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July 15, 2009 by [Matt Grist](#) · [Leave a Comment](#)

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In [the RSA journal](#) this quarter, there is a section on innovators chosen by project directors here at the RSA. My choice was [Karl Friston](#). I chose him because he is (amongst other things) attempting to prove [a unified theory of how the brain works](#) – one which is general enough to explain all the different functions, but not so general as to be uninteresting. That is, the general theory must inform research into specific functions: it must be possible to apply it to, say, the movement of limbs, in a way that means we learn more about this particular function.

So such a unified theory helps our understanding advance (it helps us understand how our brains move our limbs). But it also gives us a metaphor for understanding ourselves, and metaphors are important because they shape the way we approach problems, allowing us to find new ways of thinking about things and thus new solutions.

In part the Social Brain project is about metaphors – what do the major insights of neuro- and behavioural science over the last twenty years or so tell us about ourselves? If they give us a different metaphoric conception of our identity, which new approaches to problems and issues might arise? We aim to make this understanding available in accessible form to various people and then see what insight it might give them into their practice.

This is a form of reflexivity, something which Anthony Giddens claims defines self-identity in our 'late modern' era – to be a self is not to be a fixed type or play a heavily circumscribed traditional role, it is to construct a story that one tells to the world and updates in light of experience.

To go back to Friston's theory of the brain, I'll try to explain how it begets a new metaphor of self-identity. The

basic proposition is that nothing comes to the brain uninterpreted – every piece of information is interpreted as meaningful in some way or another. In other words, our brains constantly look for patterns in the world, whether this be our bums telling us a chair is hard, or our hearing ‘fork handles’ as ‘four candles’.

Friston explains this interpretative work in terms of something he takes from physics, the idea of ‘free energy’. The latter is the energy available within a system that can be put to work by the system in question. Take a steam engine. There are a certain amount of variables that matter to its running – summed up roughly by the relations between water vapour, heat, and pressure. Electromagnetic fields, on the other hand, do not matter to the running of steam engines. The variables that matter are what Friston dubs ‘free energy’ – the energy present in a system that can affect its behaviour.

According to Friston all brain functions work on the principle of identifying ‘free energy’. This is the case whether the functions are unconscious or conscious. When walking down the street our sensory system automatically feeds in information about our surroundings, constantly looking for what is salient to avoiding falling over and bumping into things – that is, it is constantly looking for what the ‘free energy’ is in its current environment pertinent to the ‘system’ that consists of bodily interaction with air, surfaces, other objects etc. In doing this it ignores many things – the colour of the sky for example.

In the case of conscious processing, the aim is the same. If I am solving a crossword puzzle I am concerned to identify, in the case of each clue, everything that is pertinent to finding the answer. I ignore many things as irrelevant, like the typeface the clue is written in, the current time, what I ate for breakfast, focussing down instead on the ‘free energy’: that within the ‘system’ of meanings that is relevant to the particular question.

Friston sums up this search for free energy in the following nice metaphor: the brain interprets the world with the constant aim of *avoiding surprises* (a hole in the ground, a fast-moving skateboarder; an unknown meaning to a word, an unknown connection between concepts).

Think about it, I challenge you, everything you do can be thought of in terms of avoiding surprises. I have to admit, I cannot prove this point but I have tried to think of something within my own life that contradicts ‘Friston’s law’, and haven’t managed it so far. If you do, let me know!

It might be thought that the joy of surprise - for example when we come across a twist in a film or a story – conflicts with Friston’s metaphor. But I don’t believe this is so. Once the ‘twist’ is revealed, it becomes one more pattern we can predict, one less surprise we are subject to. Or perhaps another way to look at it: when we understand how the surprise came about, we are exhilarated by almost losing predictability before regaining it, rather like a mountaineer might push herself to the limit of her ability in order to enjoy just how far-reaching it is.



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This is the blog of Matt Grist, director of the RSA's Social Brain project. This project looks at research pitched at the three levels of brain, individual behaviour and social organisation. It aims to integrate this research into a credible and useful model of decision-making, in light of the breakdown of the rational-choice model employed in recent years. The idea is to give an account that does full justice to all the different ways we are human. This account will inform both the RSA's and its partners' thinking on policy with regard to behaviour change issues across a number of areas. The views expressed on this blog do not necessarily represent those of the RSA or the Social Brain project. email me: [matt.grist\(at\)rsa.org.uk](mailto:matt.grist@rsa.org.uk)

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