Aristotle talks about the "proper function" of a person, but what is the "proper function" of an artificial agent or AI system?

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Normative ethics, a subbranch of the philosophical field of ethics, studies how individuals can act in a morally appropriate manner. According to virtue ethics, one of the three main normative ethical theories, morally correct actions are actions in accordance with a virtuous character. In his book Nicomachean Ethics (Aristotle, 2016), Aristotle, the main advocator of virtue ethics, describes virtuous character as one which makes a man "do his own work well". Thus, according to Aristotle's virtue ethics, a morally good artificial agent would need to excel at performing its "own work" or, in other words, its "proper function".

How should the phrase "proper function" be interpreted? Notably it contains the adjective "proper" to characterise the noun "function". This implies that something can have many functions but one of them is the "proper" one. Something's "proper function" could then be interpreted as the reason for its existence. This essay argues that out of all the functions of something, the "proper" one is distinguished based on being the instigator of its creation. As examples of "proper functions", Aristotle mentions that the proper function of an eye is to allow animals to see, or that the proper function of a carpenter is to shape wood. Indeed, these examples support the notion that the "proper function" of something lies in the reason for its existence.

What would then be the "proper function" of man[1]? To answer this, Aristotle observes the way in which humans are different from other animals. He remarks that life is a privilege of all plants and animals alike, and perception is a privilege of all animals. What distinguishes man from animals are "actions of the soul implying a rational principle". Hence, Aristotle concludes that the "proper function" of man is "activity of the soul… in accordance with the best and most complete (virtues)". A brief summary of Aristotle's argument is as follows: What is good? Something that performs its "proper function" well. And what is the "proper function" of man? To be virtuous. Therefore, a good man is a virtuous man. Aristotle explains that he

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[1] In the entirety of this essay "man" is used without an article and it signifies humans regardless of gender.

draws the framework for identifying moral goodness and the next task it to fill in what a virtuous person is.

The previous paragraph shows how Aristotle deduces the "proper function" of man by observing the characteristics that differentiate man from other beings. The paragraph before that argues that the "proper function" of something lies in the reason for its existence. These two theories take different angles at seeking the "proper function" of something, yet they can be combined into one theory. If it is true that things are brought into existence for a reason and are given, (or develop), characteristics such as form and size, appropriate to meet this reason, then this reason for existence can be the "proper function" of things, and their unique characteristics do testify towards their reason for existence, towards their "proper function". In the case of living organisms, the theory of evolution neatly reconciles reason for existence and differentiating characteristics. For example, the eye exists as a result of the need of animals to perceive the world by sight, and its attributes appropriately serve this need. Consequently, it is here hypothesised that the examination of both the differentiating characteristics of something and the reason for its existence can assist the deduction of its "proper function".

Before the aforementioned hypothesis is applied to the search of the proper function of an artificial agent, an attempt is made to apply it to the case of man. Aristotle uses one branch of this hypothesised "proper function" deduction method to identify the function of man. Can man's reason for existence also be employed to deduce man's "proper function"? The reason for its existence is useful in straightforwardly pinpointing the "proper function" of something that contributes to a greater goal, such as an eye that contributes to the survival of an animal, or a carpenter that contributes to the wellbeing of the community. On the contrary, it is difficult for man to pinpoint the "proper function" of man, by reference to his role in some greater enterprise, because such an enterprise would have to be identified. The application of the second branch of this hypothesised "proper function" deduction method to the case of man is deemed to encounter problems that will not be discussed further in the present essay.

In order to identify the "proper function" of an artificial agent, it is worth clarifying what an artificial agent is. Since the dawn of human history, man has used tools to enhance his life. A machine is an advanced type of tool, and computers are advanced machines able to store and process information. This ability allows computers to perform increasingly complex tasks that require manifestations of intelligence such as reasoning, inference, and learning, hence

giving birth to Artificial Intelligence. Artificial agents have therefore emerged in the process of improving the man's life and they come with different characteristics that enable them to achieve that.

It is here attempted to identify the "proper function" of artificial agents by considering the reason for their existence, according to the first branch of the presently hypothesised "proper function" deduction method. Relatively simple machines, (which can still be claimed to constitute artificial agents), have a clear reason for their existence. For example, a washing machine exists because it was created to wash clothes. Therefore, the "proper function" of a washing machine is to wash clothes. However, more advanced artificial agents may have more than one, strictly defined, reason for their existence. A humanoid robot may be able to do various things, from passing the butter to inventing a treatment for cancer. Since different artificial agents have different reasons to exist, and even a single agent may have various reasons to exist, a unifying primary reason for the existence of artificial agents must be found to assist the search of a single "proper function" of artificial agents.

It is here claimed that the primary reason for the existence of artificial agents must be one that does not serve to satisfy some deeper reason, but is self-sufficient. In an argument similar to how Aristotle identifies happiness as this which we seek for its own sake and not for some deeper reason, the reason for the existence of artificial agents should be the root motivation for their actions: to help the humans that created them. From here, the first branch of the hereby hypothesised "proper function" deduction method can be straightforwardly applied to identify "helping their human creators" as the "proper function" of artificial agents.

The reason for the existence of artificial agents is referred to as "helping their human creators" rather than just "helping humans" to cover for cases such as hunter-killer military agents which benefit some humans but harm others. This might mean that performing its "proper function" well is not a sufficient condition for a morally good artificial agent. However, this is not discussed in the present essay.

Now, it is attempted to identify the "proper function" of artificial agents by considering their differentiating characteristics, according to the second branch of the presently hypothesised "proper function" deduction method. A most general yet complete description of such agents reveals their differentiating characteristics: they are artificial and intelligent. They are defined and distinguished from other beings because they combine these two traits. What do these

two characteristics reveal about the "proper function" of artificial agents? Intelligent beings excel at perceiving, storing and processing information to perform complicated tasks. To illustrate that, consider how intelligence of a bird is often evaluated by presenting the bird with a relatively complicated problem that it needs to solve in order to reach its food. On the other hand, artificial beings, in a most generalised formulation to cover all of them, excel at constituting tools that help their creators. From here, the second branch of the presently hypothesised "proper function" deduction method can be applied to identify "helping their human creators by performing complicated tasks that require intelligence" as the "proper function" of artificial agents.

The two alternative methods that are proposed here for deducing the "proper function" of something have been shown to lead to similar results when applied to the case of artificial agents. The "reason for existence" method yields a "proper function" of "helping their human creators". The "differentiating characteristics" method produces a "proper function" of "helping their human creators by performing complicated tasks that require intelligence". These formulations of a "proper function" lead to the question of what benefitting humans entails. One way to answer this question is by following a utilitarian approach: assuming that there is a quantifiable metric of utility (approximated perhaps by happiness) and therefore, artificial agents should take actions to maximise utility. Other answers can follow the virtue ethics and deontology approaches amongst others. Notably, these approaches constitute the main normative ethical theories and their relevance here is explained by the fact that they investigate what being good for other humans means and that the "proper function" of artificial agents has here essentially been determined to be being good for humans.

Aristotle deduces the "proper function" of man through man's differentiating characteristics. This essay proposes a complementary method to deduce "proper function": by consideration of the reason for existence. These two methods are thought to be complementary because the reason for the existence of something often dictates its characteristics. When applied to the issue of deducing the "proper function" of artificial agents, these two approaches yield a similar result that can be summarised as: intelligently helping their human creators.

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