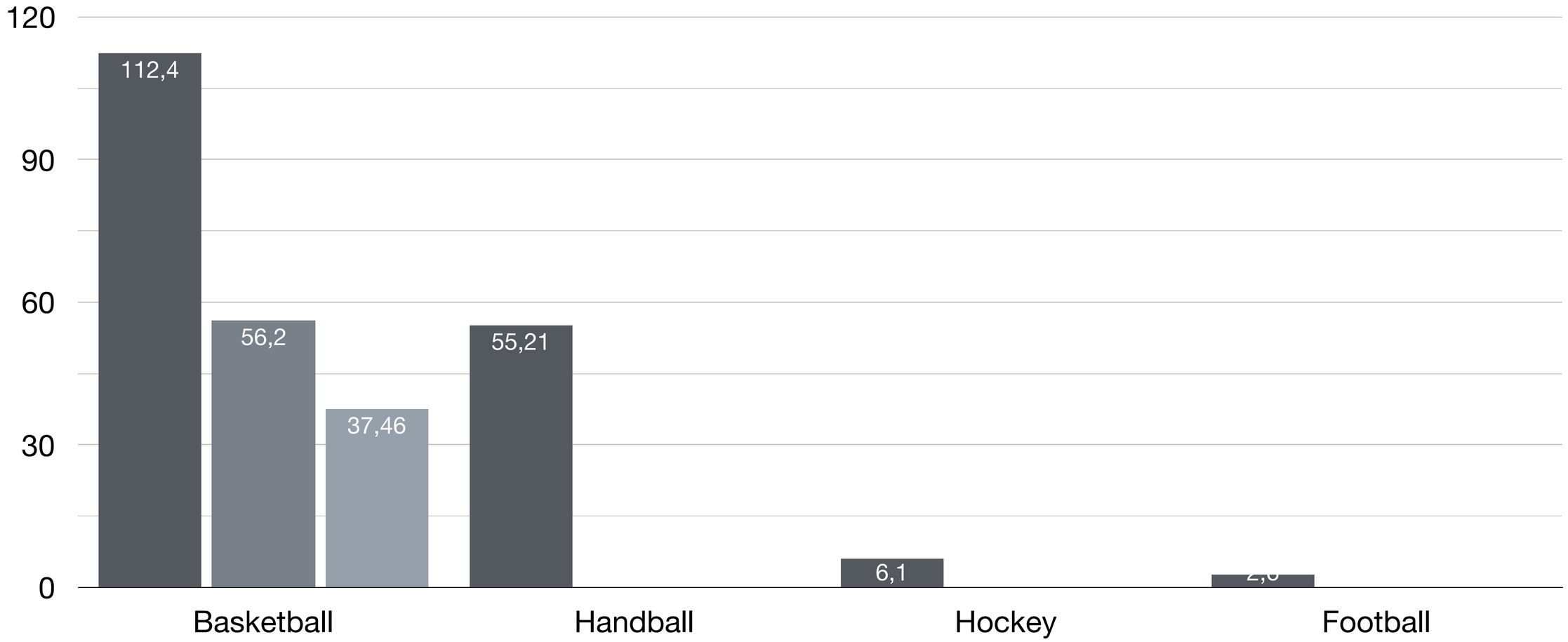
CAN PRISONERS, HORSE KICKS AND A MAN CALLED FISH PREDICT FOOTBALL SCORES?

“Poisson Distribution, coupled with historical data, provides a simple and reliable method for calculating the most likely score in a soccer match which can be applied to betting.”*

* Benjamin Cronin, *Pinnacle*, Apr. 2017

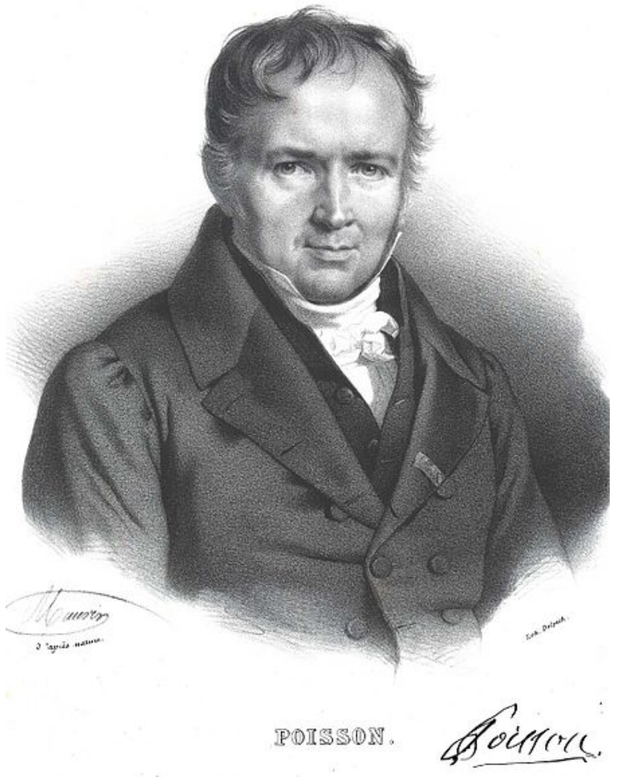
CONTEXT

	BASKETBALL	HANDBALL	HOCKEY	FOOTBALL
AVERAGE GOALS / POINTS IN A GAME	112.4*	55.21	6.1	2.6



Siméon Denis Poisson

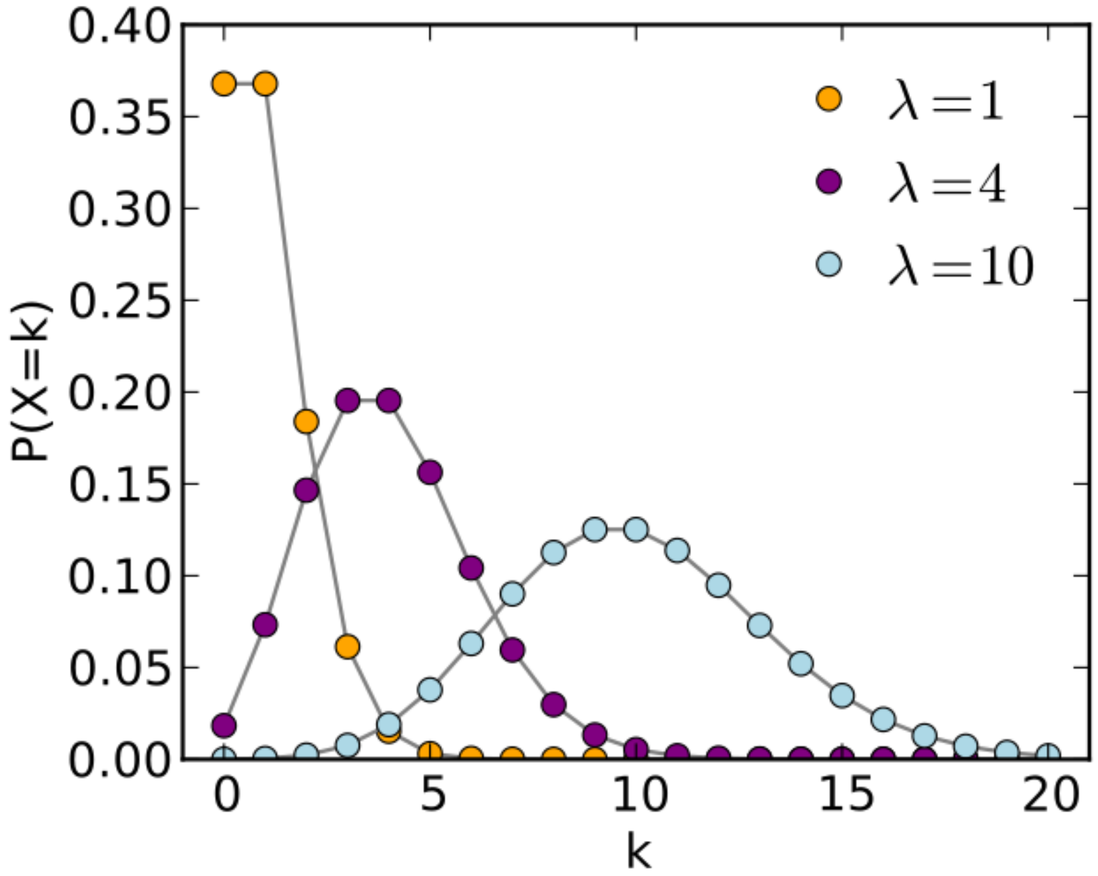
Was a late 18th, early 19th Century mathematician, engineer, and physicist, which among other things contributed to advances in the study of Probability.



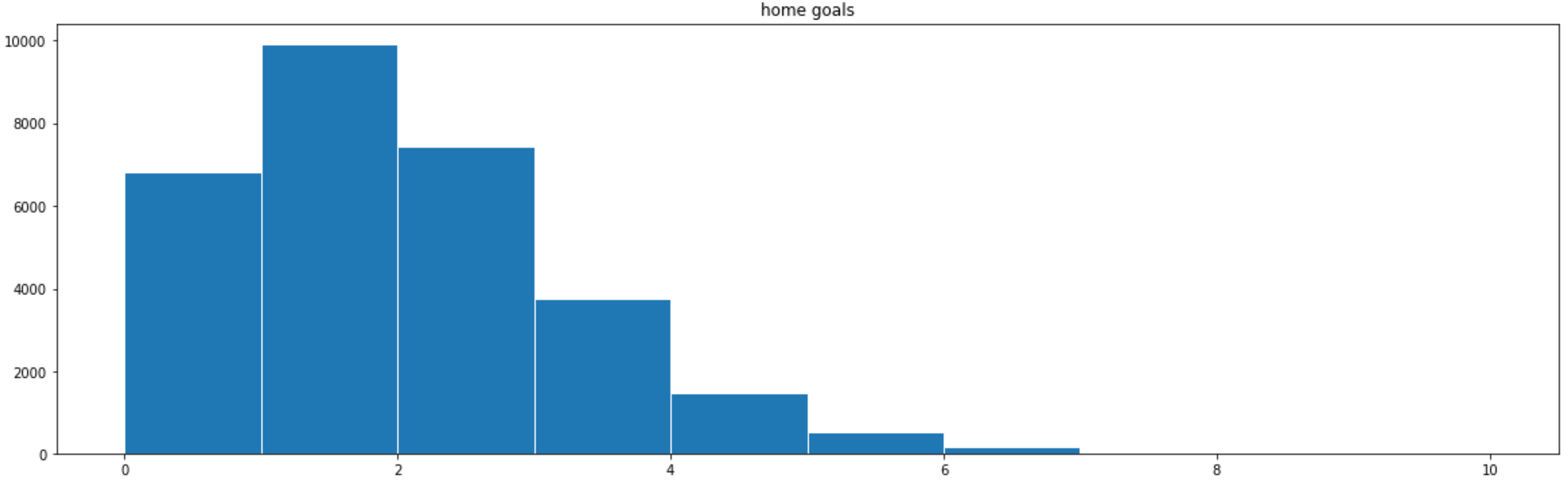
HYPOTHESIS

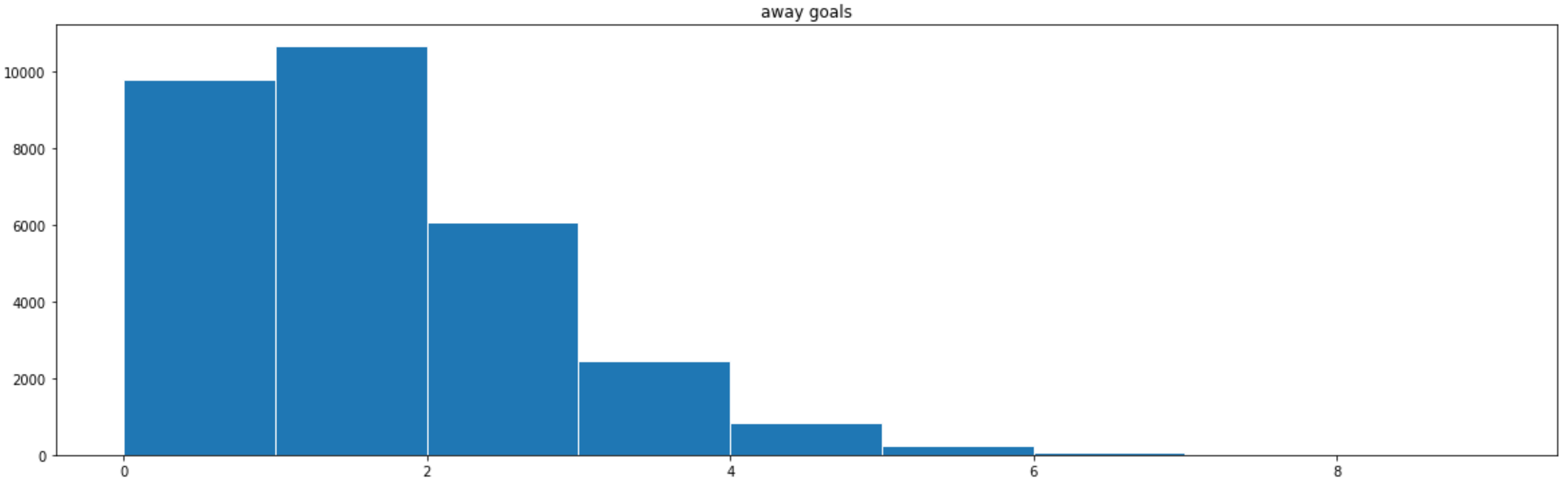
H0: The Number of Goals scored in a football match fits the Poisson Distribution

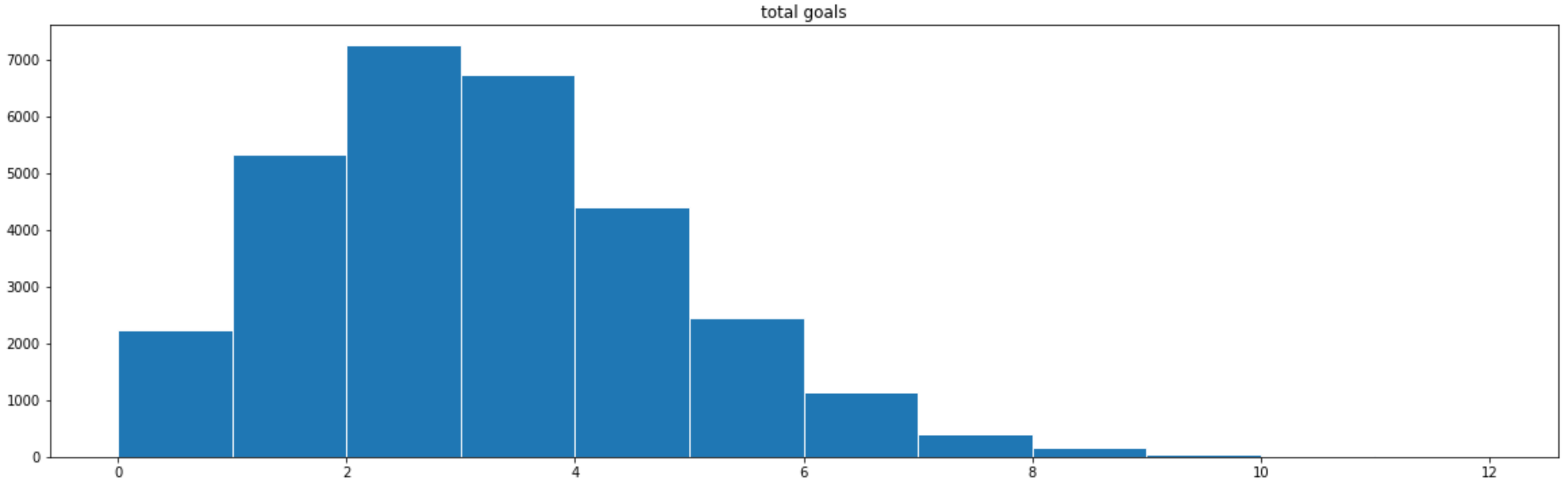
Poisson Distribution Examples



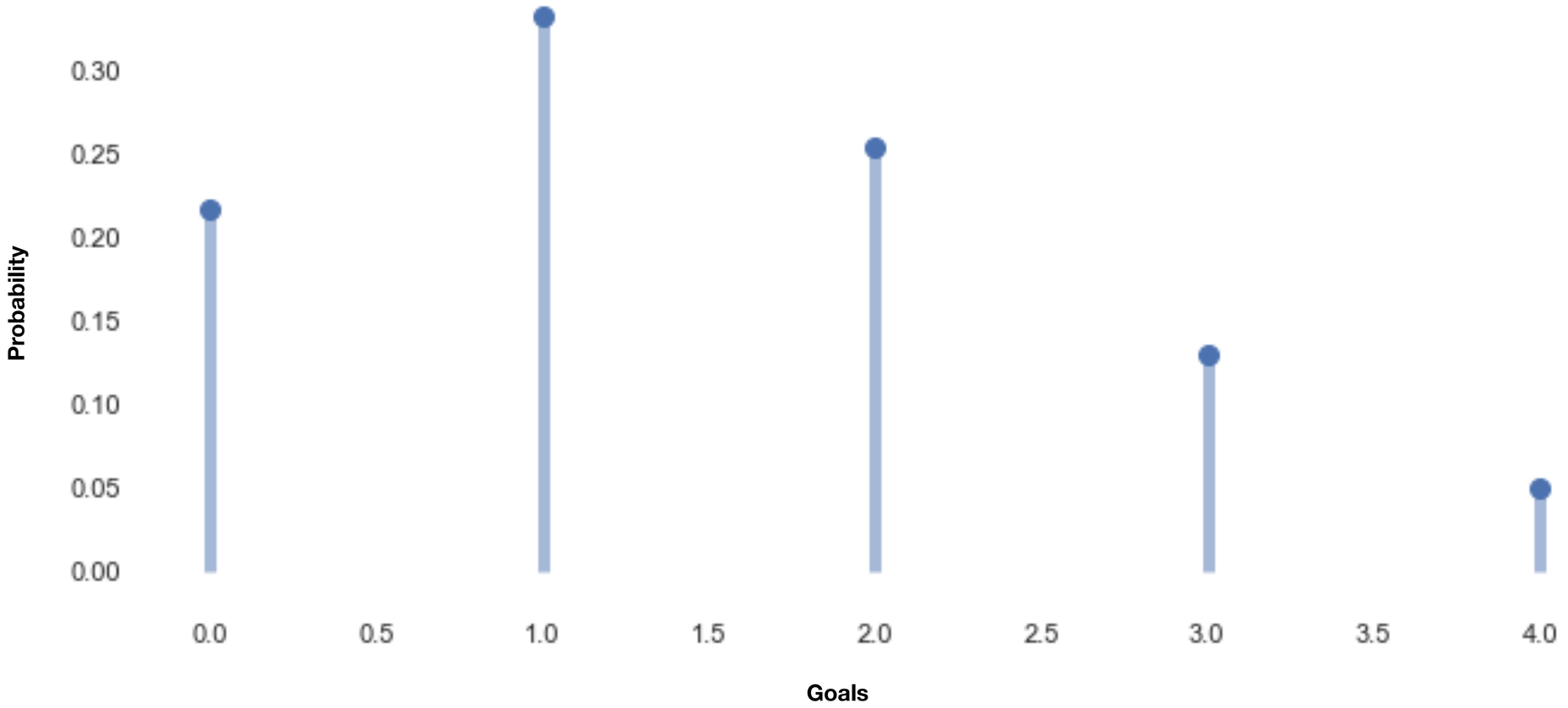
ANALYSIS


home goals
10000
8000
6000
4000
2000
0
0
2
4
6
8
10

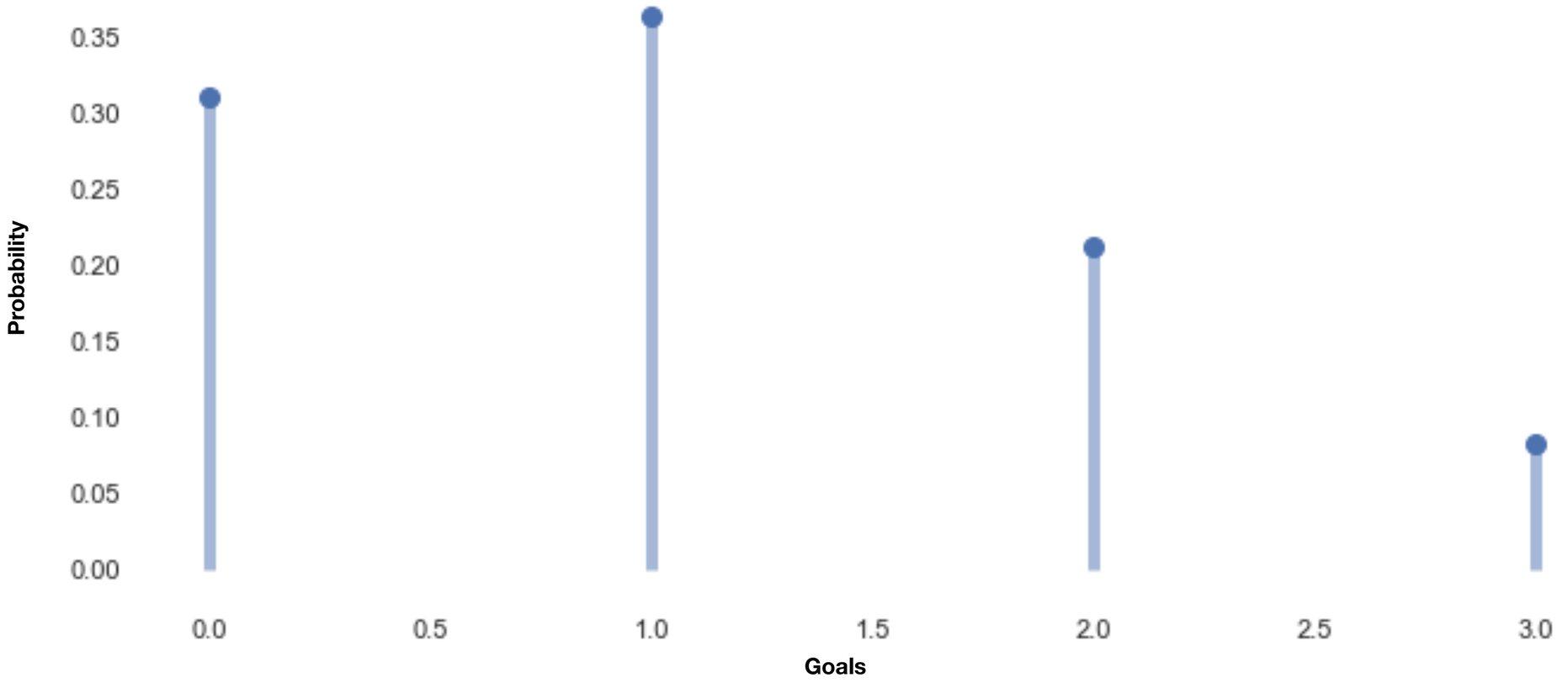

away goals
10000
8000
6000
4000
2000
0
0
2
4
6
8


total goals
7000
6000
5000
4000
3000
2000
1000
0
0
2
4
6
8
10
12

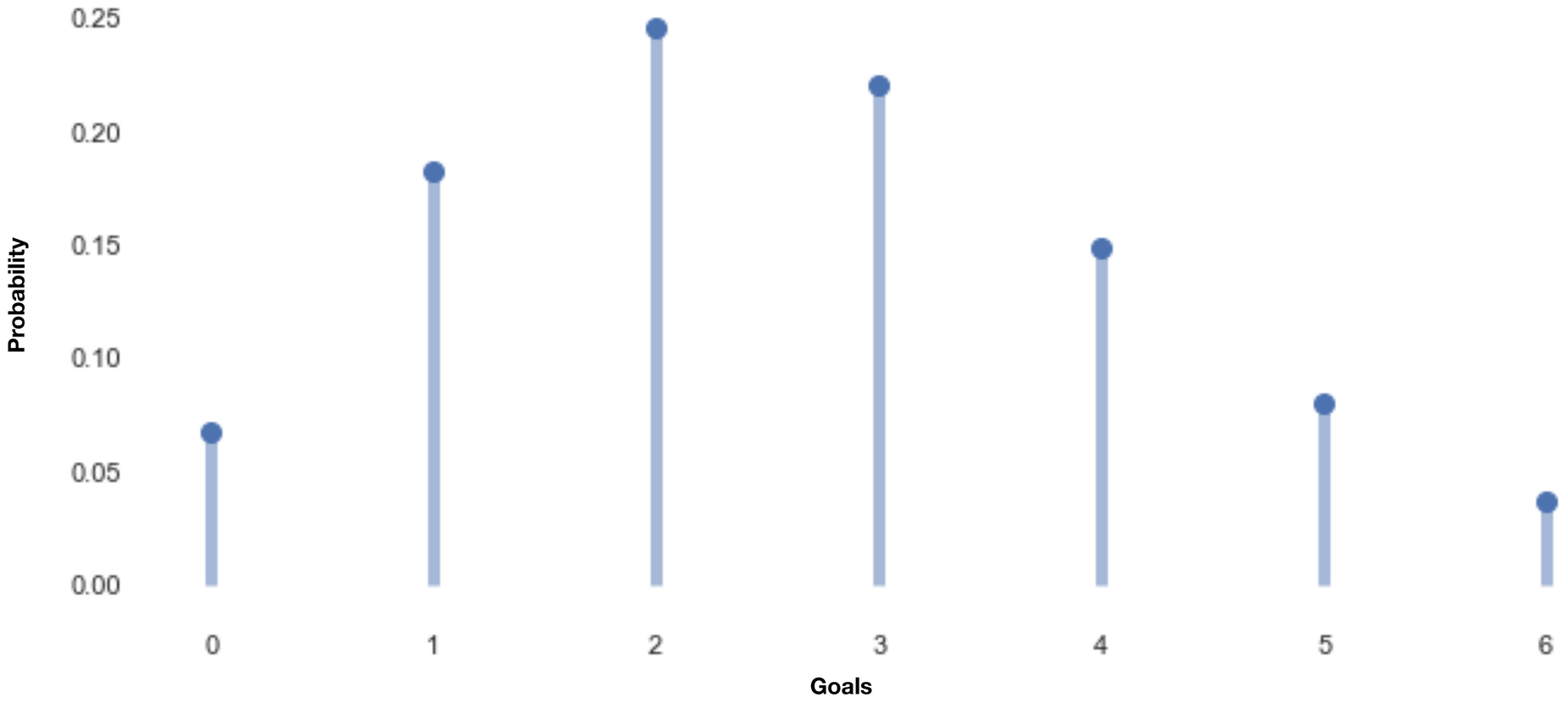
Probability of the Home Team Goals Scored (or not)

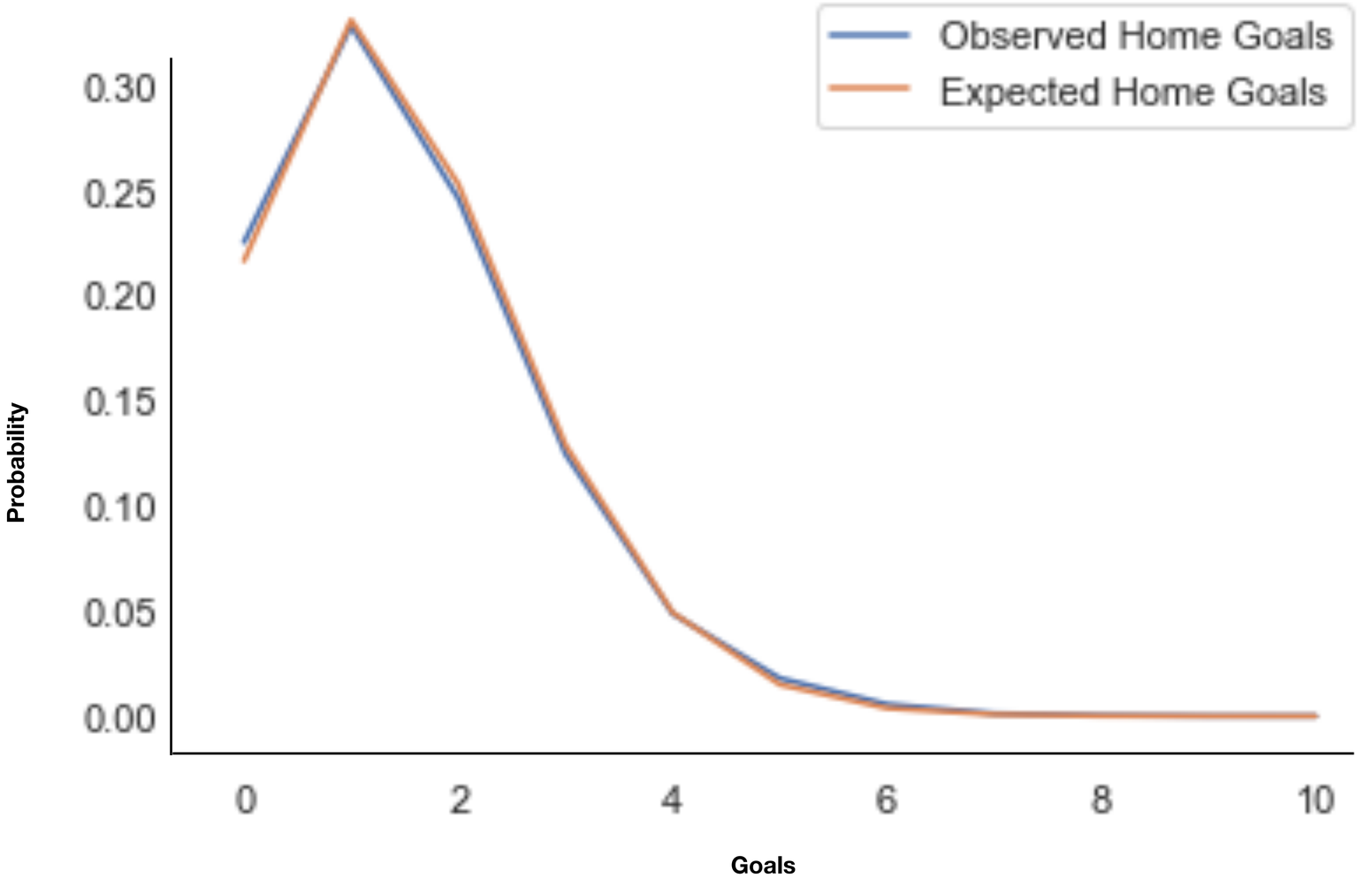


Probability of the Away Team Goals Scored (or not)



Probability of the Total Goals in any given match





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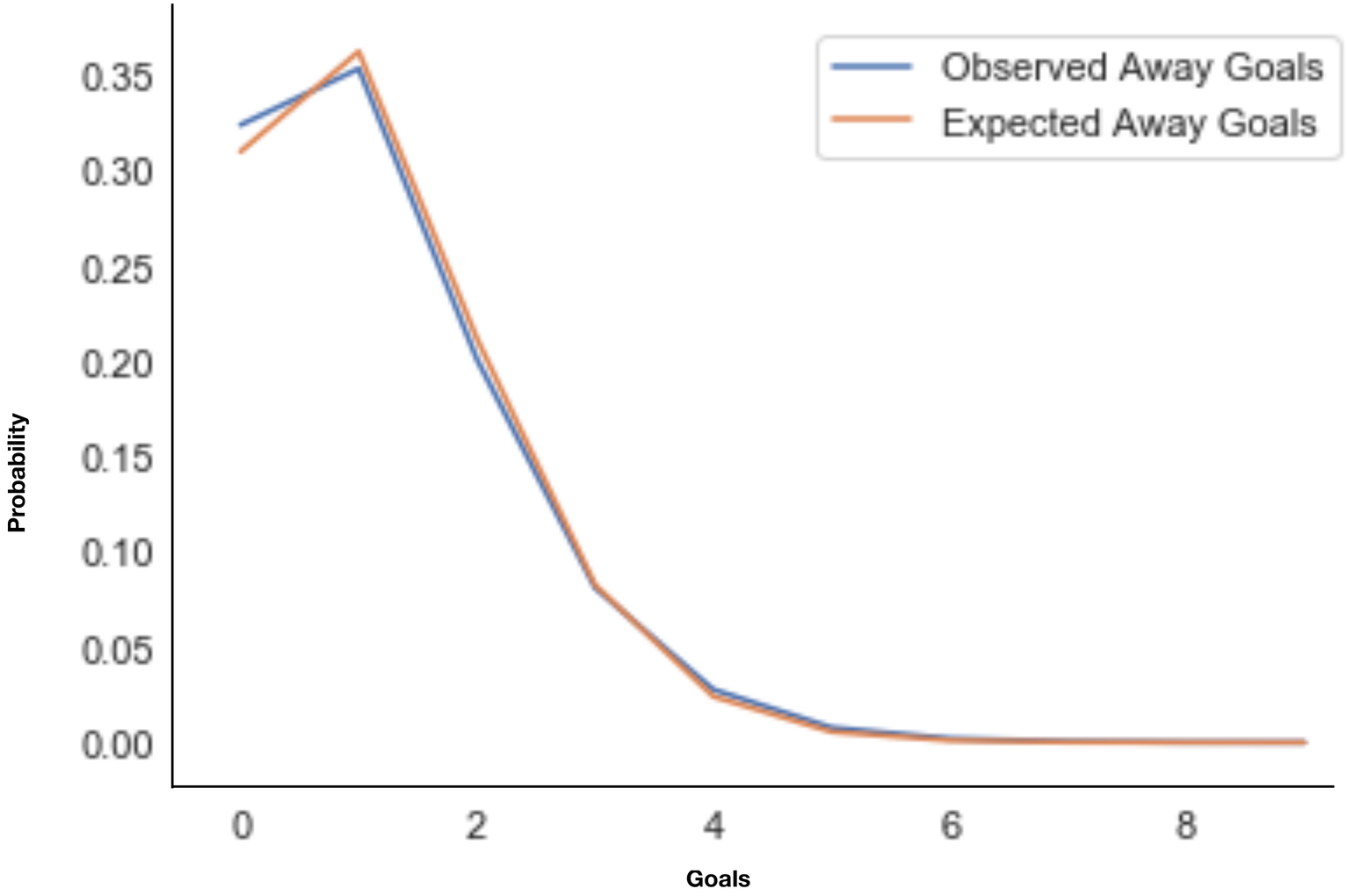
mu = 1.528727634194831
chi = 0.0029628887391585086



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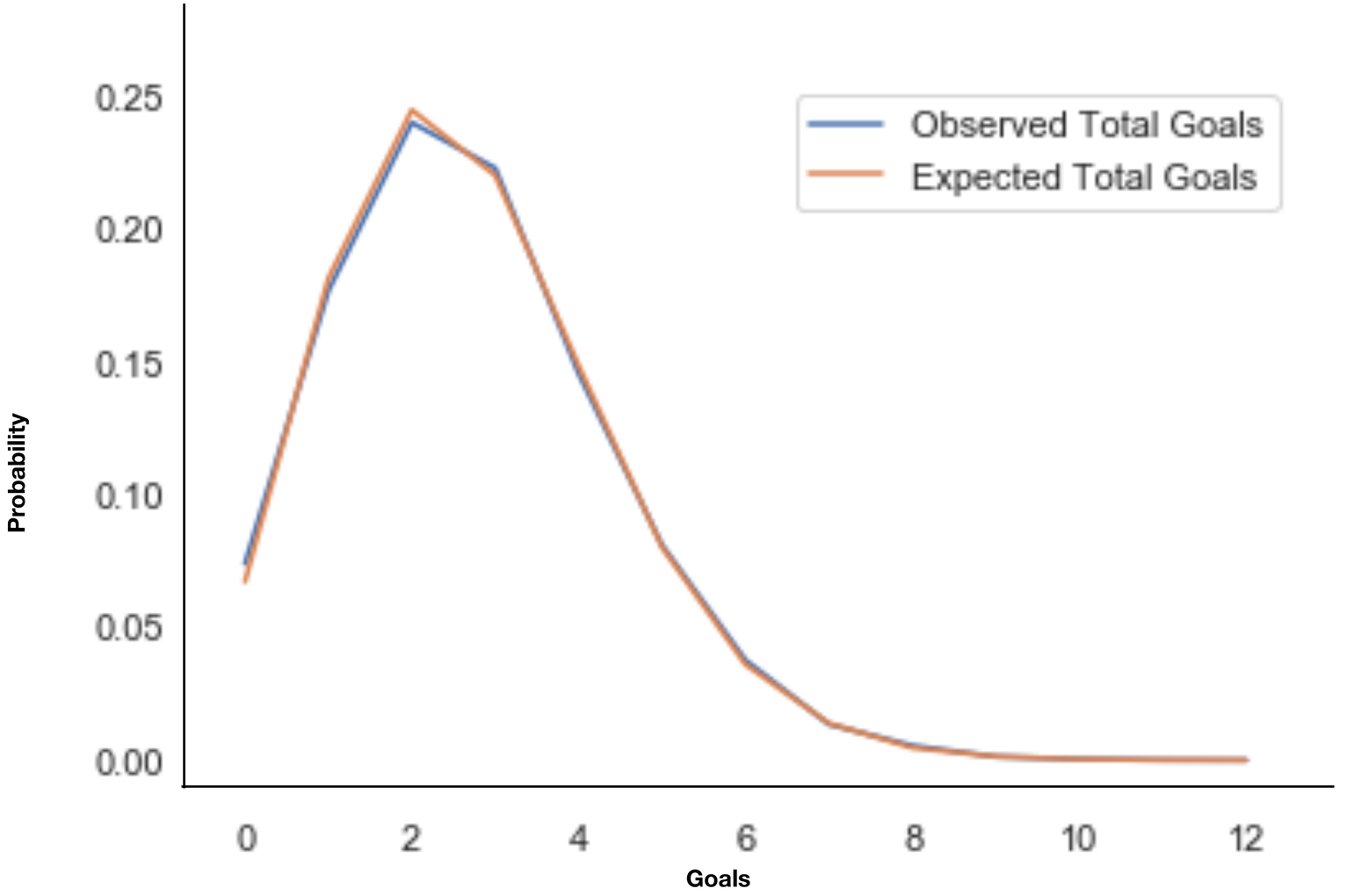


pvalue = 1.0
mu = 2.698078197481776
chi = 0.0012237806482185156

CONCLUSION

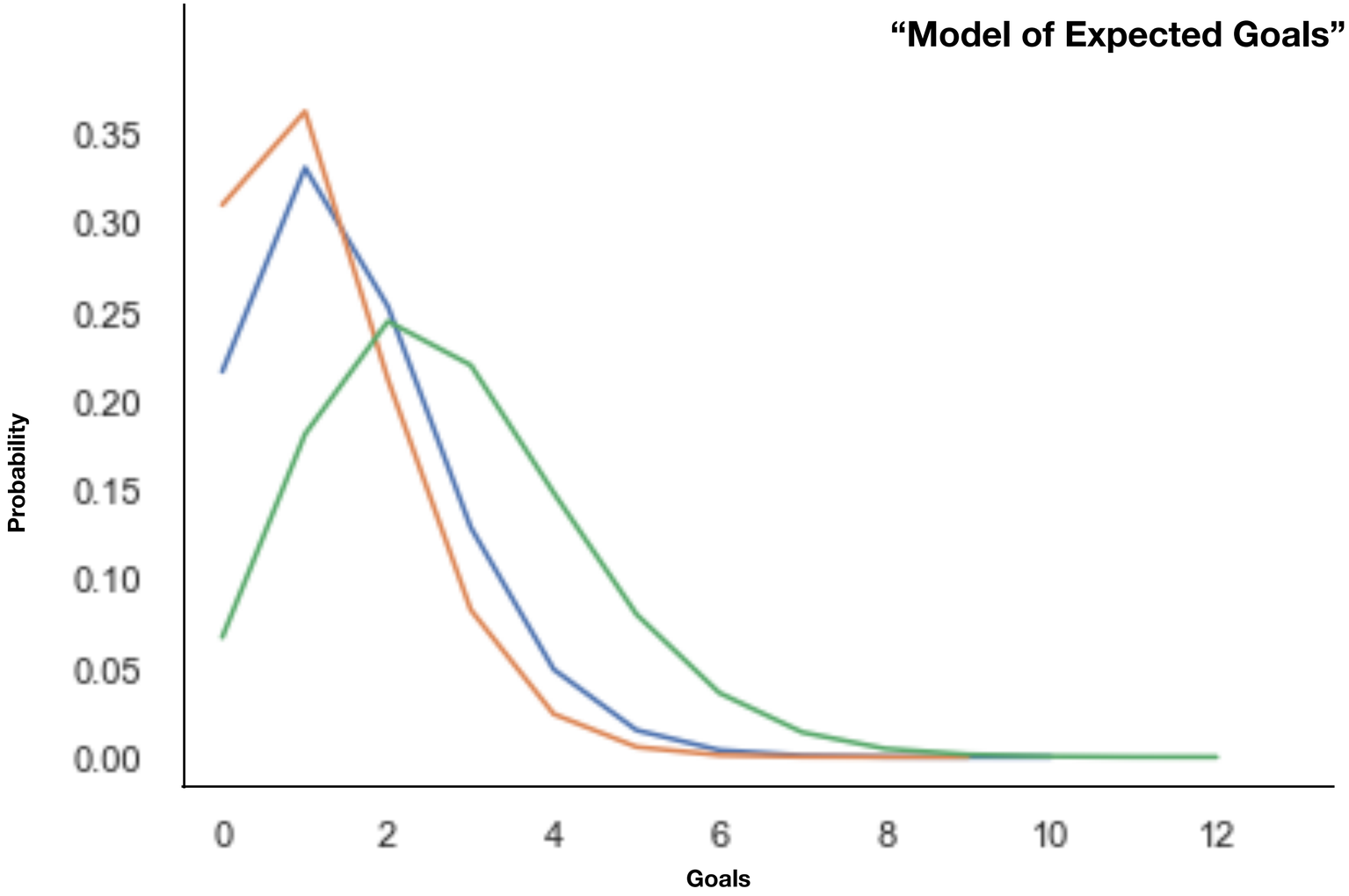
“The number of Goals scored in a football match MAY fit the Poisson Distribution”*

* Duarte Cruz, *Iron Hack*, February. 2020

CAN PRISONERS, HORSE KICKS AND A MAN CALLED FISH PREDICT FOOTBALL SCORES?

Maybe they can..?

But DON’T run to the bookies just yet!


“Model of Expected Goals”
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
Probability
0
2
4
6
8
10
12
Goals

CHALLENGES

Understanding the meaning of Distributions as a tool

(in order to overcome possible blocks, correct possible errors, actually deciding what to do)

Understanding the Chi Square Test and how to interpret it

NEXT STEPS

Testing for other distributions as alternatives. If they do not fit (or don’t fit as well), then one could move forward to model the prediction of individual games.

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THANK YOU!