

---

**From:** Joscha Bach [REDACTED]  
**Sent:** Thursday, April 28, 2016 3:57 PM  
**To:** Jeffrey Epstein  
**Subject:** Re:  
**Attachments:** signature.asc

I remember how I played with neural networks as a student, and stumbled =n a solution where I could speed up the learning dramatically by =etting the network estimate how well it knew certain parts of the =problem space, and focus its learning on that area. The next step was to =et the net decide what training data it wanted to look at. Obviously, =sking is better than observing. But for current AI systems, questions =re much, much harder, of course, at least in the general case. To ask a =uestion, I must know what I do not know, and I must know what someone =lse knows, and how to translate and fit the answer into my knowledge. =onsequently, even people seem to find asking much harder than =nswering. (Different rules may apply to socially regulated contexts.)

Children ask "true questions", in which they try to form complex models =or the first time. Once people have a model in place, they tend to only =sk for variables ("at which time does the train leave"), and when they =onverse about each others life, they tend not to be interested in model =evisions, but in mapping what they hear to existing variants of the =established. This seems to be even true when scientists extend their =heories: the natural inclination seems to be to find supporting =vidence to allow me to let the model stay in place, and simply adjust =t. Since a model revision would require to adjust all inferences and =onnections tied to the discarded model, this makes sense.

Looking at question asking systems seems to be an extremely promising =venue for AI research. I suppose we have to treat knowledge classes =uite differently: questions about basic linguistic structure can only =e answered by other speakers. Questions about conceptual maps can only =e inferred from statements of others. Questions about content can in =principle be deduced from individual observations, and asking questions =to others) is simply a shortcut.

The nature of question-asking seems to differ significantly between most =spergers and most neurotypicals. The former try to find out what is =rue, with the null hypothesis usually being that their own idea is =ight when it conflicts with what others tell them. Aspergers tend to =hange their opinions based on how they judge the logical truth of the =rguments of the other side. Neurotypicals tend to look for the "right" =nswer, not the true one, i.e. they try to align themselves with the =sentiments and norms of people they assign social status. The primary =echanism for this seems to be "emotional synesthesia", i.e. they =literally feel the emotions of other people as their own, including the =ense of rightfulness that accompanies a statement. Successful speakers =an project both conviction and high social status. Neurotypicals erect =ocial boundaries to a large extent to avoid "infection" with "bad" =pinions. I find that my intuitions about building AI (and about forming =nowledge, negotiating norms etc.) are largely influenced by being not =urotypical (and that is definitely true for the most capable people in =he field). It is very visible in Marvin Minsky and Noam Chomsky, I =hink. I wonder what we are missing, especially since my intuitions and =pparent experience tell me that non-nerds rarely stumble on the right =nswers to complex problems.

What do you think?

— J

> On Apr 26, 2016, at 08:45, jeefevacation@gmail.com> wrote:  
>  
> how are questions formulated by ai systems answers are easier than formulating good question

>  
>--  
> please note  
> The information contained in this communication is confidential, may  
> be attorney-client privileged, may constitute inside information, and  
> is intended only for the use of the addressee. It is the property of  
> JEE Unauthorized use, disclosure or copying of this communication or  
> any part thereof is strictly prohibited and may be unlawful. If you  
> have received this communication in error, please notify us  
> immediately by return e-mail or by e-mail to [jeevacation@gmail.com](mailto:jeevacation@gmail.com),  
> and destroy this communication and all copies thereof, including all  
> attachments. copyright -all rights reserved