

The Characteristics of Heuristics

Pre-workshop reading and activity

What are heuristics?

The word 'heuristic' comes from the ancient Greek meaning 'I find, discover'. It has been used in so many ways that when you see or hear it you need to find out how it is being used. For example, if you've ever read anything by Amos Tversky or Daniel Kahneman, you will have come across the 'heuristics and bias' school which emphasises the so-called 'cognitive bias' in everyday decision-making.¹ Then there are the fabulously named 'fast and frugal heuristics' often used in classification and diagnosis.² They are useful in situations, such as medical emergencies, where ignoring much of the available information and basing decisions on only a few relevant predictors is highly effective.

The way we are using the term is as a 'mental shortcut' that reduces the cognitive load in making decisions and taking action. In common parlance, 'a rule of thumb' or a 'trick of the trade'.

Heuristics can be general, such as, "If what you are doing isn't working, do something else – anything else". Or they can be specific: "I before E, except after C" is handy if you are unsure whether an English word is spelled with 'ei' or 'ie'.

Heuristics differ from other decision-making methods. Rather than use logic, calculation, elimination or applying an algorithm,³ heuristics are based on real-world experience accumulated via trial-and-feedback (sometimes called wisdom). They are simple, easy to implement and *likely* to produce useful results. As Nassim Nicholas Taleb says in *Antifragile*:

Their main advantage is that the user knows that they are not perfect, just expedient, and is therefore less fooled by them. They become dangerous when we forget that. (p.11)

The kind of heuristics we are interested in comes under the heading, 'naturalistic decision making' (NDM). The aim is to identify heuristics that reflect how people actually make decisions in real-world settings.⁴ A pioneer of NDM, Gary Klein, says his research "suggests that people with experience rarely engage in the process of choosing among several options". They use their intuition to select an effective option, usually the first one they consider, from a range of previously acquired plausible responses. They do not consciously examine a range of options, and Klein believes they do not subconsciously examine them either. Instead they use pattern-recognition processes to adopt the first reasonable option.⁵

What are heuristics good for?

Heuristics are particularly useful when we need to make quick decisions or assessments under conditions of uncertainty resulting from incomplete knowledge or overwhelming information. In particular, when a 'good enough', rather than the 'right' or 'perfect' solution is, well, good enough. Sounds like facilitation to us!

Heuristics can be life-saving when used in, say, medical emergencies. They can also be plain sensible. Thomas Jefferson said, "When angry, count to ten before you speak. If very angry, a hundred".

One thing that seems to separate experts from novices is the greater number of heuristics available to the experts. And, heuristics can be used for good or ill. Interestingly, *experienced* burglars and police officers use a similar 'take-the-best' heuristic when assessing residences for their rob-ability. However they have different main criteria. Burglars look for an alarm system and the police look for accessibility of ground-floor windows and doors.

What does this have to do with Clean?

The kind of heuristics we will be examining in the workshop are based on 'context matching':⁶

If [context], then [decision/action].

A common example of a context-matching heuristic is: *If 'see green human icon at a traffic light at a junction' then 'cross the road'*. It is a safe option most of the time – but not always. Less common is the idea that the simplest way to catch a ball that requires you to move to where it's going to land is: "Fix your gaze on the ball, start running, and adjust your running speed so that the angle of gaze remains constant".⁷

At least four things are required to be able to successfully apply an heuristic:

- a. Know the heuristic
- b. Be able to recognise the relevant context (conditions, cues) in real-time
- c. Be able to apply the action appropriately
- d. Be able to calibrate the response (i.e. assess whether it was valuable or not).

And there two types of context:

- Conditions that occur at one moment (i.e. a single occurrence)
- Conditions that happen over time (i.e. a pattern)

In terms of clean facilitation, an example of the first is our Problem-Remedy-Outcome (PRO) model. It says:

Codify the client's language as either a current Problem, a proposed Remedy or a desired Outcome (or none of the above, in which case the model does not apply). In each case, then ask the specified Clean Language question(s).

A common example of the second type of context-matching would be:

If you notice a client repeat a behaviour three times note it as a pattern.

During the workshop

The format of the Developing Group workshop on November 26 and 27th will be a little different than usual. We will not be presenting new material as such, and we'll set aside *how* heuristics work. Instead we'll draw on the combined experience of the group to discover which heuristics we make use of, and when.

We are going to concentrate on three kinds of heuristics :

1. Those where the client or their metaphor landscape is the context.
2. Those where the facilitator's response is the context.
3. How we might cleanly facilitate clients to develop their own heuristics.

The PRO model is a well-defined example of #1. Another example is: If a client uses a feeling word, apply the 'feeling to a metaphor' routine.

An example of #2 is any go-to mini-strategy you use if you get stuck, lost or confused while facilitating a session (e.g. ask the client to draw their landscape).

Apart from these well-documented heuristics, we guess there are plenty of others that have yet to see the light of day.

Pre-workshop activity

Before the workshop, we would like you to identify some *clean-related* heuristics you use in relation to #1 and #2. Please note:

- The context (conditions, cues) which make the heuristic relevant.
- The action you take as a result of having recognised that this context exists.

And bring your ideas to the group.

Further reading

If you'd like background on

The use of heuristics in philosophy, law and artificial intelligence, Wikipedia is a good place to start. en.wikipedia.org/wiki/Heuristic

However, Wikipedia's heuristic (psychology) page is the more relevant to our topic. [en.wikipedia.org/wiki/Heuristic_\(psychology\)](https://en.wikipedia.org/wiki/Heuristic_(psychology))

And, James wrote a blog some years ago about research into pattern-matching and how people make complex decisions rapidly (21 March 2012).

cleanlanguage.com/making-complex-decisions-rapidly/

Notes

¹ Tversky, A. & Kahneman, D. (1974) Judgment under Uncertainty: Heuristics and Biases. *Science* 185(4157):1124-1131.

sites.socsci.uci.edu/~bskyrms/bio/readings/tversky_k_heuristics_biases.pdf

² Marewski J.N. & Gigerenzer G. (2012) Heuristic decision making in medicine. *Dialogues Clinical Neuroscience*. 14(1):77-89. ncbi.nlm.nih.gov/pmc/articles/PMC3341653/

³ An algorithm is "a set of rules to be followed in calculations or other problem solving operations. ... The Power of Six algorithm comprises six basic search patterns". Philip Harland and Matthew Hudson (2008) A Clean Start to the Power of Six.

academia.edu/61499937/A_Clean_Start_to_the_Power_of_Six

⁴ Klein, G. (2008). Naturalistic Decision Making. *Human Factors*, 50(3):456–460.

researchgate.net/publication/319770380_Naturalistic_decision_making

⁵ Klein, G. (2015). A naturalistic decision making perspective on studying intuitive decision. *Journal of Applied Research in Memory and Cognition*. 4(3):164-168.

sciencedirect.com/science/article/pii/S2211368115000364

⁶ The idea of context-matching is easy to make sense of when we regard the context as 'external' and 'out there'. However, when we remember that all we know of the 'external' is our 'internal' perception of 'out there', the process involves matching a perception with a 'store' of (mostly) tacit knowledge. The loop gets loopier when we recognise that this process is both descriptive and prescriptive. For example, to a large degree our eyes 'see' what we expect to see – given the context. Thus our tacit knowledge of heuristics prepares our eyes to recognise that which we know how to respond to!

⁷ Gigerenzer, G. and Brighton, H. (2009), Homo Heuristicus: Why Biased Minds Make Better Inferences. *Topics in Cognitive Science*, 1: 107-143.

onlinelibrary.wiley.com/doi/10.1111/j.1756-8765.2008.01006.x