Is computationalism trivial?

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Abstract
In this paper, I want to deal with the triviality threat to computationalism. On one hand, the controversial and vague claim that cognition involves computation is still denied. On the other, contemporary physicists and philosophers alike claim that all physical processes are indeed computational or algorithmic. This claim would justify the computationalism claim by making it utterly trivial. I will show that even if these two claims were true, computationalism would not have to be trivial.
First, I analyze the vague definition of computationalism. By showing how it depends on what we mean by 'a computational process', I distinguish two main flavors of computationalism claim:

1. That cognitive processes could be described algorithmically (in G. Chaitin's sense of 'algorithmic')
2. That cognitive processes are algorithmic or computational (they implement recursive functions).

This second claim could be analyzed further as a claim:

1. That cognitive processes could be described as computational
2. That cognitive processes are really implemented computationally
3. That cognitive processes are generated by computational processes.

I distinguish then three varieties of computationalism. The first is that cognitive processes can be simulated computationally; the second is that they can be realized computationally; the third is that cognitive processes are generated by overall computational processes. This last sense is on the verge of being trivial if we accept that all physical processes are computational.
I show that the non-trivial computationalism involves a multi-level model of cognition where certain level of organization of processes is emergent on the base level. This base level could be even conceived of as algorithmic but the emergent computational level would implement other algorithms than the base level. I try to sketch a multi-level model of cognition which involves computation without being at the same time trivial.