

Thinking About Thinking About Thinking

Can animals think? Can they think about thinking? Yes, say scientists.

Here's what actually happened though. Someone had the brilliant idea of adding an additional button to those classic experiments where you train an animal to press buttons in response to stimuli.

In the classic experiment, you call the stimuli "questions", you call the button-pushing behaviour "answers", add a little **anthropomorphism**, and bingo, the Nobel Prize for Discovering that Animals Can Think is within your grasp. Or at least, a credulous newspaper article to that effect – and, perhaps, more funding for more of the same silliness.

In the new experiment, the extra button doesn't actually do anything. And so sometimes, when the animals' training has not been good enough to get them to pick the right button, they choose randomly and sometimes hit the new button. Even better, if you punish them for pressing the *wrong* button, but never punish them for picking the new button, then they will pick it whenever a conditioned reflex for one of the other buttons does not kick in first.

OK, so far, so obvious. But here's the master-stroke: as usual, it lies not in the substance of the experiment but in the *naming* of the outcomes. You call the new button the "Don't-Know" Button.

Actually, you could call it the "I'm sorry, ladies and gentlemen, but I'm afraid I can't work out the answer to your interesting question right now. Leave it with me and ask me again in a few days and perhaps by then I may have understood better what you are getting at" button. But, whatever. The point is, as always, once you have given your new button a human interpretation at the start of the experiment, your jackpot conclusion at the end – that the animal is essentially human – is pretty much guaranteed.

That is what a team from the aptly named 'University of Buffalo' did. And that's how the Science Editor of *The Guardian* breathlessly came to splash the headline: **Animals 'can think about thought'**:

It means that animals, like humans, may be capable not just of thinking, but of thinking about thinking, of knowing that they don't know. Psychologists call this

"metacognition", evidence of sophisticated cognitive self-

awareness.

No, it doesn't mean anything of the sort. It just means that humans displayed their usual ingenuity in naming the new button. But it does demonstrate yet again that when it comes to thinking about thinking, some humans chronically fail to use their inborn potential.

We think electric shocks might be the answer.

Update: We decided to do this experiment ourselves, and have discovered that our computer has evidence of sophisticated cognitive self-awareness too. We launched the program **Mathematica** and without further ado typed the following question:

Do you understand this?

The immediate reply was:

Syntax::"tsntxi": "this ?" is incomplete; more input is needed.

Do you understand this?

(Emphasis in original!) We are expecting our phone call from Stockholm any time now. Our only worry now is, is it morally justifiable to switch the thing off?

Wed, 12/17/2003 - 17:36 | [digg](#) | [del.icio.us](#) | [permalink](#)

:-)

owned!

- Elliot

by a reader on Wed, 12/17/2003 - 23:34 | [reply](#)

spot on

Nice post, beautifully cutting. I almost reflexively dodged the flying spit several times.

One day, my friends, there will be a glorious revolution and all those stupid f-ing pigeons will finally get shot and we will be able to feed the (aesthetically more pleasing) ducks in peace.

Alice

by a reader on Thu, 12/18/2003 - 00:42 | [reply](#)

down with ducks

ewwww, no, i hate ducks. they are forever tainted by their

involvement with induction.

- Elliot

by a reader on Thu, 12/18/2003 - 04:01 | [reply](#)

Bold Conjectures

Some animals do think especially when they are doing something useful according to their own minds, and especially when that something is for their own animal benefit rather than for the benefit of humans. However animals lack the language skills to tell us so and write rather poorly too. But animal literacy is largely irrelevant to animals, ho hum. Why should they even care to tell us what they think? Their grammar is rudimentary but not so different from ours if only they could speak and also wanted to debate these bold conjectures. Trouble is a flaw in the design, the animals would scoff in barks and scratches and knowing sniffs and fur fluffing. If the human experiment only consists of three buttons, humans, like us animals, do look kinda stupid and reflexive. The three button scientists continue to scratch their heads and say, "Don't know. Looks like there is something going on in there. Let's do three hundred random trials and test the null hypothesis." Can you imagine an animal even thinking like that? And what would you do with grant money if you only had paws?

by a reader on Thu, 12/18/2003 - 04:24 | [reply](#)

"bold conjectures" -- huh?

A reader who says animals think but who's only argument is that animals are bad at communicating and unambitious, asked:

And what would you do with grant money if you only had paws?

i suppose i'd buy bark-recognition software and a computer and DSL and a (dog) house and maybe a maid (dogs aren't free to roam the streets alone, after all).

alternative answer: If you can't think of anything, I'm not surprised you "think" animals are as smart as you ;-p

by a reader on Thu, 12/18/2003 - 06:22 | [reply](#)

Seriously

I thought that was funny :) The research in question got \$8000 in grant money to say "Don't know, but maybe". Now that would buy alot of dog food with a three button dispenser to boot! Dog laughing all the way to the bank. Oops but the subjects were monkeys and dolphins, both of which are pretty useless to human beings.

by a reader on Thu, 12/18/2003 - 15:10 | [reply](#)

Anthromorphism

To set the record straight, anyone who thinks that animals think

like humans do and then think about their thinking about it is stretching the point to absurdity. Anthropomorphism is seeing animals from a human point of view and attributing human characteristics to them, mostly a pointless, wrongheaded, and almost frivolous pursuit. If animals could think about this thinking about thinking they would laugh heartily at the absurdity of us looking at them as being somewhat like humans in a don't know response. Well, duh!

However, it is also good to know that brain structures in some animals are not all that different from brain structures in ourselves. Only we as humans have advanced to the point of knowledge acquisition, knowledge growth and knowledge sharing to know that. What is really interesting is why humans have progressed so far, so quickly in consciousness, far beyond any other earthly known capacity to think about thinking among many other cognitive things, and much more than just in our own heads, unshared; and what's more, how human tools and devices (like symbolic thinking, progressive reason, language, writing, invention, productive debate, libraries as public resources open to all, scientific research, shared ideas, bold conjecture, creative wondering shared) and the like have made great leaps in our individual capabilities, each one, to advance not only human knowledge but the furthering of capacities of fruitful idea generation now available to billions of our kind; especially through access to our man made creative tools available to present and future generations to enhance our abilities to think about thinking. Why waste time on anthropomorphism, when we have all this, and us?

by a reader on Thu, 12/18/2003 - 17:53 | [reply](#)

Animal Rights

What has been claimed in this article about animals being able to think about thinking etc. is really absurd.

How ever, I do wonder if some highly evolved mamals do have a rudimentary consciousness or even self-consciousness? if so, if they are evolved enough to feel pain and suffering as some kind of conscious beings? And if so wouldn't it entitle them to some basic rights?

by a reader on Fri, 12/19/2003 - 01:57 | [reply](#)

got an argument?

conjecturing mebbe some animals are human or partly human, fun as it is, gets a tad dull when not backed up with powerful arguments.

- Elliot

by a reader on Fri, 12/19/2003 - 08:31 | [reply](#)

Elliot said: conjecturing ...

Elliot said:

conjecturing mebbe some animals are human or partly human, fun as it is, gets a tad dull when not backed up with powerful arguments.

Would you care to argue that there are no animals that are human? In which case, what are humans? Plants? Fungi? :)

- **Rich**, who thinks there are many powerful arguments from evolutionary biology that at least some animals are human.

by **Rich** on Fri, 12/19/2003 - 09:53 | [reply](#)

A chimp thinks what?

Rich, who thinks there are many powerful arguments from evolutionary biology that at least some animals are human.

What arguments?

by **Alan Forrester** on Fri, 12/19/2003 - 13:39 | [reply](#)

Probably more than I do without coffee

Alan said:

What arguments?

The evidence from shared morphology that humans and other animals can be fitted into nested sets of clades with common ancestors. The evidence from genes shared by humans and other animals that similarly strongly suggests the existence of common ancestors. The evidence from the fossil record that shows convergence between human and other lineages as we look further and further back in time.

If this doesn't convince you that humans are a subset of animals (and hence logically that some animals are humans) then I don't know what will.

- **Rich**

by **Rich** on Fri, 12/19/2003 - 14:56 | [reply](#)

This is Getting Silly

Rich,

Obviously, Elliot and Alan were using "human" to mean having human-like mental abilities; not the species. And they were using "animals" to mean non-human animals; which is not an uncommon usage.

And, although "some" can indeed mean one, I think it's misleading

to use "some animals" when you're talking about one (species of) animal.

So, are you supporting the position that there are non-human animals that can "think about thinking", or are you playing a semantics game?

Either is ok with me, but I'd like to know.

Gil

by **Gil** on Fri, 12/19/2003 - 18:22 | [reply](#)

Gil said: So, are you supp...

Gil said:

So, are you supporting the position that there are non-human animals that can "think about thinking", or are you playing a semantics game?

I thought that what I was saying was *entirely* clear from my very first comment in this thread when I said:

Would you care to argue that there are no animals that are human? In which case, what are humans? Plants? Fungi? :)

(Complete with emoticon!)

Although, having said that, I recall reading once about a chimpanzee getting upset with a human when said human was playing quite a subtle trick on another chimpanzee. I don't remember the details though nor do I have a reference so I'm not going to get involved in that argument.

- **Rich**

by **Rich** on Fri, 12/19/2003 - 20:23 | [reply](#)

i remember a study too

it was about silly people who mutter things under their breath while leaving that they don't want to subject to criticism. it said they are at highly increased risk of cancer or heart attack. i don't remember the source though, so don't criticise me.

by a reader on Sat, 12/20/2003 - 02:00 | [reply](#)

Chimps in mirrors

Just thought I'd mention: Scientists did an experiment with Chimps and mirrors and concluded that Chimps are "self-aware". They would experiment making facial gestures and moving their bodies and stuff to see if the "mirror self" would do it also. They're self aware! They're taking over!

Also, the scientific community has expressed interest in awarding

Chimps "homo" status, which would make them human.

by a reader on Sat, 12/20/2003 - 07:05 | [reply](#)

Somebody anonymous said: i...

Somebody anonymous said: it was about silly people who mutter things under their breath while leaving that they don't want to subject to criticism. Oh, give me a break. I never said that I didn't want people to subject it to criticism. To do so would be pathetically easy, seeing as it's a barely remembered anecdote. I said that I didn't want to take part in the argument (which would require doing quite a lot of research to present a proper case, and I'm afraid I just don't have the time right now). I only added the comment because I thought it was vaguely interesting, that there might be other people here who knew more about that sort of thing and who might make their own interesting comments, and because, if nothing else, it might get people thinking about possible experiments that could further investigate meta-cognition (or it's absence) in other animals.

If you'd like to criticise it, go right ahead.

- **Rich**, who must admit he strongly discounts the contents of anonymous postings.

by **Rich** on Sat, 12/20/2003 - 09:56 | [reply](#)

oops, didn't mean to be anonymous

that was me

- Elliot
<http://www.curi.us/>

by a reader on Sat, 12/20/2003 - 10:19 | [reply](#)

Anonymous conjecture

The world is spherical and contains matter.

by a reader on Sun, 12/21/2003 - 00:02 | [reply](#)