The inherence heuristic is inherent in humans

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Abstract: The inherence heuristic is too broad as a theoretical notion. The authors are at risk of applying their own heuristic in supporting itself. Nonetheless the article provides useful insight into the ways in which people overestimate the coherence and completeness of their understanding of the world.

The principle that people try to make sense of the world by assuming that observed patterns are explainable in terms of deeper structures is clearly a fundamental aspect of intelligent cognition. Any species with capacities for learning beyond simple conditioning has evolved the ability to pick up on the deeper causal structure in the world and to use it to avoid relying on simple appearances. What is interesting about Cimpian and Salomon's proposal is that they suggest that humans treat this as the default situation. People automatically assume there is something inherent in the nature of things that leads to observed patterns of behaviour or social practice, whether or not such a principle in fact exists. Rather than knowing the reasons for things being the way they are, people start with the known facts and then rationalise the underlying reasons. If plausible, urban myths are founded. A well-known example is the supposed meaning of the word "posh" as being an acronym printed on steamer tickets for the richer class of English folk bound

for India – "port out, starboard home" – meaning a cabin on the cooler north-facing side of the ship. It is accepted that this explanation of the word is a fabrication, and there are many others of a similar nature (O'Conner & Kellerman 2009).

As well as implicating our tendency to rationalise, there is also a clear connection between the inherence heuristic and Rozenblit and Keil's (2002) discovery of the illusion of explanatory depth. In their studies, people claimed to understand the workings of everyday mechanisms such as toilet flushes or helicopter rotors, but when challenged they had to admit to having incoherent or at best incomplete understanding. There is such a strong pull to feel that our concepts must be coherent that we easily overestimate the level of comprehension that we possess. (Students often find this out, too, when exams come around.)

The proposed heuristic, or perhaps it is a bias, explains a range of different behaviours. It also draws together many familiar characteristics of human thought – from conservatism and reification to attribution theory and psychological essentialism.

The heuristic is also perhaps reflexive – the authors are themselves attributing these observed patterns of behaviour to an inherent inherence heuristic. There is something inherent in humans, they claim, which explains why they tend to assume that kinds have essences. Perhaps as a consequence of this reflexivity, there is a risk of the heuristic lacking explanatory power. It's vaunted "explanatory promiscuity" (sect. 3.3, para. 8) is surely not a positive characteristic for any theory. As the authors again comment (sect. 5.2, para. 3) "the inherence heuristic can be invoked to explain pretty much any observed pattern," and this could be considered to be the primary weakness of the proposal. For example, differences in the tendency to essentialise natural and artefact kinds are attributed to vague notions of the causal narratives that may be available to the child, but the account, here and elsewhere, is often largely circular. The authors

are subject to their own heuristic. Children develop in particular ways because of something inherent in them or in their situation. The inherence heuristic is like a first stage in scientific exploration where the researcher suspects the presence of a deeper process generating the observed patterns. The question is whether the theoretical proposal made goes beyond this.

On a more positive note, the target article does highlight the generality of the issues involved in people's need to explain and understand the world. The literature on explanation has had a strong emphasis on causal explanation of events, but a lot of everyday explanation is much weaker than this. For example, Heussen and Hampton (2008) looked at how people explain the properties of different kind concepts. Why are emeralds expensive, or why do catfish have gills? Explanations followed some familiar patterns, such as cause and effect (glass is transparent because of its molecular structure), functional (catfish have gills in order to breathe under water), teleological (axes have blades because they are used for chopping), and categorical (penguins have feathers because they are birds). But, interestingly, many explanations were underspecified, simply explaining one property in terms of another in a relatively vague way. In several cases, explanations were considered plausible in each direction – a symmetrical explanation that raises obvious concerns of circularity. Whistles are loud because they are used for alerting people, but they are used for alerting people because they are loud. Dolphins are mammals because they give birth to live young, and they give birth to live young because they are mammals.

The circularity of these explanations speaks to the underlying homeostatic web of interlocking features that characterise our concepts (Boyd 1999; Quine 1960). Understanding a topic involves finding the relations that link the different aspects of a concept, without the need for a clear narrative moving from a primitive deep starting point through to the surface features that we observe. It is possible therefore that the *inherent* property that people appeal to when

accounting for girls wearing pink or people drinking orange juice for breakfast may often be a shorthand for this unanalysed set of interlinked properties.

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