UNIVERSITY OF LONDON

Probability and Statistics: To p, or not to p?

Module Leader: Dr James Abdey

1.3 Uncertainty in the news

'News' is not 'olds'. *News* reports *new* **information about events** taking place in the world – ignoring fake news!

Especially in business news, you will find numerous reports discussing the many **uncertainties** being faced by business. While uncertainty certainly(!) makes life exciting, it makes decision-making particularly challenging. Should a firm increase production? Advertise? Cut back? Merge?

Decisions are made in the present, with uncertain future outcomes. Hence many media reports will comment on the uncertainties being faced.

Of course, some eras are more uncertain than others. Indeed, 2016 was the year of the **'black swan'** – **low-probability, high-impact events** – with the Brexit referendum vote and the election of Donald Trump to the White House the main geopolitical stories. Both outcomes were considered unlikely, yet they both happened. Some prediction markets priced in a 25% probability of each of these outcomes, but a simple probability calculation (as will be covered next week) would equate this to tossing a fair coin twice and getting two heads – perhaps these were not such surprising results after all!

Taking Brexit as an example, immediately after the referendum result was known, uncertainty arose about exactly what 'Brexit' meant. Exiting the single market? Exiting the customs union?

Financial markets, in particular, tend to be very sensitive to news. Even stories reporting comments from influential people, such as politicians, can move markets – sometimes dramatically! For example, read **'Flash crash sees the pound gyrate in Asian trading'** available at `http://www.bbc.co.uk/news/business-37582150`.

> At one stage it fell as much as 6% to \$1.1841 – the biggest move since the Brexit vote – before recovering. It was recently trading 2% lower at \$1.2388.
>
> It is not clear what triggered the sudden sell-off. Analysts say it could have been automated trading systems reacting to a news report.

> The Bank of England said it was 'looking into' the flash crash.
>
> The sharp drop came after the Financial Times published a story online about French President François Hollande demanding 'tough Brexit negotiations'.

Increasingly, quantitative hedge funds and asset managers will **trade algorithmically**, with computers designed to scan the internet for news stories and interpret whether news reports contain any **useful information** which would allow a **revision of probabilistic beliefs** (we have already seen an example of this with the Monty Hall problem, and will formally consider 'Bayesian updating' in week 2). Here, the demand for 'tough Brexit negotiations' by the then French President would be interpreted as being bad for the UK, which would lead to a further depreciation in the pound sterling.

> 'These days some algos trade on the back of news sites, and even what is trending on social media sites such as Twitter, so a deluge of negative Brexit headlines could have led to an algo taking that as a major sell signal for the pound,' says Kathleen Brooks, research director at City Index.

So, from now on, when you read (or listen to) the news, keep an eye out for (or ear open to!) the word **'uncertainty'** and consider what kinds of decisions are being made in the face of the uncertainty.