11tegen11

Tactical analysis of Dutch football...

How to scout goal scoring talent?

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Strikers are the most sought after commodity in football. Having a player who can put the ball in the back of the net more than others can is a highly valuable asset to a football team. So, how to find one? The easiest and most applied way would be to list names and goals, pick a top name, and bingo!

Now, while semantically it is true without a doubt, that a top scorer is the guy who scorers the most goals, counting goals seems a poor way to identify goal scoring talent. Let's walk along some simple improvements to do it better.

Traditional

We start with this well-known format of player names and goals scored. Easy, right?

	name	team	goals
1	Alfred Finnbogason	Heerenveen	17
2	Graziano Pellè	Feyenoord	13
3	Lucas Piazón	Vitesse	11
4	Aron Jóhannsson	AZ	11
5	Luc Castaignos	Twente	10
6	Quincy Promes	Twente	8
7	Steve De Ridder	FC Utrecht	7
8	Davy Klaassen	Ajax	7
9	Erik Falkenburg	Go Ahead	7
10	Dusan Tadic	Twente	7

This table will always do a good job at the top, since players like Finnbogason and Pellè take a ton of shots, and would never show up that high if they did not have true goal scoring skill. But what about players a little

lower down the table? Is a player with 7 goals to his name at this half way point of the season doing a good job, or not?

Per 90 (G90)

Time to make our first, and very simple adjustment: a correction for playing time. Just like the smart people at Statsbomb – do check that site out, it's amazing – I prefer my goal scoring information as per 90. Just divide goals by playing time to arrive at that stat. Here's the table again. I've excluded players who've played less than half of the season, to prevent Jaïro Riedewald – 2 goals in an 11 minutes sub appearance – from skewing the chart.

	name	team	G90
1	Alfred Finnbogason	Heerenveen	1.13
2	Graziano Pellè	Feyenoord	0.81
3	Lucas Piazón	Vitesse	0.72
4	Aron Jóhannsson	AZ	0.68
5	Luc Castaignos	Twente	0.56
6	Quincy Promes	Twente	0.55
7	Michiel Hemmen	Cambuur	0.53
8	Jean-Paul Boëtius	Feyenoord	0.51
9	Erik Falkenburg	Go Ahead	0.50
10	Kolbeinn Sigthorsson	Ajax	0.49

It won't make too much of a change at the top, as those players play nearly every possible minute, but still, subtle changes do occur. Behind the identical top-6, new names appear. Lower down the list, we can expect a bigger impact, since here we find players that may be successful impact subs, have been injured, or youngster who are not the focal point in their teams yet.

Non penalty goals per 90 (NPG90)

With the next improvement also comes the next acronym. In the age of quick, twitter centered communication, football analytics can't do without it's acronyms. It is not that we don't value accessibility, since we really do, but acronyms makes talking about these metrics possible.

So, we'll strip out penalties and then look at the goals per 90 again. A second, simple adjustment that corrects for the fact that not all players take an equal amount of penalties, or even take penalties at all. Penalties are one of the best goal scoring opportunities around, but they are very unevenly distributed among the players. So it makes intuitive sense to strip them out when looking for goal scoring talent.

	name	team	NPG90
1	Alfred Finnbogason	Heerenveen	0.80
2	Graziano Pellè	Feyenoord	0.69
3	Luc Castaignos	Twente	0.56
4	Quincy Promes	Twente	0.55
5	Michiel Hemmen	Cambuur	0.53
6	Lucas Piazón	Vitesse	0.52
7	Jean-Paul Boëtius	Feyenoord	0.51
8	Erik Falkenburg	Go Ahead	0.50
9	Krisztian Németh	Roda JC Kerkrade	0.49
10	Kelvin Leerdam	Vitesse	0.45

Piazon drops a bit, from 0.72 to 0.52, but the most remarkable drop is Aron Jóhansson, who drops out of the top-10 while holding the fourth spot on the G90 table. Four of his 11 goals are penalties. But, AZ fans, don't worry, Jóhansson will be back later in this piece.

We can take it a step further, and this may be where things may look more complicated. Don't worry, because it isn't complicated and I'll walk you through the next level.

The main thing that is wrong with the NPG90 table is that not all players have had an equal amount of goal scoring opportunities.

Classroom exam

Imagine yourself sitting in a classroom, taking an important exam. On this exam, only correct answers will be counted, no penalty for wrong answers, and you get a paper filled with just ten questions. A slight look around tells you that other people have been handed more questions, some even got multiple papers to fit all the questions in. That doesn't feel right, does it? How could you show your qualifications if they don't ask you enough questions in the first place.

Now, in football, strikers are at least partly responsible for creating their own goal scoring opportunities, so the metaphor does not hold 100%, but I guess you get the point. And not only do shot numbers differ between players, each shot also has a unique chance of being converted to a goal. In our metaphor each question is on a unique level of difficulty.

So, you may have been handed just ten questions, if they were all easy peasy no-brainers, you would still have a good shot at making a good grade. In football, it's the same. Goal scoring opportunities all have their own different level of quality and should be evaluated as such. Raw conversion rates are useless in a game where some people shoot from 30 yards out and others have a style that relies on short range tap-ins.

Expected Goals

This is where the Expected Goals, or ExpG, concept comes in. Based on shot location, shot type, assist information and some other factors, we can assign each goal scoring opportunity the correct odds of being scored if an average player was taking the shot. This brings us two separate qualities to evaluate with respect to goal scoring.

1. Which player creates the most goal scoring threat? Obviously, each players' ExpG is a combined product of striker skill and team mate skill, and on top of that, playing for a top team will bring you more ExpG, just like it is with the traditional method of counting goals.

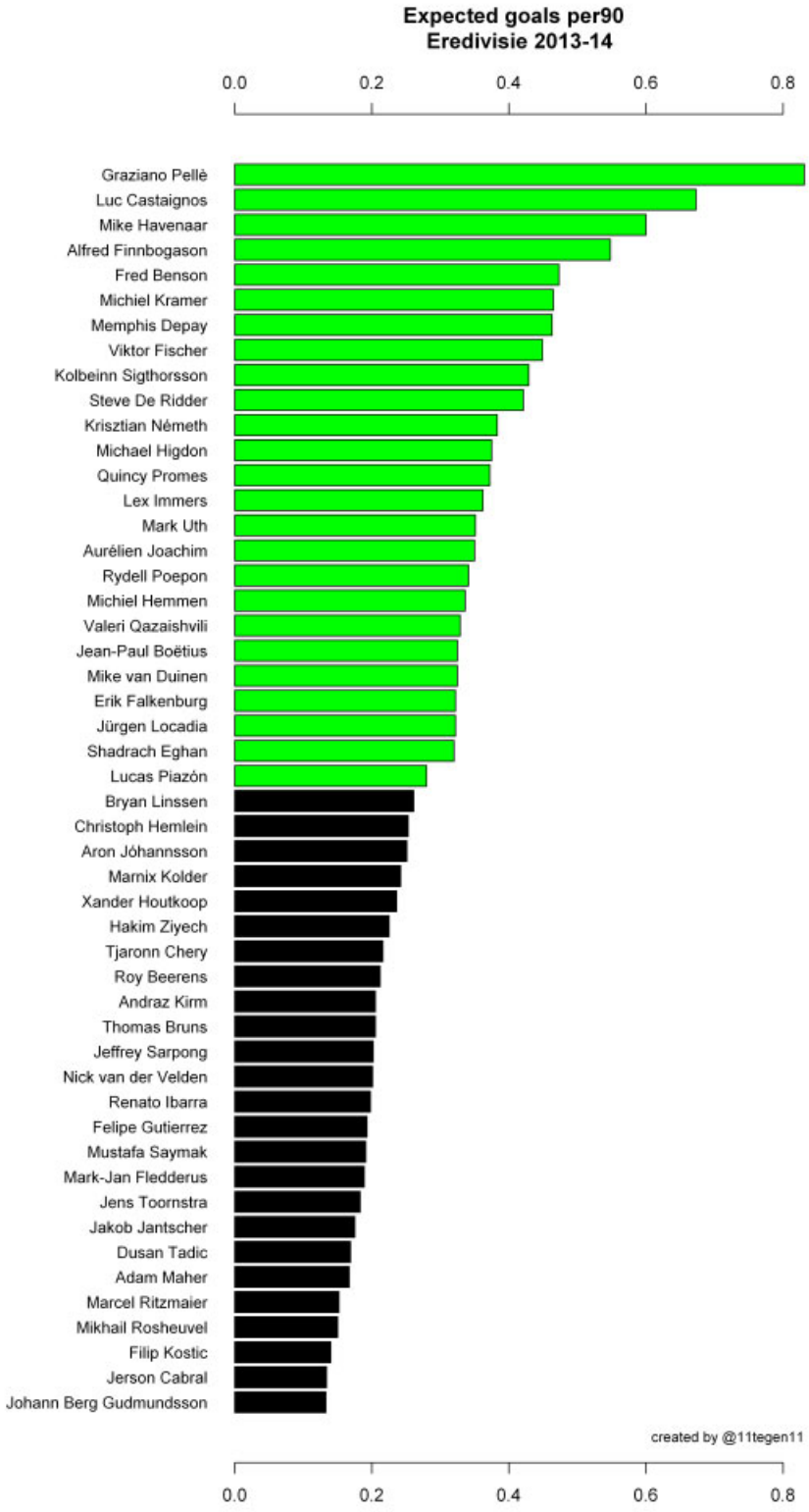
2. Which player makes the most of his ExpG? Which player scores more goals than his goal scoring opportunities would have brought at the feet of an average player?

In the following diagrams, just like above, penalties have been stripped out to create a fair picture.

Goal scoring threat

In terms of goal scoring threat, Graziano Pellè equals over 0.8 goals per game. He is the spearhead of Feyenoord's offense and we learn here that an average Eredivisie player should expect nearly a goal per game with the goal scoring opportunities that Pellè and his team mates create for Pellè.

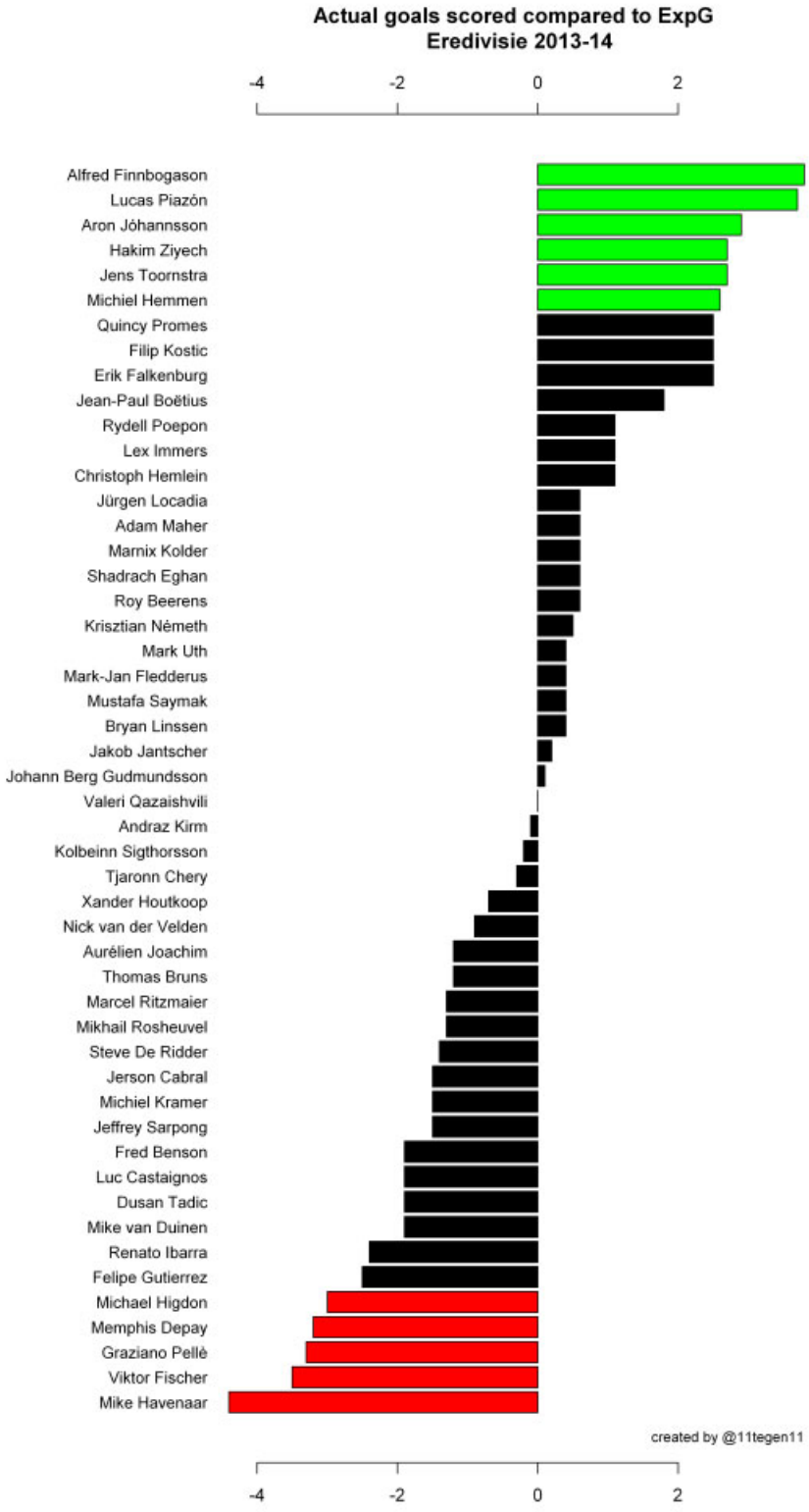
Heerenveen's Alfred Finnbogason, who leads the traditional chart with 17 goals, comes in at fourth. Twente striker Castaignos and Vitesse striker Havenaar complete the top-3 behind Pellè, which feeds the theory that playing on a big team, and therefore having good team mates around, is obviously of influence here. Remember, this metric stands for creating goal scoring opportunities, which is a combined effort of both the striker himself and his team.



Finishing

The second aspect of scoring goals is converting ExpG into goals.

In terms of finishing, the Eredivisie currently holds no better player than Heerenveen's Alfred Finnbogason. The Icelandic striker manages 4 more goals than an average player would score with his chances. Finnbogason is closely trailed by Vitesse's Chelsea loanee Piazón and a bit further by AZ's American striker Aron Jóhansson.



Graziano Pellè paints a completely different picture here. The Feyenoord striker does best in terms of fashioning out chances, but finishing them is a different picture. Even an average player would have scored over three more goals than he did. Pellè is not the worst finisher, though. Imagine what Vitesse could have done with a decent finisher on Havenaar's position.

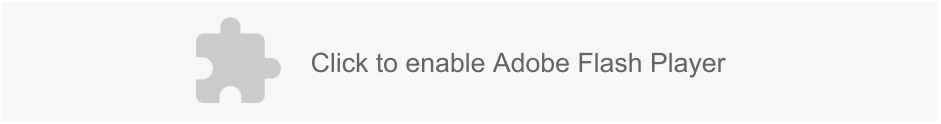
The green and red bars represent players whose finishing is more than two standard deviations away from the average.

In the end

In this post, we've come from a traditional list of names and goals scored, to a sophisticated metric to judge goal scoring talent in its most honest way. It seems creating chances for yourself, or allowing team mates to do so, is a different skill from finishing those chances. Only the true top strikers blend these skills.

This metric may also help explain why Graziano Pellè was disappointingly average at AZ and Cesena, but is now seen as a real top scorer. Feyenoord has developed a playing style that runs its offense for a huge part through him, and uses his skills to create goal scoring threat to its maximum. But finishing chances is not one of Graziano's skills.

Another nice individual to single out is AZ's Aron Jóhansson. He is fourth in the G90 list, but drops out of the top-10 if we strip his four penalties. The combined ExpG graphs learn us that he is way too low in terms of goal scoring threat, but what he gets thrown at him, he finishes with elite skill for this league. He is like a reverse-Havenaar, who gets in the mix of the third most ExpG, but is the worst finisher identified here.



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14 thoughts on "How to scout goal scoring talent?"

Benny
January 15, 2014 at 2:21 pm

As always, a very interesting article and well explained. But there was one point where I could not quite follow: "This is where the Expected Goals, or ExpG, concept comes in. Based on shot location, shot type, assist information and some other factors, we can assign each goal scoring opportunity the correct odds of being scored if an average player was taking the shot."

Forgive me for my ignorance, but how exactly do you do that?