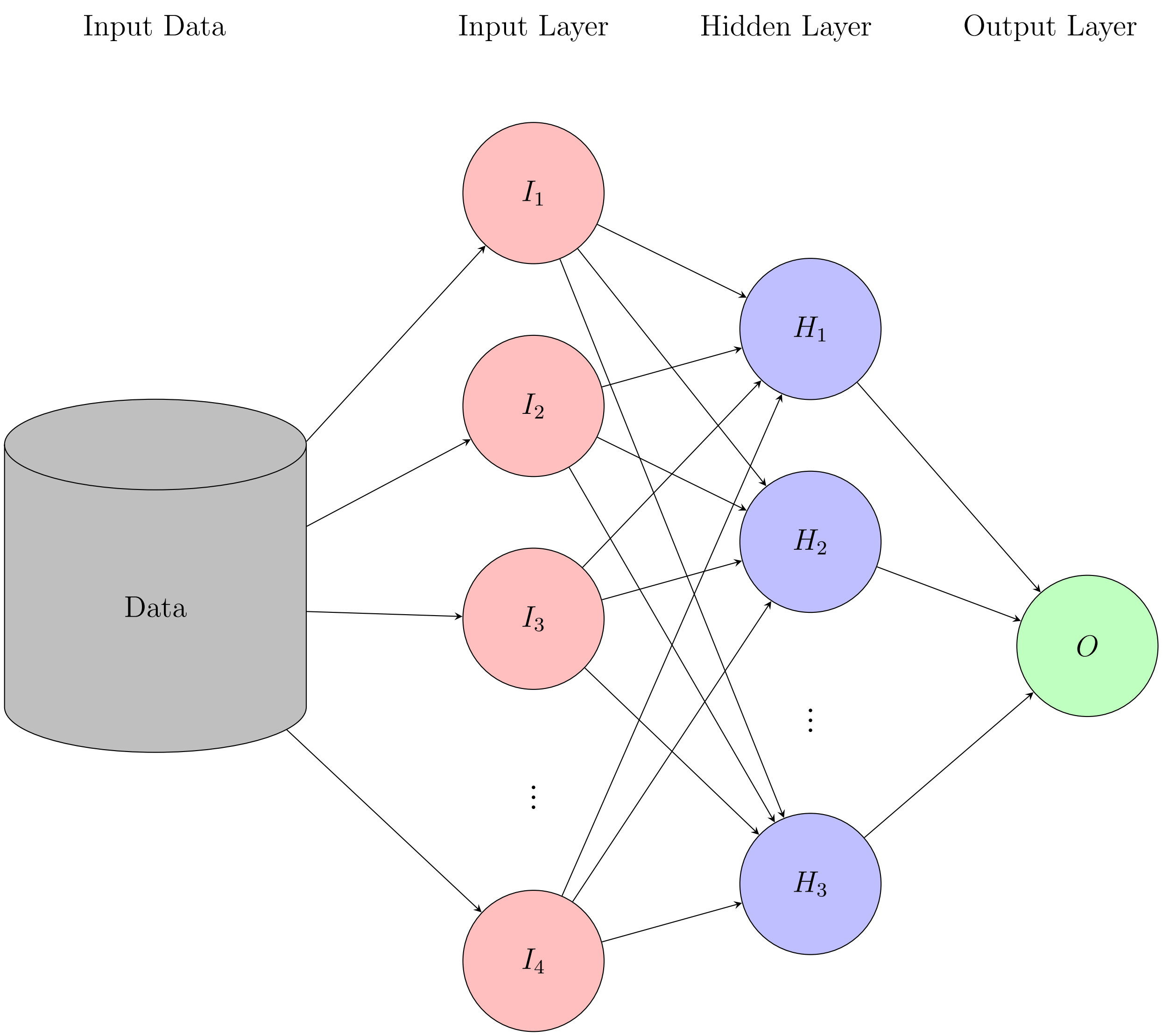
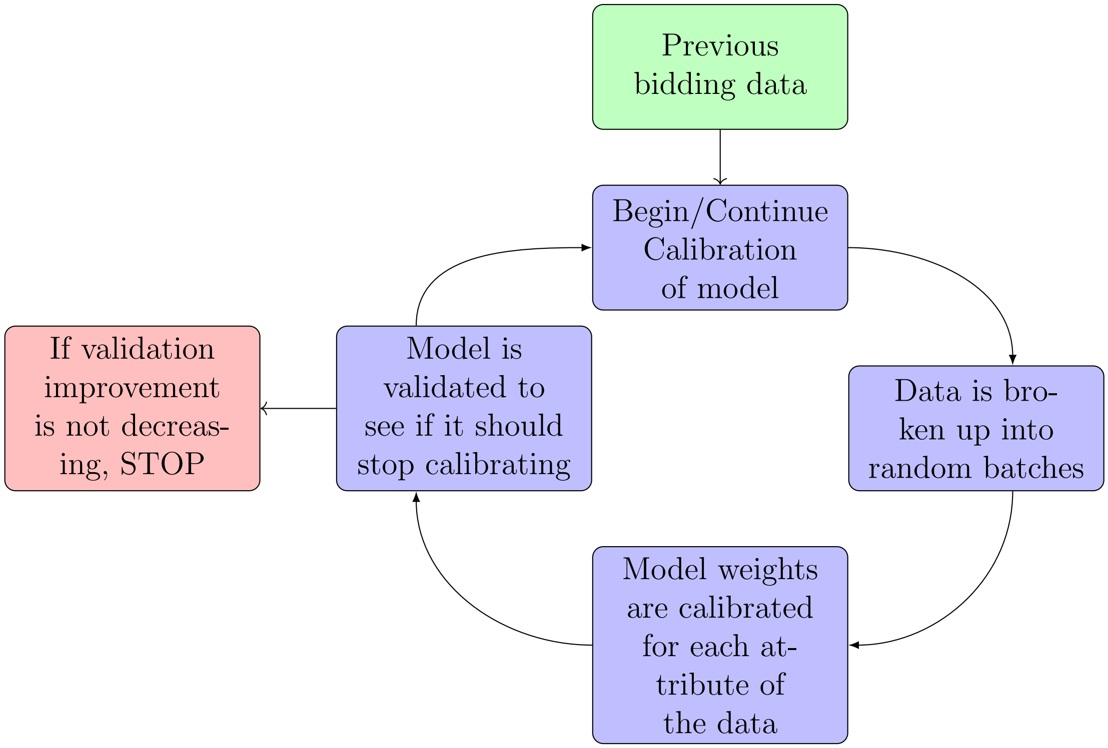
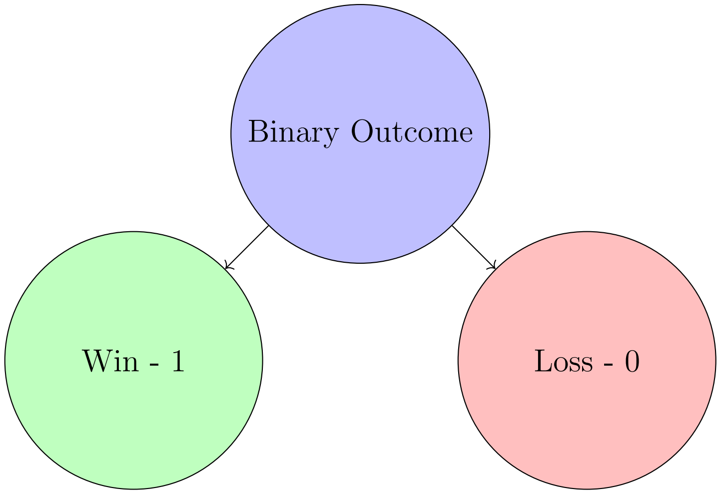
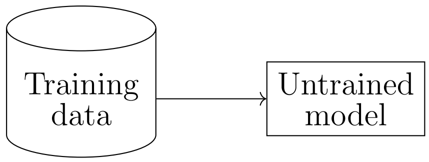

Input Data
Input Layer
Hidden Layer
Output Layer
Data
I_1
I_2
I_3
I_4
H_1
H_2
H_3
O


Previous
bidding data
Begin/Continue
Calibration
of model
Data is bro-
ken up into
random batches
Model weights
are calibrated
for each at-
tribute of
the data
Model is
validated to
see if it should
stop calibrating
If validation
improvement
is not decreas-
ing, STOP


Binary Outcome
Win - 1
Loss - 0

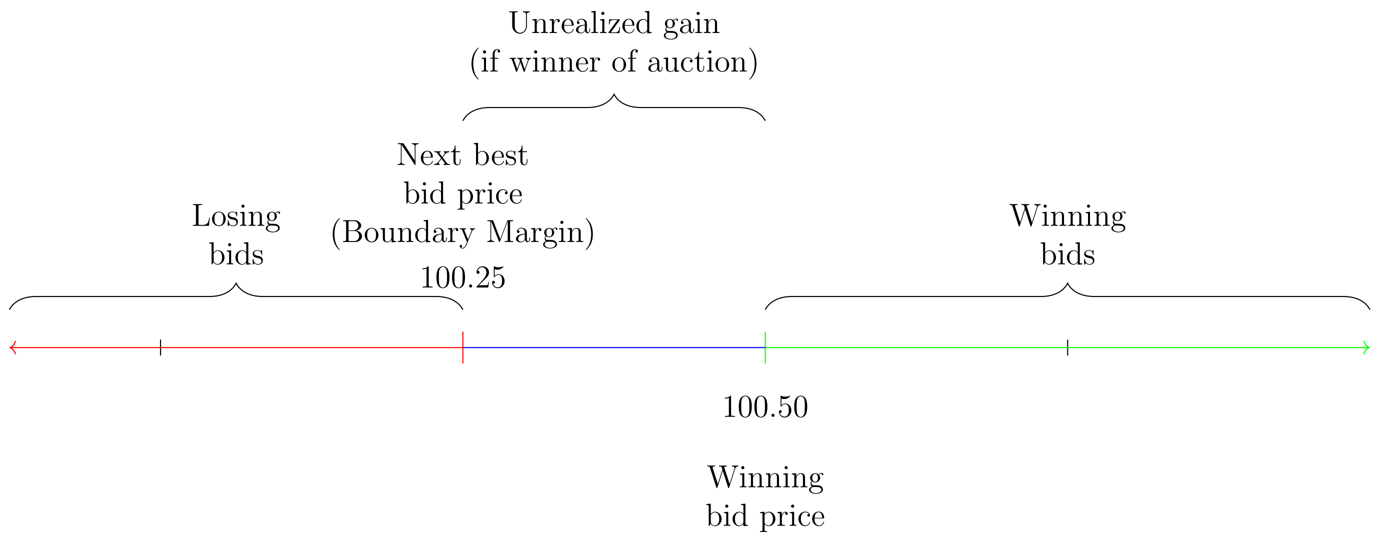
$$
\begin{aligned}
\min\ & c^\top x \\
s.t.\ & Ax = b \\
& x \geq 0.
\end{aligned}
$$

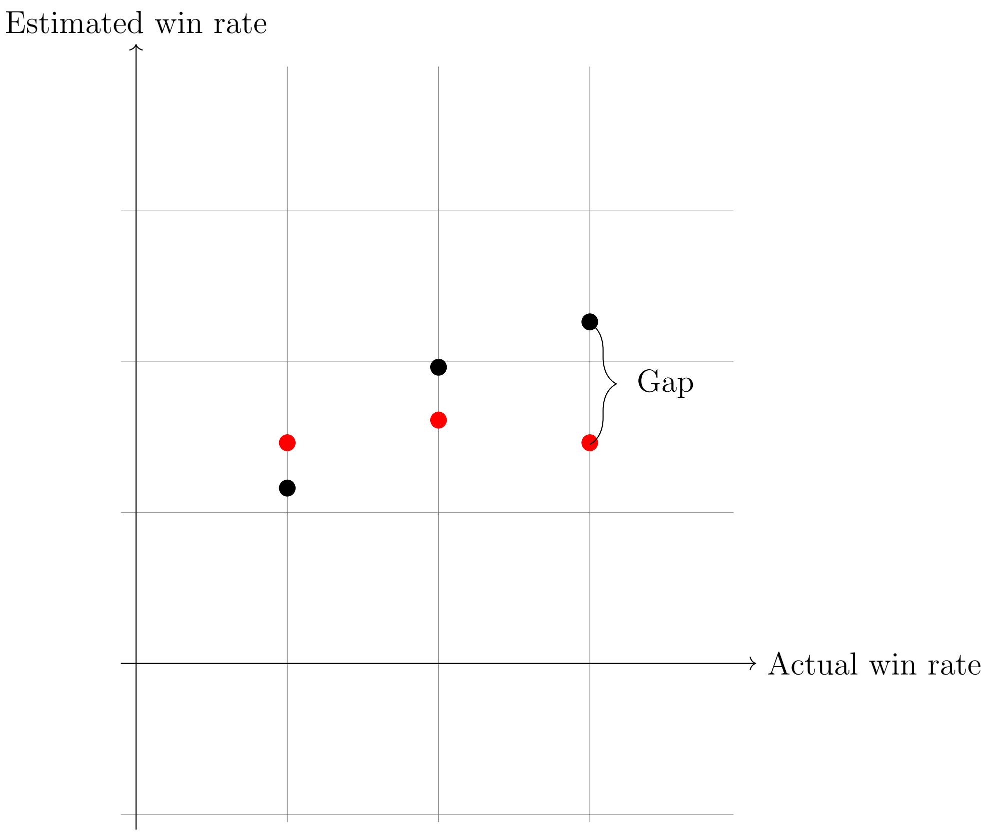


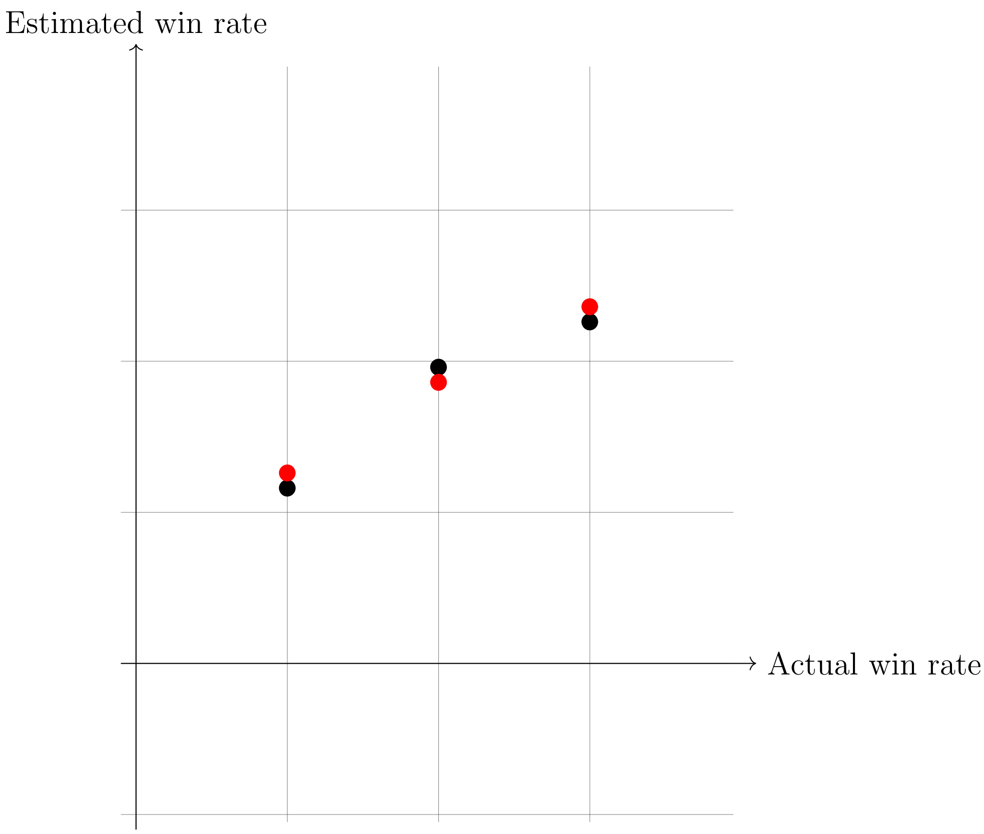
Step 1: Large amount of previous bidding data is fed to the model.

Step 2: The model learns the optimal weights from the data.

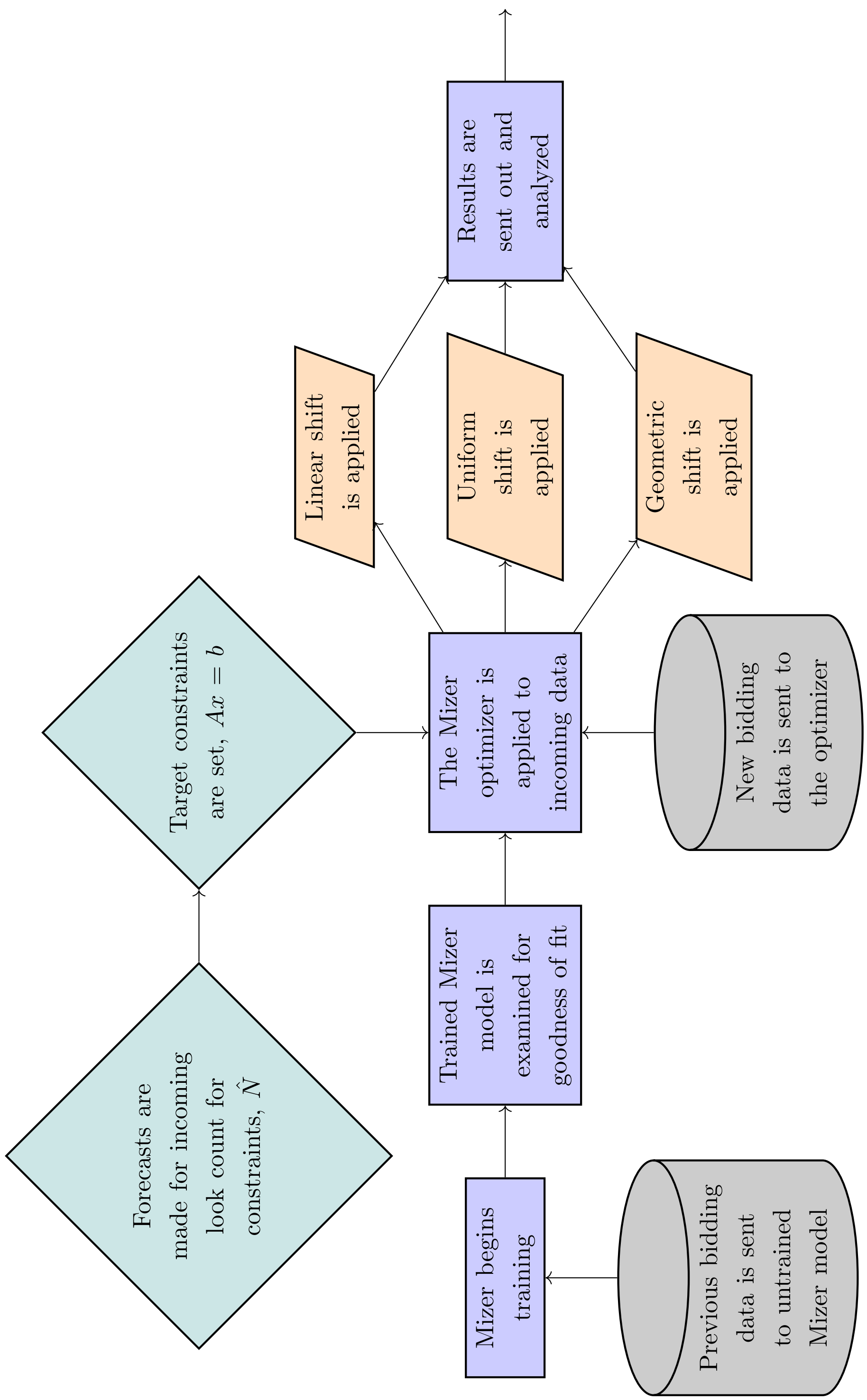
$$
\begin{aligned}
\min\ & c^\top x \\
s.t.\ & Ax = b \\
& x \geq 0.
\end{aligned}
$$


Unrealized gain
(if winner of auction)
Next best
bid price
(Boundary Margin)
100.25
Losing
bids
Winning
bids
100.50
Winning
bid price

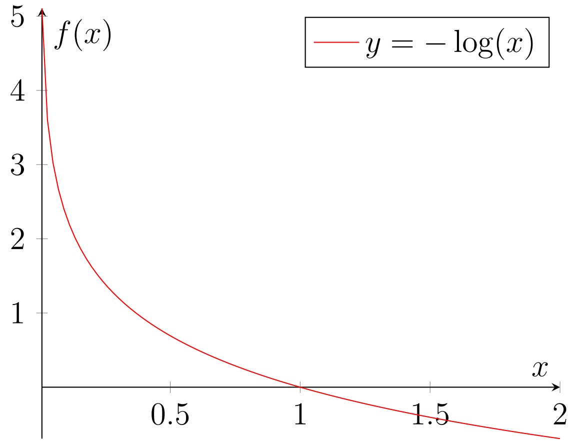

Estimated win rate
Gap
Actual win rate



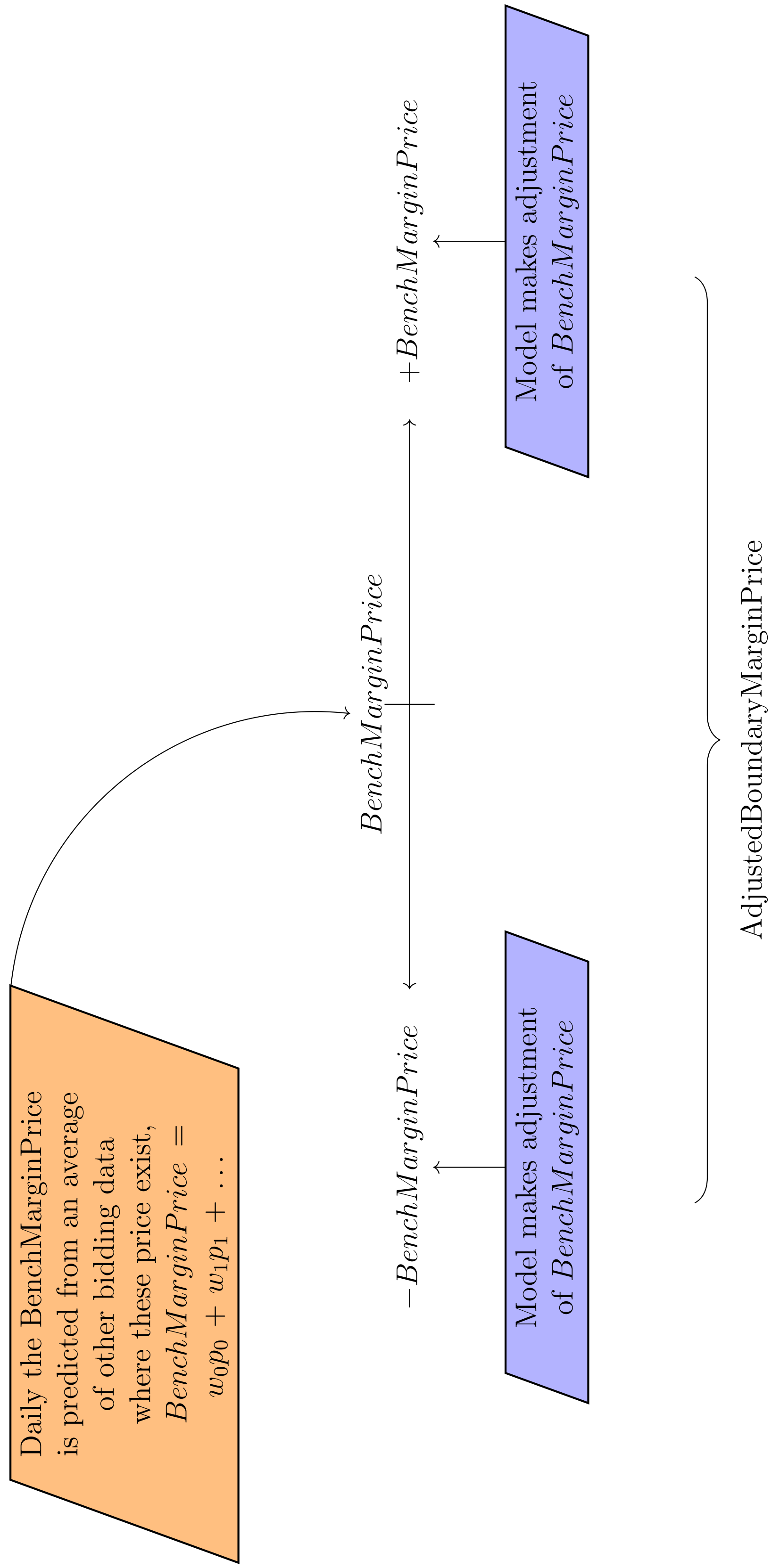
Estimated win rate
Actual win rate

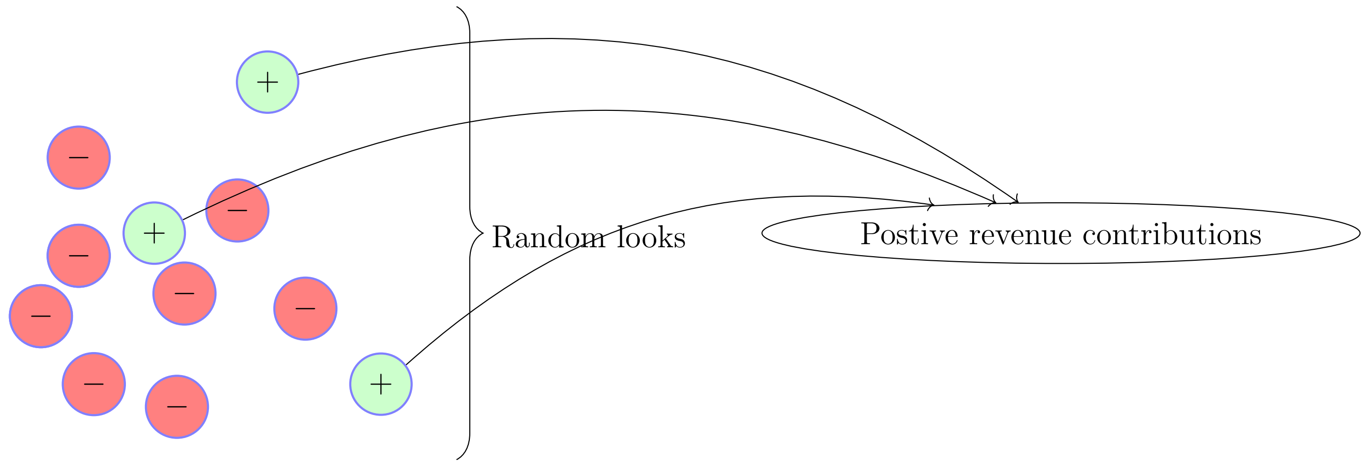


Previous bidding data is sent to untrained Mizer model
Mizer begins training
Trained Mizer model is examined for goodness of fit
Forecasts are made for incoming look count for constraints, $\hat{N}$
Target constraints are set, $Ax = b$
New bidding data is sent to the optimizer
The Mizer optimizer is applied to incoming data
Linear shift is applied
Uniform shift is applied
Geometric shift is applied
Results are sent out and analyzed

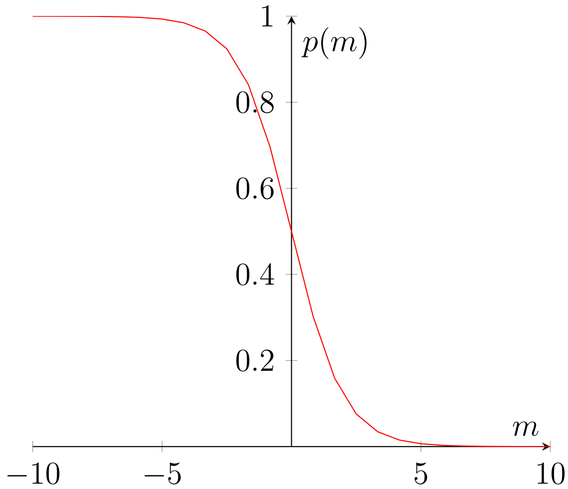


5
4
3
2
1
$f(x)$
$y = -\log(x)$
x
0.5
1
1.5
2


Daily the BenchMarginPrice is predicted from an average of other bidding data where these price exist, $BenchMarginPrice = w_0p_0 + w_1p_1 + \ldots$
$BenchMarginPrice$
$-BenchMarginPrice$
$+BenchMarginPrice$
Model makes adjustment of $BenchMarginPrice$
Model makes adjustment of $BenchMarginPrice$
AdjustedBoundaryMarginPrice



Random looks
Postive revenue contributions


1
p(m)
0.8
0.6
0.4
0.2
m
−10
−5
5
10