Extended mind hypothesis

The extended mind hypothesis (EMT), proposed by Clark and Chalmers, claims that the cognitive processes that exist within the human brain can be realized outside of the body. Central to the idea of the EMT, is the parity principle. The parity principle claims if there is a cognitive function, or part thereof, in the head then it must be part of a cognitive process. If this function can be realized outside the body, then it must also be part of cognition. Suppose we recognize function A as being part of cognitive process B and function A exists in the brain. If somehow function A can exist outside the brain, it is still part of B and therefore part of cognition. So, cognition can exist independent of a biological body. This follows from multiple realizability from functionalism. The idea of cognition being independent from biological systems is central in the current pursuit of artificial intelligence. I believe the EMT is a plausible theory, but I do not believe it is the answer to major current problems in cognitive science, especially the pursuit of AI. In this paper, firstly I will argue the case of the EMT and in the second half, I will outline how it falls short in getting us closer to mechanizing the human mind.

To elaborate how this theory works, Clark and Chalmers propose Otto’s notebook as a thought experiment. Consider Otto, a person who suffers from Alzheimer’s, and Inga, who has normal human memory. If Otto has learnt the location of a place as it being on 51 Bloor Street, he would write this down in his notebook. In the case of Inga, she has also learnt this address except she heard it from a friend. If she wishes to visit this place, she consults her memory which tells her it is located on 51 Bloor Street whereas if Otto were to visit this place, he will have to consult his notebook to find the address. Ultimately, both Otto and Inga arrive at the same address, so we can say Otto’s notebook serves the same functional role as Inga’s memory. Therefore, we can say brain processes, in this case, memory and recall, can be realized outside of the brain in the form of Otto’s notebook. As a result of the Parity Principle, Clark and Chalmers also defends active externalism. This claims that ‘coupled processes counts equally as well as cognitive processes whether or not they take place wholly in the head ’(Clark and Chalmers, 1998). I argue this theory is true however there is a clear objection to this: the case of cognitive bloat. This is the misconception of taking non-cognitive processes as cognitive processes. So, one may be inclined to say that cognition can be extended in infinitely many ways. For instance, would the pressing of buttons on a gaming system count as a cognitive process? Clark and Chalmers dub this the coupling/constitution fallacy. The coupling/constitution fallacy states that simply because something is coupled with cognitive processes, it does not make it part of the cognitive process. Simply because a process is coupled to the environment does not make it a cognitive process. For example, consider searching for a book in a library. The entire library would be considered coupled to the process of looking for a book since the book is obviously contained within the library, but it does not make it part of the functional process. Our brains ignore irrelevant information by relevance realization, but how does this apply to external cognition? I will address this later. In addition to this, it can also be argued that some processes may be too easily decoupled; true cognitive processes are those that can withstand this constant coupling/decoupling. Clark and Chalmers’ argue it is only the reliability of the coupling that really matters. Recall the Otto & Inga example from above. Inga has a dispositional belief on where the place is located, and it becomes an occurrent belief when the information is called to mind. This is how memory usually works in humans. As for Otto, Clark and Chalmers also argue that he also has a dispositional belief on where the place is located before he checks his notebook, like Inga, who has this same dispositional belief before she checks her memory. Their main argument for this is that like how Inga’s belief does not disappear when she is not actively recalling it, Otto’s memory works the same way. In both cases, the information is reliably there when needed, available to consciousness (Clark and Chalmers, 1998). The only subtle issue I have with this point is that human memory is known to be unreliable. Every time we recall something from memory, it is subject to change. Indeed, it is quite plausible for Inga to falsely remember the address after some time, but Otto does not have to worry about this problem. However, I do not see this as a threat to the EMT. In the case of reliability of these beliefs, it can be the case that Otto loses his notebook, but Inga can also lose her memory so this does not seem to be a sufficient enough objection.

Given these arguments, I do agree the EMT is a plausible theory. Adams and Aizawa agree but suggest that we need a mark of the cognitive to properly identify cognitive processes from non-cognitive ones. They argue that no such mark has been found yet, so we cannot state for sure that there are any actual cases of extended cognition. Two marks of the cognitive has been proposed: genuine cognitive processes must involve intrinsic contents and they must belong to a causally homogenous explanatory kind. I will focus on the second mark. This states that cognitive processes must belong to a class whose cause and effects are similar enough to support scientific explanations via the same scientific laws. There are laws that tell us how the brain and the external world work but there are no such laws that tell us how they interact. In the case of Otto and Inga, Adams and Aizawa argue that the contents of Otto’s notebook are not causally homogenous with Inga’s memory. Perhaps Cognitive Science has not yet developed enough to relate cognitive processes with the external world. In line with this, it is unclear how relevance realization would work in external cognitive processes. If Otto is to search for a specific piece of information, he would have to look through his entire book which is not how memory works in humans. It can be argued that he can use certain tricks to deal with this issue, but if he truly has Alzheimer’s, how can he remember these in the first place?

In closing, I do believe this theory to be plausible, but I do not see how it can get us further in the pursuit of general AI. Although this was a radical theory when first proposed, I do not see this theory answering questions that computational functionalism cannot. It seems the biggest issue for this theory currently is finding a mark of the cognitive, which has not been found to this day. In conclusion, while I do agree with the plausibility of the extended mind, I do not think it can yet give us any new insight into mechanizing the human mind.

Bibliography

Clark, A., & Chalmers, D. (1998). The extended mind. *analysis*, *58*(1), 7-19.