KIHL	Standing kicks at head landed
KNSA	Standing knees attempted
KNBA	Standing knees at body attempted
KNBL	Standing knees at body landed
KNHA	Standing knees at head attempted
KNHL	Standing knees at head landed
PGA	Ground punches attempted
PGBA	Ground punches at body attempted
PGBL	Ground punches at body landed
PGHA	Ground punches at head attempted
PGHL	Ground punches at head landed
PSA	Standing punches attempted
PSBA	Standing punches at body attempted
PSBL	Standing punches at body landed
PSHA	Standing punches at head attempted
PSHL	Standing punches at head landed
RVL	Reversals landed
SMA	Submissions attempted
SML	Submissions landed
ST	Time standing and opponent not in control (in seconds)
SUL	Standups landed
TDA	Takedowns attempted
TDL	Takedowns landed

Table 2: Overview of skill models

Skill	Abbreviation	Category
standing punches rate	psr	striking rate
ground punches rate	pgr	striking rate
standing elbows rate	esr	striking rate
ground elbows rate	sgr	striking rate
standing kicks rate	kisr	striking rate
standing knees rate	knsr	striking rate
takedown rate	tdr	grappling rate
submission rate	smr	grappling rate
reversal rate	rvr	grappling rate
standup rate	sur	grappling rate
standing punches head accuracy	psha	striking accuracy
ground punches head accuracy	pgha	striking accuracy
standing punches body accuracy	psba	striking accuracy
ground punches body accuracy	pgba	striking accuracy
standing elbows head accuracy	esha	striking accuracy
ground elbows head accuracy	egha	striking accuracy
standing elbows body accuracy	esba	striking accuracy
ground elbows body accuracy	egba	striking accuracy
standing kicks head accuracy	kisha	striking accuracy
standing kicks body accuracy	kisba	striking accuracy
standing knees head accuracy	knsha	striking accuracy
standing knees body accuracy	knsba	striking accuracy
takedown accuracy	tda	grappling accuracy
submission accuracy	sma	grappling accuracy
knockdown from punch	pskd	knockdowns and knockouts
standing knockout from punch	psko	knockdowns and knockouts
ground knockout from punch	pgko	knockdowns and knockouts
knockdown from elbow	eskd	knockdowns and knockouts
standing knockout from elbow	esko	knockdowns and knockouts
ground knockout from elbow	egko	knockdowns and knockouts
knockdown from kick	kiskd	knockdowns and knockouts
standing knockout from kick	kisko	knockdowns and knockouts
knockdown from knee	knskd	knockdowns and knockouts
standing knockout from knee	knsko	knockdowns and knockouts
standing punches target	pst	striking target
ground punches target	pgt	striking target
standing elbows target	est	striking target
ground elbows target	egt	striking target
standing kicks target	kist	striking target
standing knees target	knst	striking target