

Re: "Inductive intelligence" or a "generalist" cognitive bias in

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- *From:* "Phil Roberts, Jr." <[philrob@xxxxxxxxxxxxxxx](mailto:philrob@xxxxxxxxxxxxxxx)>
  - *Date:* Tue, 20 May 2008 13:49:24 -0400 (EDT)
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cognomad@xxxxxxxxxx wrote:

I googled "inductive intelligence" & hit on John W Edser' post of the last year. I share his frustration with IQ measures & came up with an explanation of why real-time tests can't capture a high-level generalization ability, caused by a longer-range induction. Basically, induction is a search for matches/patterns, & deduction is an interactive projection of these patterns.

Most work in AI is based on a HUGE assumption, i.e., the assumption that rationality can be reduced to logic. This runs counter to Godel's logical discovery that mathematical rationality can never be found in its entirety with a formal (e.g., logical) system.

Here's a line of argument that suggests that "reasoning" is a bit of a different animal from the one characterized by the Kahneman, Tversky etc. crowd who are still operating on the logic = rationality assumption (IMHO). Its from one of my papers presented at a number of conferences over that past few years in which I draw a distinction between higher cognition and lower cognition as follows:

[begin quote]

Higher Cognition (class)  
(analogical ?reasoning?)

Associations arising from  
'the cognition of abstruse  
similarity and difference',  
e.g., electricity is like  
water flowing in a pipe.  
Highly individualized.

Lower Cognition (class)  
(conditioning)

Re: "Inductive intelligence" or a "generalist" cognitive bias in

Associations arising from 'the cognition of obvious similarity and difference', e.g., this A + B sequence is like one's previously observed. Inter-environmental individualization, intra-environmental isomorphism. Likely progenitor of higher cognition.

#### Higher Cognition:

Not uncommonly, deductive syllogisms such as 'Socrates is a man, all men are mortal, therefore Socrates is mortal', are offered as examples of reasoning. This is not how I am employing the term in the phylogeny, which is why it appears in quotation marks. I mean for it to refer to whatever thought process lies at the heart of ampliative inference, a process often associated with 'Aha!' or 'Eureka!' experiences, but commonly falling below the threshold of an identifiable event in which much, if not most, of the processing is not introspectively available. Even so, by applying a bit of the abstraction and generalization sanctioned by our methodology and in contrast to the Nisbett and Wilson approach to the study of 'higher order, inference based responses?', I believe enough is available for us to make a reasonable guess that the cognition of similarity and difference (analogical/metaphorical 'reasoning?') does most of the heavy lifting. But then I am hardly the first introspectionist to arrive at that conclusion:

'All kinds of reasoning consist in nothing but a comparison and a discovery of those relations either constant or inconstant, which two or more objects bear to each other?' (Hume, 1739).

#### Lower Cognition:

My unorthodox definition of conditioning as 'the cognition of obvious similarity and difference?' stems from my unorthodox definition of reasoning as 'the cognition of abstruse similarity and difference?' which, when combined with the former, offers a number of explanatory advantages:

1. It allows for continuity between the two concepts and, as such, allows for an appreciation of how 'reasoning?' might have evolved from conditioning. In this view, the ability to understand electricity by comparing it to how water flows in

Re: "Inductive intelligence" or a "generalist" cognitive bias in

a pipe is just an extension of the process that underlies an organism's ability to understand a currently observed A + B sequence (e.g., Pavlov's dogs) by comparing it to ones previously observed.

2. It allows one to forego syllogistic deduction ('Socrates is a man?', etc.) as a paradigm for reasoning in that, based on the analogy with conditioning, concluding that Socrates is mortal can be viewed as analogous to a conditioned mouse remembering it must go left at the fourth fork in a maze. In much the manner the mouse's recollection would be construed as more a manifestation of conditioning that has already occurred, we might also conclude that deducing Socrates is mortal is more a manifestation of reasoning which has already occurred, and perhaps closer to remembering than reasoning, at least in an ampliative sense of coming to a deeper understanding of the nature of reality, and thereby serving to produce a net increase in one's rationality.

'If analogy were merely a special variety of something that in itself lies way out on the peripheries, then it would be but an itty bitty blip in the broad blue sky of cognition. To me, however, analogy is anything but a bitty blip — rather, it's the very blue that fills the whole sky of cognition ? analogy is everything?? (Hofstadter, 2001).

3. It allows for a naturalistic indeterminism in that one can surmise that once an event sequence or feature has become cognized it is easy to appreciate how one might then have the option of following the sequence or conforming to the feature or not, and thereby becoming less determined by it, i.e., aware of more options than prior to the cognition. Another way of saying this is that it lends itself to the suspicion that there might well be an inverse correlation between 'being cognizant' or 'being rational' and 'being determined?.

[end quote]

'Rehabilitating Introspection:  
A Procedure for a First Person Psychical Science'

Phil Roberts, Jr.  
www.rationology.net