

# Keep it simple?

Alistair Duffy  
[apd@dmu.ac.uk](mailto:apd@dmu.ac.uk)

The last ‘Perspectives’ discussed satisficing and set out an implementation framework to support this. Satisficing was effectively presented as a ‘good enough’ strategy, not adding unnecessary complexity to the model nor excessive burdens on the computing aspects. Someone raised the question “is this KISS (Keep It Simple, Stupid) by another name?”

I am going to answer ‘yes’ to that, but with a caveat that simplest may not necessarily be best.

What is Keep It Simple, Stupid (KISS)? I thought I would take a straw poll to see what people think, so, asking colleagues, the general answer was that the simplest possible solution is best.

However, KISS is often described as a more modern, informal (and perhaps marginally insulting) interpretation of Occam’s Razor. Occam’s razor has a number of other connotations than just KISS.

The 14<sup>th</sup> Century English Franciscan Friar, William of Occam is credited with this parsimonious principle, which is stated in a couple of ways, depending on where you look:

“Entities should not be multiplied beyond necessity”

or

“Plurality should not be posited without necessity”

In other words “do not use more detail than you need to”

In science it has mostly been applied to explaining observations or selecting theories. Two of the main interpretations are:

- When deciding between models that give the same results, choose the simplest one.
- Choose the simplest of a set of classification rules that classify existing data equally well, because this is most likely to better classify future data.

As numerical modellers, this suggests that if we get adequate agreement between two or more simulations, the simpler implementation is the one we would want to use. This is where the link to satisficing comes in: the models should be as simple as possible but not over-simplified.

Naturally, any theory that can be applied to the natural world will have its opposition. There are a number of anti-razors that have been postulated over the years. One of the most famous was stated by a contemporary of William of Occam, Walter of Chatton, who said “If three things are not enough to verify an affirmative proposition about things, a fourth must be added, so if you need to add more detail to explain phenomena you must add more detail. It never really caught on in the way that Occam’s razor did (the ‘razor’ coming from the idea of shaving back to the bare essentials) and the core message was probably captured (along with Occam’s razor) by Einstein who said “The supreme goal of all theory is to make the irreducible basic elements as simple and as few as possible without having to surrender the adequate representation of a single datum of experience”, i.e. simple without being too simple.

So how does this relate to satisficing and to KISS?

Occam's razor is most often used as a philosophical threshold for classification, grouping and selection, i.e. making sense of observations and theories. In the previous issue, we discussed satisficing in a more proactive way, looking at creating models and undertaking simulations that were simple enough but not too simple, with a structured approach to achieving a satisfied outcome. KISS suggests that the goal is in achieving the simplest possible result or implementation.

So, answering the question. "Keep It Simple, Stupid" and satisficing are very similar views. While KISS has been claimed to be a modern and informal interpretation of Occam's razor, it does imply an aim of over-simplification, whereas the satisficing approach discussed in the last issue tends to favour the view of keeping things as simple as possible, but not too simple.

## **Bibliography**

Discussions of Occam's razor can be found in most books dealing with the philosophy of science. Quality encyclopaedias (such as the Encyclopaedia Britannica) have articles on Occam and Occam's razor.

However a couple of accessible URLs that can help in finding out a little more about Occam's razor are:

Wikipedia: [http://en.wikipedia.org/wiki/Occam%27s\\_razor](http://en.wikipedia.org/wiki/Occam%27s_razor)

McGill University: <http://cgm.cs.mcgill.ca/~soss/cs644/projects/jacob/>