Steve Bhm Commentary 19 November 2007

Erika and Liz have set up this puzzle, Why can 3-5 year olds discriminate knowledgeable from obviously ignorant experimenters when deciding who to believe but not when deciding whether to ask a question?

As a warm up, consider an explanation inspired by Gergely and colleagues' (2007) work with infants. Perhaps children fail to take the experimenter's state of knowledge into account because they assume adults are omniscient?

> Hypothesis 1 children fail to take the experimenter's state of knowledge into account because they assume adults are omniscient

Well, if that we're true it would be mysterious why they fail to accept what ignorant experimenters say in the [Tell] condition (and in related work *refs) -- after all, if the experimenter were omniscient, why wouldn't you switch your guess to match hers?

[Hypothesis 1 now rejected]

I want to explore a different hypothesis. Liz and Erika have suggested (or hinted) that the crucial difficulty in [Ask] is that children have to tap into a mental state, whereas in [Tell] and [Seek] the information children need is already out there in the world. I agree with their view and I want to suggest a version of this which emerged in discussion with them: children fail the [Ask] experiment because they don't understand knowledge as something that can be transferred via answers to questions.

> Hypothesis 2 children don't understand knowledge as something that can be transferred via answers to questions

That is, children understand knowledge only as a private mental state and not as something that can be transferred from person to person. As they understand it, knowledge is a internal quantity that can no more be shared than a pain can; they have yet to think of knowledge as transferable in the way that skills are transferable. We are

proposing that limits on children's grasp of knowledge which prevents them from taking into account what people know in deciding whether to ask questions.

If this hypothesis is correct, children should see the experimenter's knowledge state as irrelevant to deciding whether to ask the experimenter a question. For just this reason, I sometimes prefer to direct my questions to less knowledgeable but more articulate colleagues -- where someone's knowledge cannot be transferred, it's existence is irrelevant to the decision of whether to ask them a question.

~~Note that even if someone's knowledge is trapped in their head, facts about what they know can rationally influence how I formulate questions and requests. This is important because it has been argued that even quite young children are sensitive to others' knowledge in making requests (O'Neill 1996; Moll and Tomasello 2006 forthcoming). Our hypothesis that children don't understand knowledge as something that can be transferred via answers to their questions makes sense of the possibility that children show sensitivity to knowledge in *formulating* questions and requests but not in *deciding whether to make* questions and requests.~~

In the rest of this commentary I want to consider two objections to this hypothesis. If nothing else, I hope to confirm that the findings Liz and Erika presented pose a genuine puzzle. The first objection is that if the hypothesis were true, it would be mysterious why children ask questions more often when ignorant than knowledgeable. The second objection is that the hypothesis doesn't actually explain why children who succeed on the [Seek] trials fail the [Ask] trials.

I'll start with the first objection. If I thought someone's knowledge could not be transferred, there'd be no good epistemic reason for me to ask them any questions at all. So isn't the hypothesis that children don't understand knowledge as transferable falsified just by the fact that children do ask questions more often when they are ignorant than when they are knowledgeable (as our experiments 1, 2 showed)?

The objection seems plausible only to the extent that we think children ask questions because they believe that questions elicit

answers which provide them with knowledge of facts they were previously ignorant about. There are two empirical reasons to deny this. First, when asked how they know a fact, children who have acquired knowledge by testimony don't reliably say that they know because they were told ("How did you know it was a strawberry/tomato—was it because you saw it or I told you?" -- (Robinson and Whitcombe 2003: 58).) Second, children find it harder to say which of two speakers knows a fact than they do to discriminate between these speakers by believing the one who speaks the truth (Robinson, Champion and Mitchell 1999). These are reasons to doubt that children ask questions because they believe that questions elicit answers which provide them with knowledge of facts.

But why do children ask questions more often when ignorant than knowledgeable if it's not because they are trying to tap into the experimenter's knowledge? Lurking in the background is a deep philosophical issue about the goal of inquiry, but for now I'll try to get away with the bare minimum of a story. Let's imagine that when children first start asking questions they do so just for fun. Over time children notice that when they have a feeling of uncertainty and face obstacles to action, asking questions often removes the uncertainty and the obstacles; perhaps they even realise that asking questions tends to alleviate ignorance. Now as adults we know why asking questions alleviates ignorance. It's because asking questions of people yields answers which manifest their knowledge. But I'm supposing children realise that asking questions alleviates ignorance without understanding why. That realisation is what drives them to ask questions relevant to obstacles they face when ignorant. But since they don't understand why asking questions is effective, they have no reason to ask questions of knowledgeable in preference to ignorant adults.

So the first objection was that children must understand that knowledge can be transferred because otherwise they wouldn't ask questions more often when ignorant than knowledgeable. We reply that the objection doesn't hold because children might know that asking questions alleviates ignorance without understanding why.

Continuing this story gives one possible explanation for how children might eventually acquire an understanding of knowledge as

something that can be transferred by answers. Children who ask enough questions will be in a position to realise that particular people sometimes refuse to answer certain questions, that different people sometimes give different answers to the same question, and that asking questions sometimes but not always alleviates ignorance depending on who you ask which questions. If children do observe these regularities governing the effectiveness of questions, they may also wonder why they obtain. And from that point it's not a huge step to the idea that it's the respondent's knowledge states which explain these regularities. Of course this does involve a huge conceptual step: from thinking of knowledge as something like a pain which is private and not subject to epistemic norms to thinking of knowledge as something capable of being transmitted and so explaining why questions alleviate ignorance depending on who you ask what. But perhaps the answers themselves, which are manifestations of knowledge, provide a model for this more sophisticated conception of knowledge.

I have been defending the hypothesis that children fail [Ask] trials because they fail to understand knowledge as something that can be transferred via the answers to their questions. Now I want to consider the second objection to this hypothesis, which is that it does not explain why children who pass [Seek] trials fail [Ask] trials.

Our idea is that children fail [Ask] trials because they don't realise that asking a question alleviates ignorance by causing the experimenter to manifest her knowledge and so don't realise that the experimenter's knowledge state is relevant.

But there is a way children could succeed on [Ask] trials despite not realising knowledge can be transferred via answers. Suppose children (a) know that asking questions yields testimony, (b) prefer true to false testimony, and (c) realise that the testimony of knowledgeable speakers is more likely to be true than that of ignorant speakers. Then children would have a reason to prefer asking knowledgeable than ignorant speakers. In that case they should succeed on the [Ask] trials despite not realising knowledge can be transferred.

I think this shows that we must elaborate our hypothesis by rejecting (b) or (c), and in fact I think we should reject both. It's not just that

children don't realise knowledge can't be transferred. They also don't understand the link knowledge and the truth of testimony. And they also don't prefer true testimony as such because they don't understand that testimony leads to knowledge.

But it's not obvious that we can reject either of these claims (b) or (c). The objection is that there is no way to explain children's success on [Seek] trials without accepting (a)-(c) and so something other than our hypothesis about understanding knowledge as a transferrable quantity is needed to explain children's failure on the [Ask] trials.

Recall that in the [Seek] trials, children actively seek out testimony when the experimenter is knowledgeable but not when she is ignorant. And they do this before they know what the testimony is. How can we explain this without supposing that children prefer true testimony [i.e. (b) above] and realise that the experimenter's testimony is more likely to be true when she is knowledgeable [i.e. (c) above]?

Here's one possibility. In [Seek] trials when the experimenter is knowledgeable, the child is aware of this and it strengthens her own feeling of uncertainty. This feeling of uncertainty drives the child to investigate further, and so the child seeks out the experimenter's testimony. But she is driven to do this by the feeling of uncertainty and not by an understanding of the truth of the experimenter's testimony; she would be equally likely to seek testimony from an ignorant experimenter at this point. If this is correct, the experimenter's knowledge is what drives the seeking behaviour but it does so other than via the child's awareness that her testimony is likely to be true because she is knowledgeable. I don't know if this is correct, but it illustrates at least one way in which children could succeed on [Seek] trials without understanding the connection between knowledge and true testimony.

To conclude, our hypothesis is that children don't take into account their respondents' knowledge when deciding whether to ask a question because of a deficiency in their understanding of what knowledge is--namely, they don’t understand knowledge as something that can be transferred via answers to their questions. It's not clear

whether this hypothesis is the correct explanation for the puzzle but I don't think we can rule it out yet.

References

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