



# Kicking goals with the Taylor Fry tipsters

In-house custom-built software to build heavy duty predictive models: \$30,000.

- Time cost of an actuary to build a model from 'unpredictable' data: \$100,000.
- Building AFL and NRL tipping models to take the bookies to the cleaners: Priceless!



The Taylor Fry AFL and NRL tipping models have been predicting outcomes for footy matches for the past five years and have successfully beaten off, by considerable margins, any rival punter over this time. When we say "any rival punter," we actually mean invitation-only members of Taylor Fry's tipping competition 'Beat the Geek,' organised by Taylor Fry to dish out prizes and provoke interesting water-cooler conversations on a Monday morning.

As well as long term consistency, we have had some very good results in individual years and competitions. By way of example, check out the table

below. It shows the final results for the 2010 NRL Beat the Geek competition:

Table 1		
No.	Tipper	Total tips
1	Taylor Fry Destroyer	125
2	Taylor Fry Dominator	124
3	Valued Taylor Fry invitation-only member	122
4	Valued Taylor Fry invitation-only member	121
5	Valued Taylor Fry invitation-only member	121
6	Taylor Fry Demoraliser	120
7	The rest...	< 120 tips

As can be seen, the Taylor Fry models all finished in the top ten and two finished on top! Obviously, there are times when the models could be better, and to be honest, the models don't win every year... but they do consistently outperform. To put this into perspective, the 2010 NRL 'Taylor Fry Destroyer' finished 83rd out of 110,000 footytips.com.au entrants. WOW! We should also mention that the Taylor Fry tipping models:

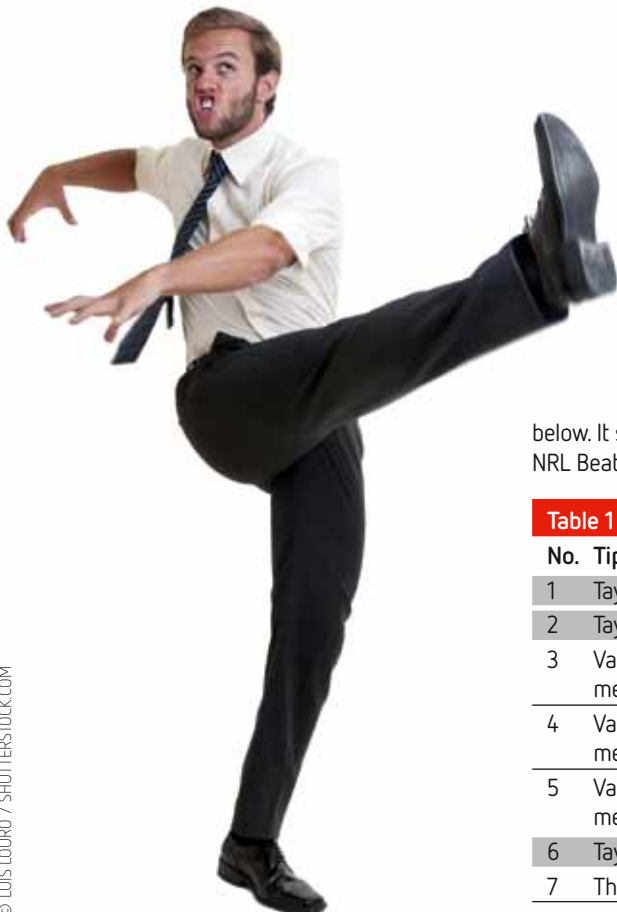
- sometimes get published in the *Sydney Morning Herald* or **Australian Financial Review**,
- are studied by students of the Actuarial Control Cycle, aka Part II's; and
- act as an expert on the footytips.com.au website.

## WHAT'S THE SECRET?

Maybe it is the superior modelling skill or the unique ability to capture and categorise data for prophetic use. Better still, the models exclude any human emotion. They tip based on hard, credible and tested facts, a talent so easily lost when tipping your favourite team or player.

What drives these models to success? Is it the win/loss record over the past few matches, home or away, or who won/lost last time the two teams met? Before we go further, a cautionary note: given that the models are about to spill the beans on that illusive ingredient to tip, we take no responsibility for any losses incurred by the reader. If your heart rate has suddenly jumped and you're reaching for your wallet to punt, we respectfully refer you to Gamblers Anonymous <http://www.gamblinghelp.nsw.gov.au/>.

Now, let's get down to the cold hard data. The table below shows, in order of importance, some of the most explanatory variables for tipping. We rank the variables in order to make it easier for the reader to increase their tipping

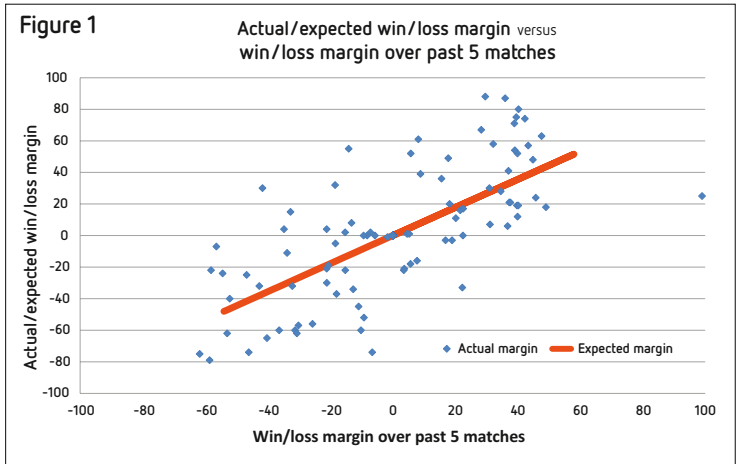


rate. In fact, ranking variables in order based on their explanatory power is an important step in any data mining exercise and a talent possessed by few. Real world examples of why you would want to rank variables in order of explanatory power range from simplifying rating structures to targeting areas for data quality.

Table 2
Some key explanatory variables
Players
Coach
Difference in ladder position
Home and away
Last time the teams met
Win/loss margin over past 5 matches

Now, you are probably asking yourself who cares if the “difference in ladder position” is more important than “who won or lost last time they met”? How does that help me in tipping? Well, you are right, it doesn't help. The table only shows the relative strength of each explanatory variable in predicting outcomes. What you really need to know is how these variables contribute to the outcome of a match. The Taylor Fry AFL and NRL tipping models actually tip winning or losing margin and not just win/loss result. That is, for each explanatory variable in the above table, plus a few others not shown for commercially sensitive reasons, we analyse the relationship between the explanatory variable and the winning/losing margin using Generalised Linear Models (GLMs) and other data mining algorithms.

This may all sound too complicated and exhausting for the purpose of tipping a footy game, but essentially, it is about putting a line through a bunch of points on a graph. To illustrate, the plot below shows the trend relationship between recent performance (past 5 matches) and current margin. This line can be interpreted as how an expected winning or losing margin changes as recent performance changes. For most readers, this shouldn't be anything new: this is actuarial bread and butter. We spend our lives pricing insurance contracts and valuing liabilities, both of which depend on identifying and quantifying the effects of how explanatory variables change. – *Figure 1*

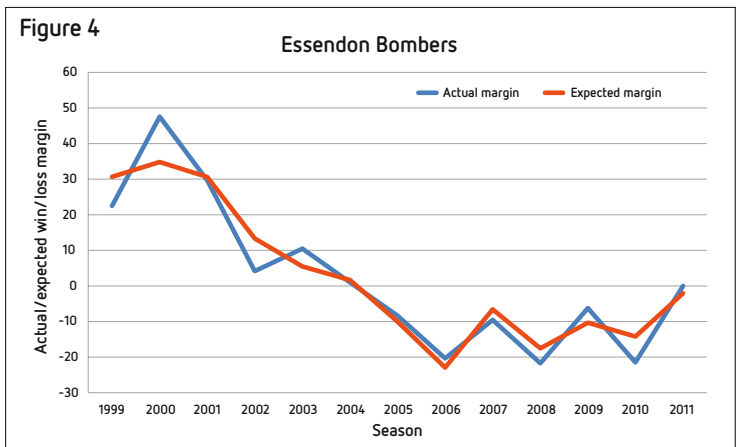
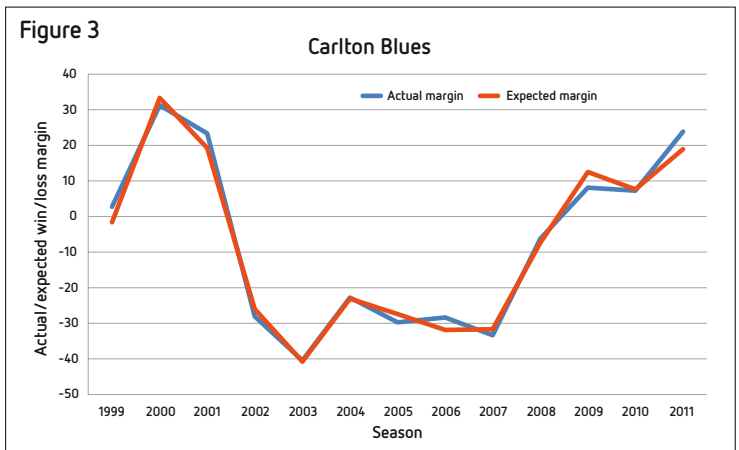
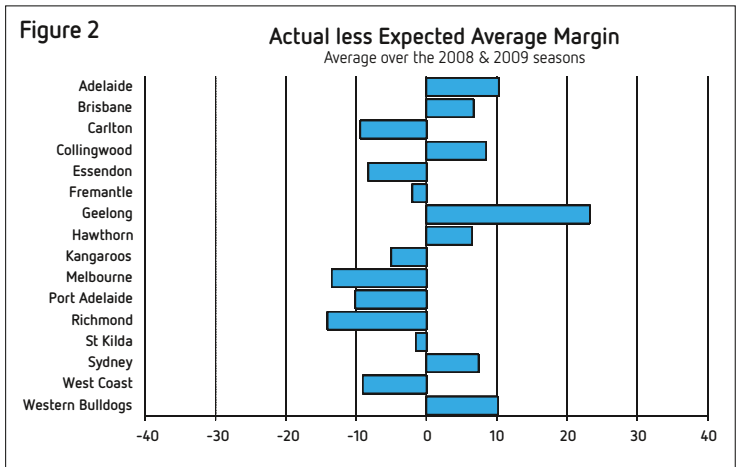


**HARNESS THE POWER OF DIAGNOSTICS**

For those who enjoy this kind of stuff, feel free to question where the model puts the fit. In response, there are a countless number of diagnostics that are painfully scrutinised every time we update the model, plus, the above plot is for 2011 data only and does not show the effect of any interactions. We will keep these interactions close to our chest.

These diagnostics ensure that we have the best fit for the data and the best predictive model possible. For example, the figure below shows the difference between the actual and expected average margin during the 2008 and 2009 seasons. Geelong was the best team over these two seasons, winning 39 out of 44 games.

While the models performed well and tipped Geelong for every match over this two year period, the figure shows that Geelong still performed far better than the models expected, by an average of 23 points per game. – *Figure 2*



**"The comp is a great idea and given the various dynamics at play, the outcomes you've achieved certainly provide testament to the quality of your work."**

Executive, a telecommunications company

If you are still reading and we haven't lost you among the finer actuarial detail, as mentioned, the Taylor Fry team painfully scrutinises diagnostic, diagnostic, diagnostic, diagnostic... you get the point. To give you a taste, the plots below show how the current 2012 model fits over past AFL seasons, separately shown for Carlton and Essendon. It is gratifying to see the expected win/loss margin tracking the actual win/loss margin closely, especially over such a long period of time. If the model is closely tracking the actual win/loss margin, we can be confident in the predictive power of the model. On the other hand, significant divergence would indicate that there is something missing from the model that needs explaining. Additionally, the plots also give us insight into trends over time: for instance, Carlton improved substantially from 2007 but have they plateaued since? And Essendon, have they bottomed and turned the corner for 2012? – *Figure 3 and Figure 4 (previous page)*

### BETTING STRATEGY

This is all well and good, but do the models give us a licence to flog the bookies? The table below shows the financial outcome of betting head-to-head on all matches in 2010, 2011 and 2012 (to date) for both AFL and NRL. Also shown is the result of accumulating each head-to-head bet within each round, aka an 'accumulator'. Despite the very good comparative performance of our models, it's still pretty hard to beat the bookies' margin of at least 6% on a consistent basis:

**Table 3**

Betting strategy	2012 YTD, 2011 & 2010			
	Description	AFL	NRL	Total
Head-to-head (\$1 per match)	\$ outlay	\$435.00	\$475.00	\$910.00
	\$ return	\$414.94	\$489.73	\$904.67
	% return	-5%	3%	-1%
Accumulating each head-to-head bet within each round, aka, "Accumulator" (\$1 per round)	\$ outlay	\$54.00	\$63.00	\$117.00
	\$ return	\$41.79	\$224.28	\$266.07
	% return	-23%	256%	127%

- (1) NRL accumulator wins are from rounds 6, 9 and 11 from the 2012 season and round 2 from the 2010 season.
- (2) AFL accumulator wins are from rounds 6, 12, 18 and 19 from the 2011 season.
- (3) Betting over a range of events and years minimises risk.

### WRAP IT UP

So, for those pundits out there who have had the pleasure of trying to 'Beat the Geek': good luck, you need it. And for those who would like to join the club, there are great prizes to be won: iPads, vouchers, cold hard cash, champagne, footy tickets, the list goes on. Drop us an email and we'll welcome you to the game. For everyone else: "statistics don't lie".

#### A

Want more, check out:

<http://www.taylorfry.com.au/newsletters/RugbyWorldCupFinal.pdf>

[http://www.taylorfry.com.au/newsletters/TaylorFry\\_WorldCup2010.pdf](http://www.taylorfry.com.au/newsletters/TaylorFry_WorldCup2010.pdf)

[http://www.taylorfry.com.au/newsletters/TaylorFry\\_WorldCup2010\\_WrapUp.pdf](http://www.taylorfry.com.au/newsletters/TaylorFry_WorldCup2010_WrapUp.pdf)

**In total, Beat the Geek has dished out, 22 cases of champagne and over \$10,000 worth of prizes: iPads, iPods, Nintendo Wii, weekend getaways, magazine subscriptions, a couple of goats, carbon offsets and footy tickets!**



**"Thank you TF. I might have a crack at that. Someone needs to be in last place from start to finish."**

A client who appreciates having a go

**"What a ripper of a newsletter! Who said actuaries don't have a sense of humour? Certainly not me."**

Executive, an insurance company

**"Thanks for the World Cup newsletter. It rocks compared to some other fluffy WC analytics I've read recently."**

Executive, a media company