

Response to Selinger on Dreyfus

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Abstract My claim is clear and unambiguous: no machine will pass a well-designed Turing Test unless we find some means of embedding it in lived social life. We have no idea how to do this but my argument, and all our evidence, suggests that it will not be a necessary condition that the machine have more than a minimal body. Exactly how minimal is still being worked out.

Key words embodiment · Turing Test · GOFAI · Selinger · Dreyfus

There are four strands to Selinger's argument

- (A) Dreyfus's phenomenological approach leads him to the conclusion that Good Old Fashioned AI (GOFAI) cannot succeed because the computers involved do not have bodies.
- (B) The approach cannot lead him to the conclusion that future generations of computers, based on different design principles, would need bodies to be intelligent.
- (C) Dreyfus frequently speaks as though he is making general claims about the relationship between the body and intelligence which cover both current and future generations of computers.
- (D) Collins has interpreted Dreyfus in terms of Dreyfus's incorrect description of the Dreyfus program (C) rather than in terms of Selinger's correct description of the Dreyfus program (B).

Let me start with my own internal state: D is correct. I have always taken Dreyfus to be making some general point about the relationship between the body and intelligence rather than a particular point about GOFAI. I have taken the titles of papers and other such claims mentioned in the personal communication from me to Selinger which Selinger quotes at the start of his piece and the quotations by Selinger at the end of the piece at face value. These materials seem to reveal that C is correct. As far as I know, no-one disputes A. This leaves B as the only claim needing close examination.

Selinger takes his central theme to be D – my reading of Dreyfus. It seems to me, however, that the major theme should be B (and its clash with C). Is it true that Dreyfus

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can make claims only in respect of GOFAI and such like architectures? If it is, then lots of people have misread him and a lot of attention has been misdirected. It would be nice if Dreyfus were to respond to this claim.

Selinger's piece also offers an opportunity for further clarification. More important than what Dreyfus actually means or says is how the world is. In his latest contribution to this debate (currently being refereed for publication) Dreyfus continues to make remarks along the lines:

You may have mastered the way surgeons talk to each other but you don't understand surgery unless you can tell thousands of different cuts from each other and judge which is appropriate.

I take this to be another way of expressing the claim that you must be bodily involved in the world in order to understand the world and, hence, to speak fluently about the world. My position is the opposite: one can learn to speak fluently about the world without being bodily involved in it. One could, for example, learn to speak fluently about surgery, including the value and purpose of all those cuts, with being able to tell the difference between the cuts if you saw them being made. In the same way, I believe I can speak fluently and creatively about the interaction between gravitational waves and interferometric gravitational wave detectors without ever having seen a gravitational wave or its interaction with a detector or being able to do many of the things that are a routine part of gravitational wave detection physicists' work. This ability is known as 'interactional expertise'. My argument is that the body plays a smaller role in 'intelligence' than the phenomenological approach of someone like Dreyfus would suggest.¹ My position is that the crucial element in understanding/intelligence is socialisation rather than embodiment.

If Selinger is right about B, and Dreyfus's phenomenological approach does not give him the right to make claims about the importance of the body in such a sweeping way as he appears to make them, then his – Dreyfus's – position and mine differ less markedly than I thought. My claim is clear and unambiguous: no machine will pass a well-designed Turing Test unless we find some means of embedding it in lived social life. We have no idea how to do this but my argument, and all our evidence, suggests that it will not be a necessary condition that the machine have more than a minimal body. Exactly how minimal is still being worked out but it is clear that acquiring fluency in surgery will not require a surgeon's body, acquiring fluency in gravitational wave physics talk will not require a gravitational wave physicist's body, and, by extension, acquiring fluency in blind-person's talk about their sticks will not require one to be blind and use a stick, and so on.²

¹ Lest there be any misunderstanding, all parties to the debate believe that having 'intelligence' implies having a store of tacit knowledge that cannot be acquired through formal means; the argument is about how it is acquired. Dreyfus stresses the importance of the body and does not much discuss the importance of embedding in society. Collins stresses the importance of embedding in society. Collins believes, more-or-less, that embedding in the language of the society is enough to afford fluency in the language, including its references to practical matters. In sum, Collins stresses embedding, not embodying; Dreyfus stresses embodying and does not talk much about embedding. The key to the debate might be how much embodying is necessary for embedding.

² The claim about Collins's abilities in respect of gravitational wave physics and other empirical evidence along the same lines will be found in Collins, Evan, Ribeiro, & Hall, 2006. Other arguments made here are supported and illustrated in Collins, 2004; Collins and Evans, 2007; Selinger, Dreyfus and Collins, 2008 and the materials that can be found at <http://www.cf.ac.uk/socsi/expertise>.

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