Information, "fake news", and AI: fact, theory and the line between science and belief[1]

With internet and more recently AI, information is instantly **available** about everything, and so now is AI-generated text. This is amazing and new in history. But we must be careful. Not all sources are **reliable** and reliable sources may be wrong: AI can "hallucinate". It is therefore vital to check sources, and to **cross-check** information.

Usually official institutions in open, pluralistic societies are fairly trustworthy. The information and analysis they **release** normally follows established scientific processes. The information they publish should be reliable – but it is not **infallible**.

Similarly, reputable media organisations normally follow journalistic codes of conduct about checking information. However, these news **outlets** rely on sales and advertising revenue. Also, they often broadcast instant commentary by **pundits**. Some such channels specialise in disseminating clearly-**biased** opinion, or even "fake news".

That is why it is important to cross-check sources and information, and think about what ideological position they may have. Wikipedia may help, especially for fact-checking. It is a truly international, collaborative encyclopaedia, with a Universal Code of Conduct to promote mutual respect, and a verification process to ensure neutrality. But it is only one source. AI reflects existing information on internet and may repeat biases.

In addition, it is important to realise that views expressed in one culture, or at one particular time, may turn out to be wrong in different situations.

Indeed, the **veracity** of information and facts is questionable by definition, as they do not really exist ***per se***, but only within the way we perceive them, against the background of the ideas and theories we already know. As Thomas Kuhn pointed out, simple "factcollecting" without a theoretical framework of analysis just "produces a **morass**".[2]

For Karl Popper, our "observation is always selective" and we are always interpreting what we see, because "we are born with expectations; with 'knowledge' which, although not *valid a priori*, is *psychologically or genetically a priori*, i.e., prior to all observational experience".[3] All we can do therefore is to make **conjectures**, to **hypothesise** about what may be true, and then test these. If a hypothesis is proved wrong, we need to formulate a new one, but experiments cannot absolutely prove a hypothesis.

This ability to test a hypothesis and maybe prove it wrong is the definition of science today: we can observe and test that the sun rises every day. Ideas which cannot be tested and **refuted** are beliefs: people may hold them strongly, but they are not scientific.

Available: accessible, at hand

Reliable: dependable, trustworthy

Cross-check: compare with other sources

Release: set free, issue, make available

Infallible: never wrong

Outlet: a place of exit, a point of sale

Pundit: someone who gives informed opinion

Biased: partial, onesided

Veracity: truthfulness

Per se: in or by itself (here by themselves)

Morass: flat, wet ground; something which is unclear

Conjecture: opinion, judgement, conclusion

To hypothesise: to put forward a hypothesis

To refute: to prove false, wrong, to falsify

[1] Thanks go to Goulven Rubin, Pierre-Charles Pradier and Horatiu Burcea for comments. The usual disclaimer applies (i.e. remaining mistakes are mine).

[2] Thomas S. Kuhn, *The Structure of Scientific Revolutions*, 4th edition, Chicago, University of Chicago Press, 2012 (1962), p 17. [3] Karl Popper, Conjectures and Refutations: The Growth of Scientific Knowledge, London, Routledge, 2002 (1962), pp 61-2.