



Robjets
Real Prediction Machines

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Real Prediction Machines (RPMs)

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Real Prediction Machines (RPMs)

Modern day fortune-telling is far-removed from the mystical readings of natural and celestial phenomena of the past.

Today it is all about data.

Contemporary use of digital networked technology has effectively created a live global human behaviour laboratory with data scientists experimenting on an (often) unknowing pool of billions. The futures that might emerge from this research are as yet mostly unknown, but there are hints – as this data accumulates it can be analysed, mined and used in algorithms; patterns or trends invisible to the human observer can be identified and seemingly random events become predictable.

Prediction algorithms are predominantly being exploited by big industries such as banking, insurance and commerce or examined in massive research projects such as the EU funded FuturICT project.

The aim of Real Prediction Machines is take the promise of Big Data and prediction algorithms into the domestic domain, effectively translating or *domesticating* these complex emerging technologies into a plausible and desirable functional artefact.

Individuals can select a specific event to be predicted such as a domestic argument; the likelihood of ones own death or the chances of a meteor strike. A service provider then determines the necessary data/ sensory inputs required for an algorithm to predict the event. The output from the algorithm controls a visual display on the prediction machine, informing the owner if the chosen event is approaching, receding or impending.





Will Jimmy have a heart attack?

I'm forty-six. I'm married; I've got three children, a cat and soon a dog.

At the moment all these people are financially dependent on me.

Recently I applied for life insurance, it was denied because of several health issues that were brought to my attention following a health check.

I had high cholesterol, high blood pressure and fat deposits in my liver.

This terrified me because I don't know how my family would manage if I were to die suddenly. Death has been a sad reality recently following the sudden death of my mother and grandmother within two weeks of each other.

Prone to pessimism and probably a hypochondriac, I often imagine that I have liver disease, lung cancer, cardio-vascular problems and arthritis, or some degenerative condition of all my joints. I'm also aware that I drink too much and love all the wrong kind of food.

I have subsequently taken up cycling to work, I feel tired and my journey from Brixton to Newcross is a health issue of a different kind and it feels as though everyone is trying to kill me. I bought a helmet, which has saved my head from a few knocks caused by car doors being opened unexpectedly in-front of me. Next I'll get better brakes and a mask because I'm sure the pollution from the cars and buses are going to give me respiratory problems somewhere down the line. I already have sensitive airways, which manifest in an allergy to house dust. This mainly affects me when I go and stay with my parents-in-law.

So there is a profile of me emerging. I think I'm what is known as 'morbidly obsessed!'

I can't stop thinking about the next thing that will kill me. It's healthy it makes me try to pre-empt future health compromisers.

I'm basically predicting negative events and trying to prevent them from killing or injuring me.

The things I include in this list of things that might kill me are cars, roads, work, beer, whisky, sausages, steak and life. The list goes on and on, but they are the big ones.

I blame several things for my anxious state. Firstly, I blame myself; I'm 'stressy.'

Small things easily stress me. So perhaps the number one killer of me is myself.

The Internet doesn't help, it knows how old I am and what job I do and constantly reminds me to not burden my loved ones with the cost of my funeral, it also reminds me to try and burn fat, and to make sure I have adequate life insurance. The Internet knows I have a family and that they are not 'protected.'

The Internet knows a lot about me.

Now I'm strapped to a small portable machine that is taking my blood pressure every half hour. I like it. I feel medicalised and I'm enjoying the mild drama. What I also like is the profile that it's building of my heart and its support system.

My blood pressure has been consistently high for 3 years. This machine I'm wearing and the results it provides will give an insight into the future behaviour of my heart.

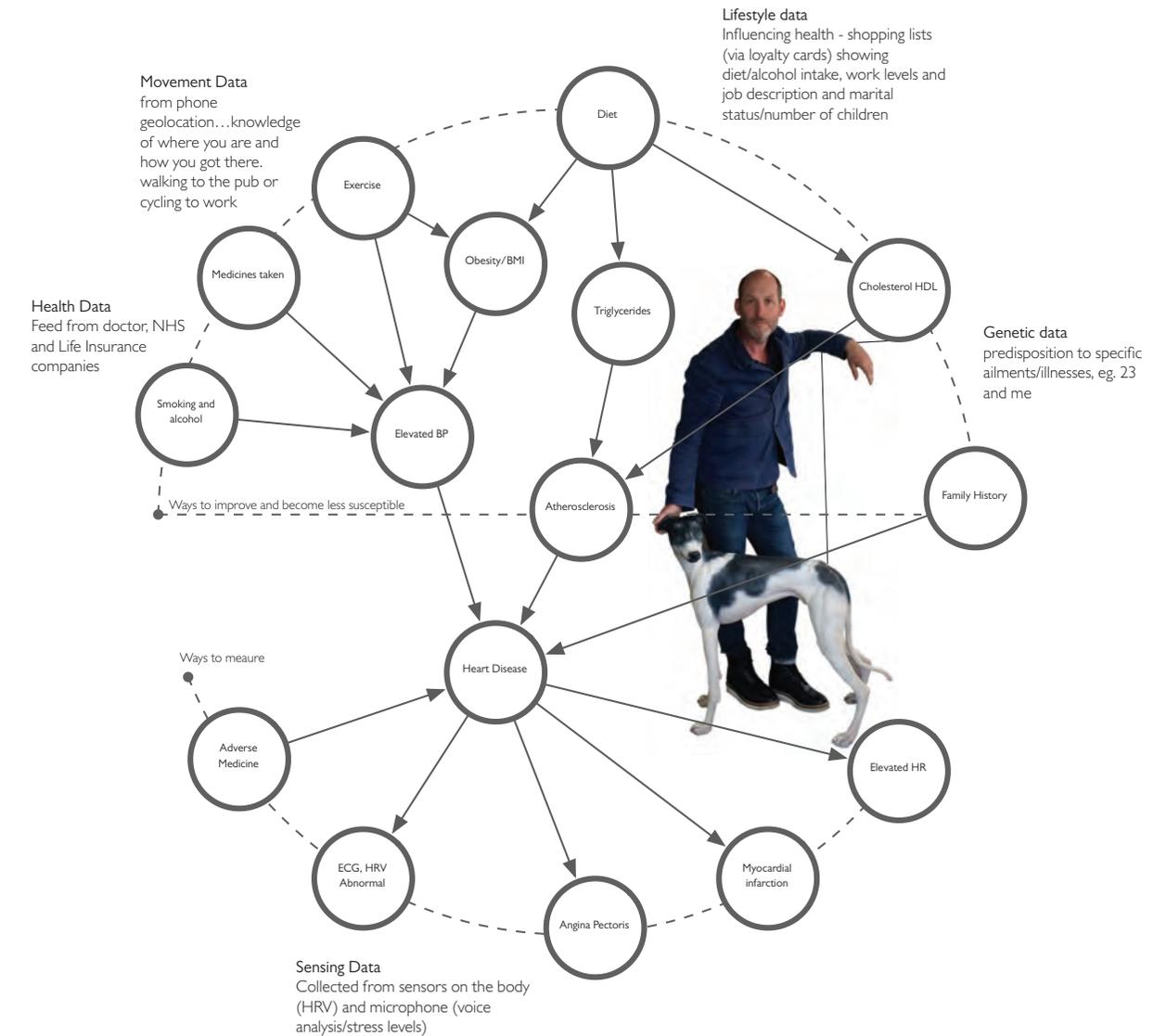
A prediction machine in my case might have access to all my medical records and the medical history of my family; i.e. who has died of what, or what illnesses are recurring in my immediate bloodline. Genetic information would also be released. It would have access to all my shopping habits and geo-location data from my phone. It would know where I went and how I got there. It would know if I was taking exercise, buying too many steaks and sausages and my drinking habits.

It would know if it was raining and I was on my bicycle, and if I'd had a pint.

And from this accumulated information rather like an insurance company it would begin to predict the health implications of my habits and show them to me.

I'm not sure if I actually want to know when I'm going to die, what I would like to know though is what the risks are, if there is a predicted event based on all the gathered information. From that point I may or may not leave the sausages on the shelf in Sainsbury's, I might play Badminton, leave the butter off one side of my sandwich and as I mentioned before I'm getting a dog.

Jimmy Loizeau.



$$P(X_1, X_2, \dots, X_n) = \prod_{i=1}^n P(X_i | pa(X_i))$$

function **ELIMINATION-ASK**(X, e, bn) **returns** a distribution over X

inputs: X , the query variable

e , evidence specified as an event

bn , a belief network specifying joint distribution $P(X_1, \dots, X_n)$

$factors \leftarrow []$; $vars \leftarrow \text{REVERSE}(\text{VARS}[bn])$

for each var **in** $vars$ **do**

$factors \leftarrow [\text{MAKE-FACTOR}(var, e) | factors]$

if var is a hidden variable **then** $factors \leftarrow \text{SUM-OUT}(var, factors)$

return $\text{NORMALISE}(\text{POINTWISE-PRODUCT}(factors))$



Will Louis become a Professional Footballer?

Will Louis become a Professional Footballer?

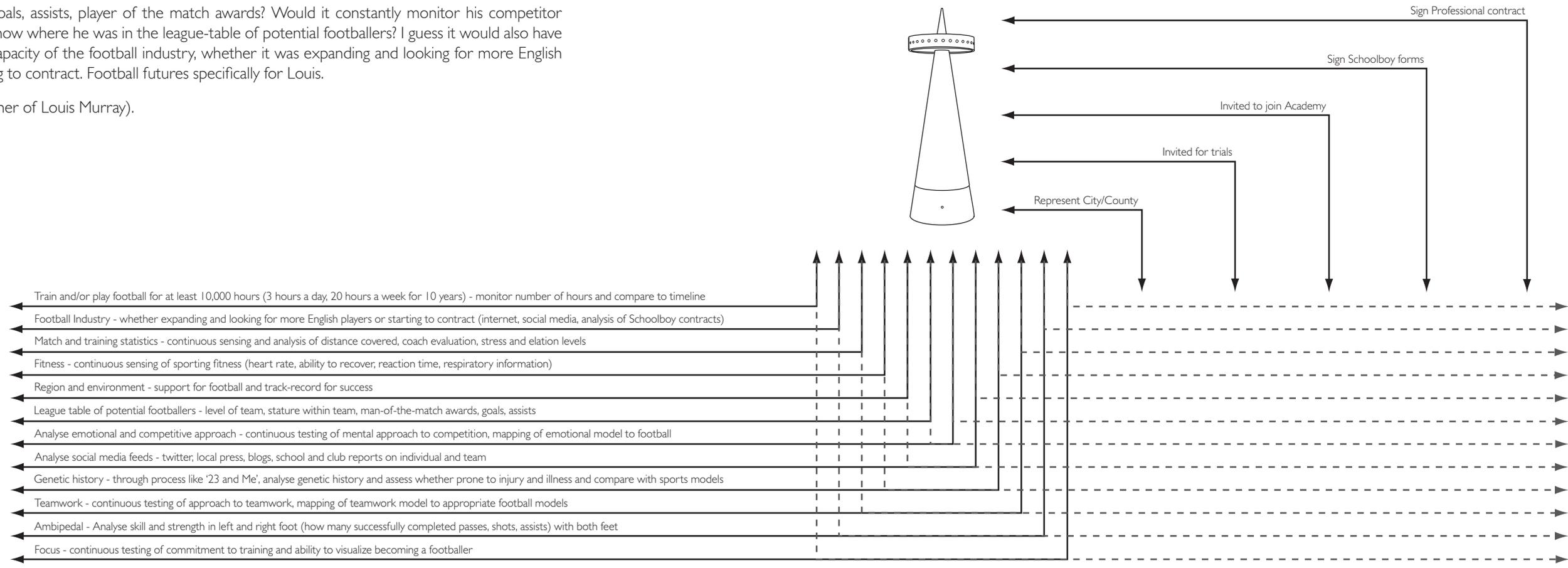
I love sport, though I am not a natural sportsman. I am a little clumsy and do not quickly pick up technique. What normally happens is that I become interested in a sport, then realise that I have difficulty with the basic technique. Then I obsessively work at it until my technical base is good enough to start picking things up and in a position to progress. I love having lessons from experts and I am a keen learner and will push and push to get better. Conversely, my wife Max has natural agility. She can watch a complex movement and mimic it perfectly first time. But she comes from a family that is not at all interested in sport and maybe consequently does not really enjoy watching or taking part in competitive sport.

When Max was pregnant with our son Louis, we wondered how he would turn out; would he be clumsy with no interest in sport (worst of both worlds) or have my drive and Max's physical dexterity (best of both). Luckily Louis seems to be able to pick up complex movement quickly and enjoys competition. I am constantly amazed at what he can do. He watches a football skill on Youtube and understands immediately what shape his body needs to adopt to replicate it. I have hardly ever seen him look ungainly or awkward when he is on a sports field. He is a gymnast, swimmer and footballer. When he hits a golfball people stop to watch his graceful technique. From me he gets his gutsy determination. When he was four and first started playing organised football he was so determined not to let players go past him he would rugby tackle them to the ground. I love watching him play and sometimes he takes my breath away as he does things (even at nine years old) I would have never attempted.

I am a delusional father who thinks his son is amazing and, of course, would become a footballer if he really wanted to. So I think the most interesting factor in a machine that helped predict whether Louis would become a professional footballer would be the constant analysing of him and what affects his chances. I guess the RPM would understand his physical and mental development. It would monitor how prone he was to injury and his genetic history. I guess it would also compare his emotional and competitive approach to other 'successful' models and use this as an ongoing assessment. It would assess his mental and physical attributes and compare this to the position he wants to play (and the success rate for those wishing to play in that position). It would understand the strength and skill of his left foot versus his right and keep an eye on any complimentary/critical social media description of him. It would understand how much of a team player he was and whether he could regularly 'change games'. It would assess whether he was committed to training and whether he continued to picture himself as a professional footballer. Would he have more chance of becoming a footballer if he was growing up in the North West than in Cornwall? Would the

RPM count his goals, assists, player of the match awards? Would it constantly monitor his competitor footballers and know where he was in the league-table of potential footballers? I guess it would also have to monitor the capacity of the football industry, whether it was expanding and looking for more English players or starting to contract. Football futures specifically for Louis.

Alan Murray (Father of Louis Murray).





Will Jimmy have a domestic argument?

I am a sulker. I can't help it it's almost physiologically not possible for me to not to. I also like to walk away from 'hot' situations, because i'm not good at dealing with heated exchanges. Louisa calls this 'storming off' and she doesn't like it. I call it evasion or a bit of space. I try to avoid storming off but it ends up in a worse argument.

My wife is a 'yeller'. She's a third child from a loud family. She says I am an only child. When I point out that I have three brothers, her reply is that I am still an only child and too used to getting my own way.

These are the states of play and our not uncommon bickering sometimes turns into something bigger.

I'm tidy, she's not. I'm uptight, she's more 'mañana'. Mañana never comes because I always empty the dish washer or clean the floor. I'm Northern, she's Southern. She comes from a tight functional family. I come from two generations of divorce.

She's optimistic, I'm a realist/pessimist.

When I was much younger I used to wonder why people would put the pressure of marriage on themselves when in my experience marriage was something that broke down.

We have been married happily for 16 years. We always bicker; it's the default form of communication. I am spoilt and she's a third child. She says I have OCD. I say she's a slob. There are certain times when I'm more likely to be argumentative. It's usually when I'm tired, stressed from work, feeling financial pressure and when the house is a mess. I have three children and the house is usually a mess. Being from the North I'm house-proud. My home was always very tidy. My bedroom was very tidy. When I was a student living in the usual squalor, my room was tidy. I also hate being overdrawn. Louisa says life is too short to worry about that. She's right but I hate being overdrawn.

There are surveys that say your 40's are the most stressful and depressing part of your life. Of course you should never listen to surveys but I am a typically grumpy middle-aged man. I'm sure that I used to be less grumpy and I'm hoping it's just a phase.

There are other surveys that say that the major causes of divorce are financial pressures and arguments about mess.

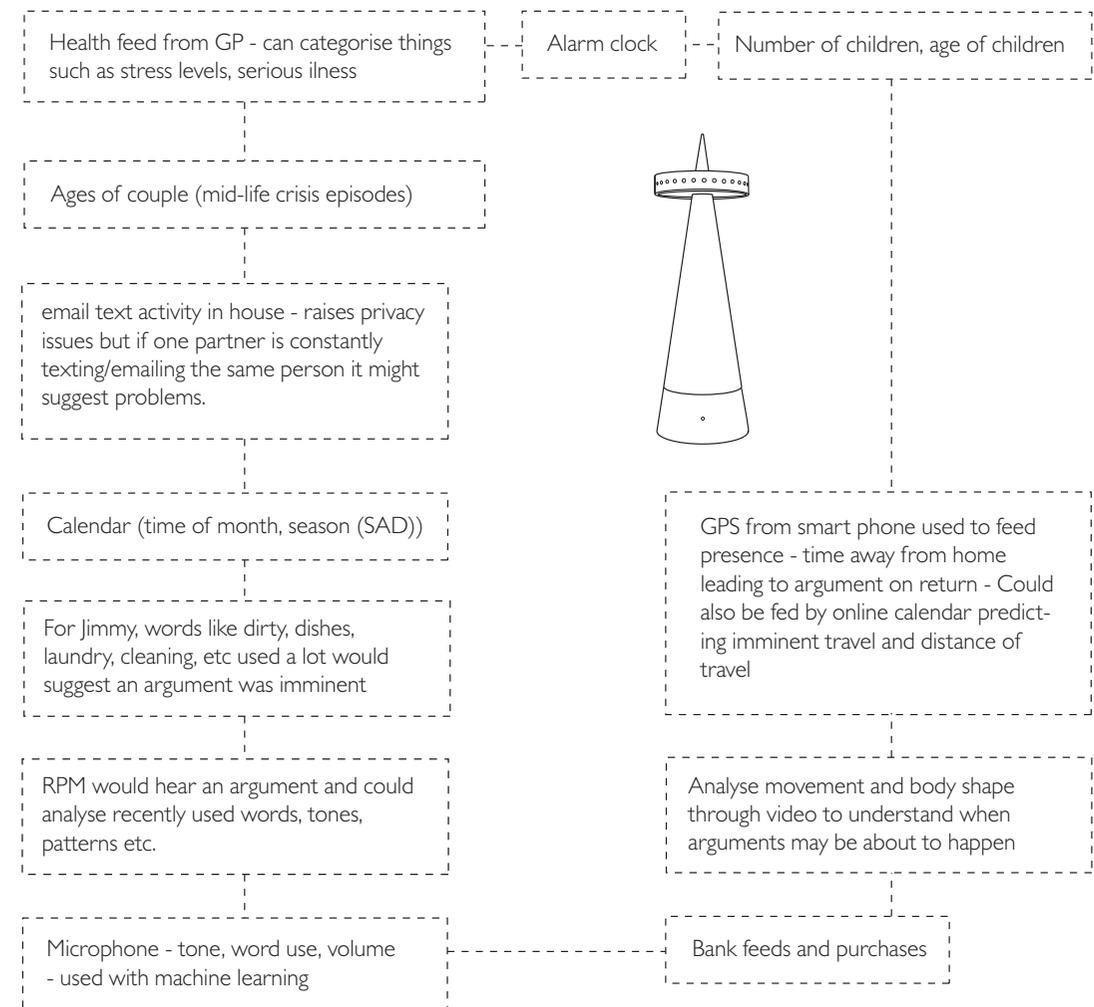
I'm not going to get divorced. I am going to break family tradition and be the one who parts from my wife at death or the other way round. She might divorce me, but that wouldn't be my idea.

I would like a pair of argument prediction devices, like a pair of candle sticks; one each. I like the idea of avoiding some of those louder, longer more vicious arguments. And I like the idea of a machine hinting to us that it might be time to 'back off'.

It might know more than us. It might be more sensitive or perhaps dispassionate than both of us and it might give us a hint that it's time for a takeaway meal, and a film and in both cases, we might try to accommodate each others choices, and then on the surface appear to enjoy them. Members of the family might also pick up the odd towel, or the odd shoe.. or ten.. and stop asking me for money and apps.

I like the idea that during an exchange of opinions one of us might glance at the machine and then get the Hoover out.

Jimmy Loizeau.





Will Labour win the next General Election?

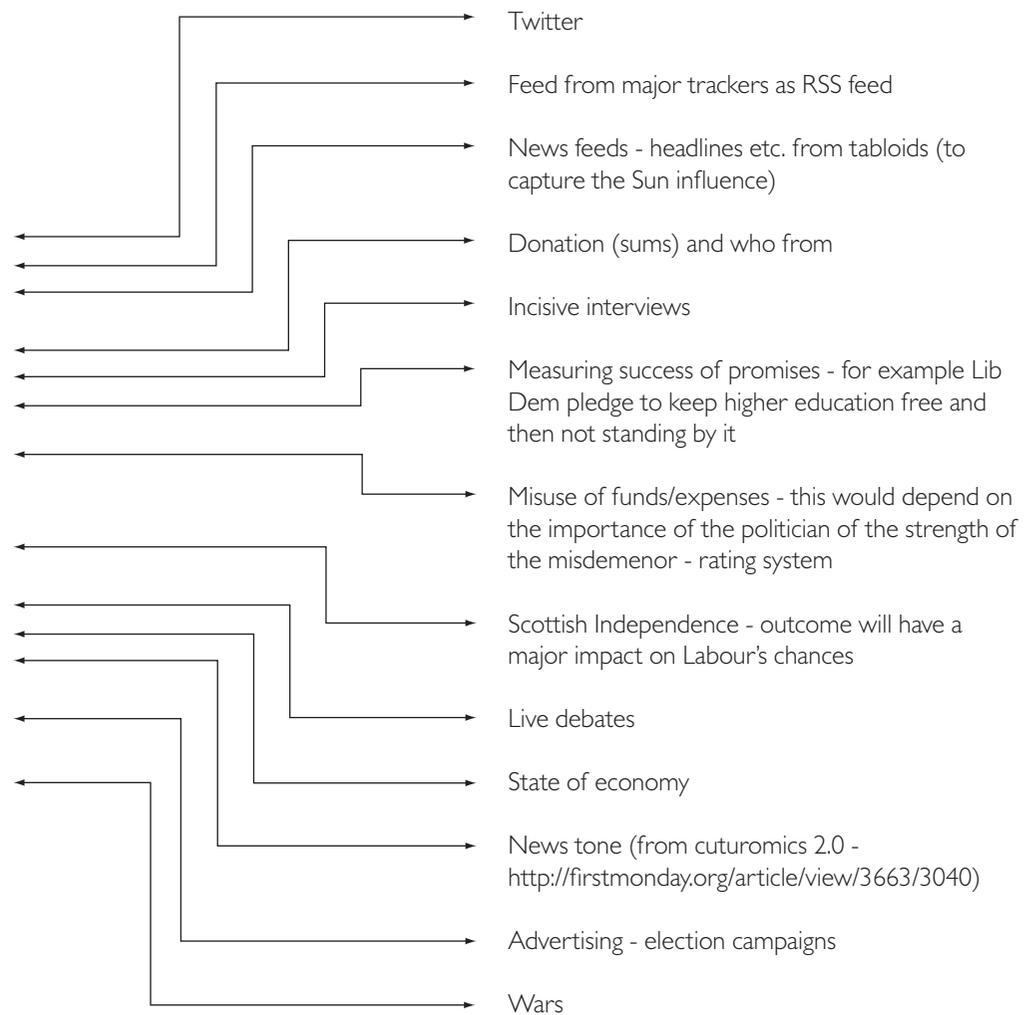
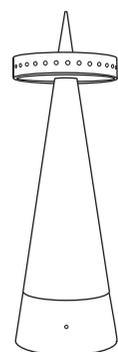
Will labour win the next General Election?

When Ed Miliband chose to eat that bacon sandwich in the presence of photographers he might not have expected that the political future of a whole country might shift slightly towards the right. The life of a politician is an odd one - years spent shaping policies, making allies, imagining and attempting to describe and sell their version of a 'better life' whilst being perennially susceptible to the complex and fragile question of electability - how the voting public perceives the individual. If a person can't eat a sandwich properly how could they ever manage to run a country? Other memorable faux pas (not necessarily associated with a particular party or country) - Gordon Brown calling a Labour supporter a 'bigoted woman'; David Cameron leaving his 8 year old daughter at the pub; George Osborne 'posh' burger and one of my favourites Richard Nixon's sweaty upper lip in the 1960 US presidential debate with Kennedy. The implications of these 'little' moments are monumental - Had Neil Kinnock not fallen in the sea whilst acting daft on Brighton beach in 1983 the pits mightn't have been closed down and the films *Brassed Off* and *Billy Elliot* never made. The whole future of a nation (and beyond) swayed by seemingly minor indiscretions or moments of idiocy.

Of course there are bigger events - 'IT'S THE SUN WOT WON IT' declared the tabloid newspaper in April 1992 after a previous front page headline stating "If Kinnock wins today will the last person in Britain please turn out the lights." UKIP's rise and of course a referendum in Scotland.

The Real Prediction Machine predicting Labour's next general election win follows all available data streams, each influencing the rotation of the prediction display - from the almost imperceptible change in speed caused by a slip-up by a minor party member to a complete change of direction as a consequence of the Scottish independence outcome. I imagine looking at the machine, observing these changes and wondering what has just happened in the world.

James Auger.





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