

Homo Impotens

The Technological Singularity and the End of Work

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Introduction

Since ancient times, it has been the dream of humans to do away with the drudgery of working for a living. To be sure, not all classes throughout history have needed to work. The citizens of Ancient Greece and Rome won their liberty from work on the backs of the slaves and the non-citizen free men who worked on their behalf. Similarly, the peasantry supported the nobility through their toil throughout the majority of the Middle Ages. Whilst elite social classes may have enjoyed a certain freedom, the majority's need to work has been almost ubiquitous since time immemorial, not just to conform to the expectations of society, but to ensure their very survival.

Although substantial improvements have undoubtedly been made in recent times, throughout the ages work has notoriously been difficult and dangerous. A farmer needs a source of power to physically push the soil they wish to till around. For much of history, that source of power came from the farmer themselves. Their work required an intense physical effort that not only tired the farmer both physically and mentally, but also wore out their body.

To ensure a bountiful harvest, the farmer must be careful to properly manage the soil. The farmer rotates their crops, implements a fallow cycle, plants covering crops, fertilises the soil and the like all in an effort to manage erosion, weeds, pests and nutrients. To be effective, the farmer need understand and follow the principles of farming. They need to put in the time and effort it takes to learn these principles and put them into practice. In this way, work comes with an immense opportunity cost. Time spent working or learning how to work is time not spent engaged in other potentially more desirable activities. Knowledge related to work is knowledge not gained in some other potentially more desirable field.

The all too human desire to rid themselves of the burden of work manifests through the development of tools. Initially the farmer used simple hand tools like the hoe or the rake before harnessing the power of domesticated animals to pull the plough for them. Eventually farmers turned towards specialised machines powered by electricity

or fossil fuels. These tools reduced the physical effort and time required of the farmer to work the land.

One would be forgiven for assuming that quicker and easier work brought about with the assistance of tools might free up the worker for the pursuit of other activities. Instead of reducing the amount of time spent working, the development of tools ushered in a new era of capitalist production. The efficiency improvements eked out through tools were used to expand the realm of economic activity. The farmer who originally sustained only their immediate vicinity through their farming activity was now expected to sustain an ever-increasing geographic area and population. Workers didn't equally share a reducing workload, they instead found new areas in which to work, developing new professions and economic activities that hadn't previously existed.

This process of increasing economic development and activity has continued unabated until the present day, culminating in a society that is primarily structured around work. Not only is work the primary activity we spend most of our lives doing, it is the primary means by which most engage with society and acquire the means for their own survival. Even under welfare states, being without sufficient work for an extended period can render one destitute.

In a society where work plays such a pivotal role, the type of work one engages in becomes entangled with personal identity and self-worth. A person doesn't earn their income by merely engaging in the activity of baking bread for others most days, rather they are a baker. That they are a baker is an integral part of who they are and what they do in life, how society views and judges them as well as how they view and judge themselves. To be without work can be a source of embarrassment or shame, even if one isn't reliant on work for their survival. To be without work implies a lack of some significant defining feature of themselves.

Our distaste for work is reflected in the words and phrases we use to describe it. The word 'labour', often used synonymously with the word 'work', imparts a sense of

strenuous perhaps even painful effort through the word's association with the extreme pain and exhausting effort of childbirth. Common phrases such as 'the daily grind', 'nine to five' or the succinct French 'métro, boulot, dodo' convey an aversion to work's potentially monotonous never-ending cyclical nature.

Despite great improvements in working conditions following the trade union movement starting in the late 18th century, the average worker still works significantly more now than they did in the Middle Ages¹. A desire to reduce the number of working hours has inspired many popular works including New York Times bestsellers such as *The 4-Hour Work Week*.² There has been no shortage of popular predictions that the tools that make our work quicker and easier will one day allow us to work less, perhaps even allow us to not work at all. Though the popular sentiment seems to be that that change is always just around the corner, the predictions almost comically never come to pass.

Predictions such as these have not been restricted to the realm popular media. The economist John Maynard Keynes, for example, infamously predicted in 1930 that within a generation or two the power of compound interest would bring about a 15-hour work week.³ Nevertheless, the pattern of increasing productivity efficiencies gained through tools resulting in a broadening of economic activities has continued.

Notwithstanding the failings of past predictions, we ought to seriously consider the possibility that tools will one day see an end to work entirely. One tool, Artificial Intelligence (AI), is fundamentally different in nature to the kinds of tools that humans have previously developed. Prior to the development of AI, the problems that tools assisted us with were primarily solved by humans. Though tools may have been used in the problem-solving process, the development of those tools was itself primarily undertaken by humans. AI's capability to learn for itself, for the first time, points

¹ Juliet B. Schor, *The Overworked American: The Unexpected Decline of Leisure*, Paperback ed., [9th pr.] (New York, NY: Basic Books, 1998).

² Timothy Ferriss, *The 4-Hour Workweek: Escape 9-5, Live Anywhere, and Join the New Rich*, Expanded and updated ed (London: Vermilion, 2011).

³ John Maynard Keynes, 'Economic Possibilities For Our Grandchildren', in *Essays In Persuasion*, Third (Palgrave Macmillan, 2010), p. 329.

towards the possibility of tools solving problems for themselves, and in so doing, eliminating the need for humans in the problem-solving process.

Whilst contemporary AI systems are a long way from being able to replace human workers entirely, the development of AI does suggest now more than ever that tools working themselves without a need for humans could be a real possibility, not just the fanciful realm of science fiction. This possibility reveals an important question, what does a human society that is principally structured around the activity of work do if there's no work for the humans?

Originally published in 1958, Hannah Arendt's seminal work, *The Human Condition*, provides a useful framework for thinking about this question. She stops short of answering these sorts of questions directly herself, rather, Arendt encourages us 'to think what we are doing', to consider the kind of world we are making for ourselves and whether it is the kind of world we want to live within.⁴

This paper applies the Arendtian categories of Labor, Work and Action⁵ developed in *The Human Condition* to a hypothetical future in which work is primarily, potentially entirely, conducted by intelligent machines. This paper is intended in the Arendtian spirit of thinking what we are doing.

The Human Condition

Hannah Arendt's *The Human Condition* is an enigmatic work. Whilst it is often claimed to be amongst the most important and influential works of political philosophy and political theory, it is surprisingly overlooked by contemporary theorists. despite her insights only appearing to increase in relevance as technology develops and society progresses. Whilst Arendt's work isn't conceptually complex in the way that one might say of philosophers who are notoriously difficult to master, such as Hegel, Heidegger or Nietzsche, *The Human Condition* is nonetheless difficult in its own way.

The Human Condition is a work of deconstructive hermeneutics in which Arendt traces the meaning of the fundamental categories of human life from ancient to

⁴ Hannah Arendt, *The Human Condition*, Second and Sixtieth Anniversary Edition (Chicago: University of Chicago Press, 2018), p. 5.

⁵ Specifically Arendtian categories are capitalised, particularly Labor, Work and Action, in order to distinguish them from ordinary language uses of the same words. The American English spelling of the category Labor is retained from Arendt's original work.

contemporary society whilst laying out the influence of major events through the modern age. In so doing, Arendt ‘hopes to redeem from the past its lost or “forgotten treasure,” that is, those fragments from the past that might still be of significance to us’.⁶ What results is a diagnosis of the malaise of the contemporary society supported by a framework of categories built from a narrativised critical description of history.

The chief difficulty with Arendt’s work lies in its uncertain interpretation. Her focus typically remains on conveying grand concepts and their interrelationship at the expense of consistent use of terminology. Her frequent use of terms and phrases in slightly different apparently contradictory senses, combined with an unusual methodology, often obfuscates her intended meaning.

Of central importance in *The Human Condition* is the *vita activa*, the active life, as distinct from the *vita contemplativa*, the contemplative life. Arendt did intend on tackling the *vita contemplativa* separately in *The Life of the Mind*, though sadly she was unable to complete it. That work was published posthumously in 1978 covering the Arendtian categories of Thinking and Willing but without the third and final category of Judging. That Arendt covered the *vita activa* before the *vita contemplativa* reflects her belief in the primacy of the *vita activa* post Enlightenment, marking a significant departure from the pre-Enlightenment world which valued the *vita contemplativa* above all else.

The *vita activa* encompasses all that we do out in the world, the life that we live outside of the mind. In Arendt’s framework, the *vita activa* is divided into three distinct categories, Labor, Work and Action. Whilst not intended to be exhaustive, these categories are fundamental because they correspond to the basic conditions of human life, ‘that we are living beings, that we inhabit a world of our own making, and that we share that world with other people’.⁷

Corresponding to the basic human condition of existing as living beings, Labor encompasses all that we do to sustain or reproduce our bodies.⁸ It is through Labor that we ensure the continued survival not only of ourselves as individuals, but of the entire human species. As an essential activity for our very survival, Labor is deeply

⁶ Maurizio Passerin d’Entrevies, ‘Hannah Arendt’, ed. by Edward N. Zalta, *The Stanford Encyclopedia of Philosophy*, sec. 3 <<https://plato.stanford.edu/archives/fall2019/entries/arendt/>>.

⁷ Roy T. Tsao, ‘Arendt against Athens: Rereading the Human Condition’, *Political Theory*, 30.1 (2002), 97–123 (p. 100).

⁸ Tsao, p. 100.

connected with a bodily necessity that we feel as an urgent driving force, compelling us to act animalistically. It is not humans *qua* humans who Labor, since the capacity for Labor is one that humans share with animals by virtue of their shared basic condition. For this reason it is humans as *animal laborans* (labouring animal) who Labors.

Labor takes nature as a raw material and transforms it into the products necessary for life. It is characteristic of this form of production, though, that the end result lacks durability. What is produced ceases to exist and is returned to nature almost as soon as it is consumed. Even if stored without being consumed, the products of Labor soon spoil and nature reclaims what was taken. Labor is forced by nature into an ‘ever-recurrent cyclical movement’.⁹

One of Arendt’s keener insights was the explicit acknowledgement that ‘work is a fundamentally different mode of activity from labor with distinct properties, meanings and logic’.¹⁰ Though Arendt was not the first to distinguish between Work and Labor, they had typically been treated synonymously by most prior authors. Corresponding to the basic human condition of living in a world of our own making, the category of Work encompasses all activity associated with the production of durable things.¹¹ The collection of human-made things form the world that humans live within, what Arendt terms ‘the human artifice’.¹²

Humans, as *homo faber* (man the creator), build the human artifice within and from nature through a process of fabrication. The intangible idea of some perfect product is reified into an imperfect tangible product via the transformation of natural material. The finished product is then added to the human artifice alongside all other fabricated things. The products of Work, unlike the products of Labor, are not consumed in their use, allowing them to far outlive the fabrication process. This durability lends a degree of permanence to the human world, without which, “we would no longer live in a world at all but simply be driven by a process in whose ever-recurring cycles things appear and disappear”¹³.

⁹ Arendt, p. 96.

¹⁰ Philip Walsh, ‘The Human Condition as Social Ontology: Hannah Arendt on Society, Action and Knowledge’, *History of the Human Sciences*, 24.2 (2011), 120–37 (p. 124)
<<https://doi.org/10.1177/0952695110396289>>.

¹¹ Tsao, p. 100.

¹² Arendt, p. 96.

¹³ Arendt, p. 134.

The capacity to fabricate our own world is seen by Arendt as distinctly human, a capacity that we don't share with the animals. Use of the word *homo* in *homo faber* as opposed to the word *animal* in *animal laborans* is quite deliberate. *Homo faber's* fabrication is guided by the ideals of 'permanence, stability and durability'.¹⁴

The category of Action corresponds to the basic human condition of sharing the world with other humans. It encompasses the activity that takes place between humans when they act in concert. Humans, as *homo politicus*¹⁵, are separated by, but also bound together by the human artifice that lies between them. Their interests in the human artifice and their interactions with other humans gives rise to a new intangible reality which Arendt refers to as the 'web of human relationships'.¹⁶ When *homo politicus* acts, they set forth a new process within the web of human relationships that pushes and pulls on all others in the web. Once released, the actor loses control of the process and the impact it has on the life stories of those with whom it comes into contact. Action is frustratingly unpredictable, often yielding results vastly different from what the agent originally intended.

Since Action is not a solitary activity, it takes place in the public realm and requires that humans appear before each other. The activity of Action contains within it a revelatory element, since 'the disclosure of "who" (as opposed to "what") is implicit in everything somebody says and does'.¹⁷

Action is the highest of all the categories of the *vita activa* since 'action alone bestows meaning on our lives and our world'.¹⁸ For Arendt, we derive meaning from the stories we are able to tell about our lives.

Several key historical events, for Arendt, mark significant changes in collective sentiment of human society. Chief among these was the launching of the Russian satellite Sputnik in 1957, which according to Arendt, was not attended by justified awe

¹⁴ Arendt, p. 126.

¹⁵ Arendt does not use the term *homo politicus* (political human) herself, though the term is common in many commentaries of her work. Some commentators instead use the term *zoon politikon* (political animal) for the same or a similar concept. The use of the latter term appears at odds with Arendt who was at pains to distinguish between animal and human capacities. The term *homo politicus* reflects Arendt's belief that political activity was a distinctly human, as opposed to animal, capacity in a way that *zoon politikon* does not. The term *homo politicus* is used in preference to *zoon politikon* in this work.

¹⁶ Arendt, p. 183.

¹⁷ Arendt, p. 179.

¹⁸ Tsao, p. 101.

at the scale of human achievement, but ‘relief about the first “step toward escape from men's imprisonment to the earth”’¹⁹. The launch of the first human-made object into low Earth orbit brought about a desire for humans to literally leave the planet that had been their home for millennia, a sentiment that Arendt calls Earth alienation.

The full significance of earth alienation can only be understood in light of the age of science ushered in by Galileo’s invention of the telescope. Undoubtedly, the ability to see further into the cosmos than ever before and the empirical evidence for the heliocentric model it provided was a breakthrough for modern science. However, Galileo’s invention also demonstrated the inadequacy of contemplation alone to reveal truth. This newfound trust in doing rather than contemplating to find truth resulted in the in post-Enlightenment hierarchical reversal of the *vita activa* and *vita contemplativa*.²⁰

Galileo was quickly followed by Descartes who doubted the very senses with which Galileo had had such great success, bringing about ‘an exclusive concern with the self, as distinguished from the soul or person or man in general’.²¹ Without contemplation or sense data to reveal truth, all that was left with certainty was the self. The primacy of the self was exemplified in Weber’s articulation of the selfish origins of capitalism and the significance of self-alienation to Marx.

This turn towards the self is characteristic of the scientific worldview. Science doesn’t so much bring about an objective certain reality as subjectivise the world.²² In order to know, science must transform an external object into an object of the mind.

- The development of technology purely for science brought about an emphasis on means rather than ends.
- The means ends reversal brought about the elevation of Labor, resulting in the performance of Work in the mode of Labor.
- We became a society of job holders.
- Combined with earth alienation and the scientific worldview, humans now look down on humans in the same way that we might look on a test subject.

¹⁹ Arendt, p. 1.

²⁰ Arendt, p. 290.

²¹ Arendt, p. 254.

²² Roger Berkowitz, ‘The Singularity and the Human Condition’, *Philosophy Today*, 62.2 (2018), 337–55 (p. 350).

- We've lost Action

A Refined Theory of Instruments

Arendt implies in Chapter 6 of HC that we need not concern ourselves with the development of intelligent technology, writing (emphasis added):

Aristotle once imagined what has long since become a reality, namely that 'every tool could perform its own work when ordered [...]'. Then 'the shuttle would weave and the plectrum touch the lyre without a hand to guide them.' This he goes on to say, would indeed mean that the craftsman would no longer need human assistants, *but it would not mean that household slaves could be dispensed with*.²³

Arendt apparently interprets Aristotle's theory of instruments in *Politics* as saying that the functionality a slave provides, the support of the life process itself, is inherently unable to be performed by inanimate instruments. She arrives at this from the distinction Aristotle draws between instruments of production, from which something comes 'beyond the use of it', and instruments of action,²⁴ from which 'we only get the use'. The significance of this distinction being that 'since action and production differ in kind, and both need instruments, their instruments must differ in the same way as they do'.²⁵

The difference in kind between production and action is their relationship to time. *Poiêsis* (production) is 'always performed for the sake of some further end' whilst *praxis* (action) 'can be its own end'²⁶. Since *poiêsis* relates to an end, it occurs over time with a 'definite termination point or limit, before which it is incomplete and after which it cannot continue.'²⁷ Since *praxis* can be its own end, it 'does not take time to complete and so does not really occur "in time" [...]'. Having no definite termination, while it may stop, it need never finish'.²⁸

It is for this reason that Arendt goes on to say:

²³ Arendt, p. 122.

²⁴ Note that the Aristotelian category of action here does not directly correspond to the Arendtian category of Action.

²⁵ Aristotle, *Politics: A New Translation*, trans. by C. D. C. Reeve (Indianapolis: Hackett Publishing Company, 2017), p. 6 (1254a5).

²⁶ C.D.C. Reeve, 'Notes', in *Politics: A New Translation* (Indianapolis: Hackett Publishing Company, 2017), pp. 202–402 (p. 227).

²⁷ Reeve, p. 228.

²⁸ Reeve, p. 228.

For slaves are not instruments of making things or of production, but of living, which constantly consumes their services. The process of making a thing is limited and the function of the instrument comes to a predictable, controllable end with the finished product; the process of life that requires laboring is an endless activity and the only 'instrument' equal to it would have to be a *perpetuum mobile*, that is an *instrumentum vocale* which is as alive and 'active' as the living organism which it serves.²⁹

Whilst Arendt's thought is undoubtedly nuanced and detailed, it is characteristic of her style throughout HC to leave intended meanings implicit. This shortfall imbues a certain ambiguity around many of the concepts she describes, her own theory of instruments is no exception.

At face value, Arendt appears to be saying that inanimate instruments, even if fully automated, are incapable of performing activities that have no clear end, since to do so, the instrument would need to be perpetual. The unstated implication seems to be that since no individual inanimate instrument can be perpetual in practice, being an instrument of living lays forever beyond their capability.

Yet, the slave, an animate instrument and Arendt's own canonical example of an instrument of living, is itself not perpetual. The slave may support their master for the duration of their life, but this duration, both the slave's and the master's, is necessarily finite. The slave approaches perpetuity only in the collective, that is, the ongoing reproduction of slaves results in their near continuous supply, regardless of the finite lifespan of any individual slave.

It is their fertility that facilitates a self-sustaining population of slaves, and it is the population, not the individual, that supports the constant consumption of services required of instruments of living. Arendt does not articulate why, in her view, inanimate instruments cannot attain similar levels of continuous service provision through the sustainment of a population of members with finite duration. Such a population could be sustained either through the possession of their own form of fertility, that is, instruments with the capacity to create further instruments, or the continuous fabrication of new instruments by *homo faber* as the old expire.

If one is to accept Arendt's argument that the impossibility of inanimate instruments constituting instruments of life rests on perpetuity, one must also explain why

²⁹ Arendt, p. 122.

inanimate instruments of life should be fundamentally incapable of reproducing or why it is insufficient for *homo faber* to continuously fabricate them. Neither of these points appear to be fruitful avenues of argumentation, since, if *homo faber* were able to fabricate even a single automated inanimate instrument of living, their continued replication would surely be a mere formality.

This difficulty in Arendt's argument points to the possibility of deeper interpretations, ones that focus on her description as 'as alive and 'active' as the living organism which it serves'.³⁰ Within this description is the suggestion that instruments of action must be alive and active, perhaps because the activities that instruments of action and instruments of production perform differ such that being alive is a prerequisite for any instrument of action. If this is indeed what Arendt meant, it is undoubtedly obfuscated by her use of the term *perpetuum mobile* and her focus on the temporal endlessness of the life process. Unfortunately, Arendt does not clarify what constitutes being 'alive' or 'active', her intended meaning is once again left implicit.

That the process of making a thing is limited stems from the connection of *poiêsis* to an external end. *Praxis*, on the other hand, as an activity that can be an end in itself, can be unlimited. Arendt seems to place significant emphasis on the temporal aspects of the lack of limits, though there is another aspect on which Arendt does not appear to comment. The range of activities required of instruments of action may be vast, whilst the range of activities required of instruments of production are necessarily constrained.

Whilst there may be an infinite number of possible ends, the kinds of ends Aristotle has in mind are physical objects, of the sort an artisan would create in the course of their work. *Poiêsis*, then, is limited to the process of fabrication, the transformation of physical substance from raw input material to desired output product. The activities required of an instrument of production are not only limited in temporality by their connection with a product having a clearly defined beginning and end to its fabrication, but also in the range of activities that constitute fabrication. Any activity that is not connected with the transformation of material to final product must, by definition, not be part of the fabrication.

³⁰ Arendt, p. 122.

By contrast, the range of activities that constitute *praxis* is necessarily vast. Given an infinite number of possible ends, and that *praxis* can be an end itself, the activities that constitute *praxis* are similarly diverse. The activities of *praxis* don't share the limitation imposed on activities of *poiêsis* by their connection to supporting an external end. Arendt's suggestion that an automated instrument of life must be 'as alive and 'active' as the living organism which it serves' may point to a belief that only animate instruments are capable of performing the limitless range, as opposed to limitless temporality, of activities required of instruments of life.³¹

This interpretation of Arendt is certainly plausible. Writing from her vantage point of the late 1950s as she was, automated instruments at that time had only ever demonstrated an ability to extend human's pre-existing capacities. That is, instruments allowed humans to achieve more, but there was always a human involved in their operation at some point in the process. Removing humans from the process entirely may well have appeared to be a step too far, not for lack of technology, but in principle outside of technology's capability.

Despite her claim to the contrary, the idea that household slaves could not be dispensed with under the condition of automated tools does not feature anywhere in Aristotle's theory of instruments. This mischaracterisation of Aristotle's writing is likely symptomatic of what Backman calls Arendt's 'rather unscholarly attitude towards ancient texts'.³²

In the relevant section of *Politics*, Aristotle writes (emphasis added):

For if each instrument could perform its own function on command or by anticipating instructions, and if [...] shuttles wove cloth by themselves, and plectra played the lyre, an architectonic craftsman would not need assistants and *masters would not need slaves*.³³

It is not at all clear how Arendt arrived at the conclusion that Aristotle also dismissed the possibility of automated inanimate instruments. In the Prologue of HC, Arendt seems to contradict her own theory of instruments when she says that, within a few

³¹ Arendt, p. 122.

³² Jussi Backman, 'The End of Action: An Arendtian Critique of Aristotle's Concept of Praxis', ed. by Mika Ojakangas, *Hannah Arendt: Practice, Thought and Judgement*, COLLeGIUM: Studies across Disciplines in the Humanities and Social Sciences, 8 (2010), 28–47 (p. 40).

³³ Aristotle, p. 6 (1253b35).

decades, the advent of automation will probably liberate humans from the ‘burden of laboring’ and ‘bondage to necessity’.³⁴

Again, Arendt leaves interpretation of her exact meaning open to the reader. Whilst liberation from the ‘burden of laboring’ is suggestive of emancipation from Labor, one could perhaps rationalise her as meaning only that automation would remove the pain and effort associated with the labouring activity, not that it would remove the need for humans to labour. This interpretation, though, is difficult to square with the liberation from ‘bondage to necessity’. Necessity arises from the requirement of the human body for nourishment to continue living. In contemporary society, necessity manifests as an urgent need for employment, the output of which one can procure the essential needs of life. Liberation from bondage to necessity does not mean the destruction of necessity, since instruments ‘change how necessity is felt, but do not change the necessity itself’.³⁵ Rather, the liberation from bondage to necessity refers to the near complete erosion of the hold that necessity has over human lives.

Yet the liberation from the burden of labouring is not a new phenomenon. Historically, it has been available only to a select few. For the ancients, it was the ‘chief function of ancient slaves’, the animate instruments of life, to liberate their masters, the citizens, from the burden of labour.³⁶ In so doing, they granted their masters the freedom to enter the *polis*. Arendt is implicitly equating the functionality of automated instruments to slaves when she says that automation offers liberation from the burden of labouring. It is the equation of automated instruments to slaves that the later section of HC seems to dismiss.

Overall, Arendt’s theory of instruments is contradictory and lacking in philosophical rigour, characteristics which are symptomatic of her overtly narrativising style. Nevertheless, there is no need to dismiss Arendt’s theory of instruments in its entirety. Arendt is correct to borrow Aristotle’s distinction between the activities of *poiêsis* and *praxis*, since ‘their instruments must differ in the same way’.³⁷ Automated instruments of *poiêsis* do indeed come ‘to a predictable, controllable end with the finished product’ whilst support of the life process requires that instrument of action engage in ‘endless

³⁴ Arendt, p. 4.

³⁵ Arendt, p. 125.

³⁶ Arendt, p. 119.

³⁷ Aristotle, p. 6 (1243a6).

activity’.³⁸ However, the conclusion that Arendt appears to draw from this distinction is misguided.

It is not that the *instrumentum vocale* is literally as ‘alive and active’ as the master that enables them to support the life process of their master. It is the generality of the household slave, that they can engage in the near endless range of activities constituting life, that facilitates their capacity for supporting the life process. Whilst perhaps a seemingly minor departure from Arendt’s theory of instruments as articulated in HC, it is one that opens the door to the possibility of technology functioning as automated instruments of *praxis*.

Slaves are not merely capable of performing the same set of activities repeatedly over time as instructed and on command. As humans themselves, slaves have all the faculties of their master. A slave can learn to perform the same activities in new ways. They can learn new tasks, they can reason their way through new and unfamiliar problems, they can interpret commands to enact their master’s true wishes as opposed to what was literally instructed. The slave’s generality is synonymous with the slave’s faculty for understanding what is being asked of them and reasoning their way through virtually any situation.

Whilst there can be no doubt that the slave possesses such faculties by virtue of their membership of the human species, such faculties are by no means exclusive to humans. These faculties have their root in the slave’s intelligence, a capability that need not be unique to humans or even biological life. The distinction between instruments of production and instruments of action is not that automated instruments of action need be perpetual, but that automated instruments of action need be intelligent. Berkowitz arrives at a similar interpretation of Arendt’s theory of instruments when he says:

What automation cannot replace are personal servants and slaves who are tasked not with the determinate task of ‘making things’ but with the indeterminate demand to assist a citizen in the activity of living, with the ‘process of life’. [...] Automation itself cannot replace human beings; but if we were able to create a truly living machine, [...] an intelligent machine – such machines could eventually assume the burdens of a humanly lived life.³⁹

³⁸ Arendt, p. 122.

³⁹ Berkowitz, p. 346.

Though perhaps once utterly unthinkable, the development of artificial intelligence suggests that the future development of intelligent machines may well be possible.

Arendt and the Singularity

As the frequent subject of what Arendt refers to as ‘the highly non-respectable literature of science fiction’, discourse regarding intelligent technology and its implications is not always given the respect that it deserves.⁴⁰ Whilst there are undoubtedly serious philosophers conducting serious work on such topics, it remains a fringe philosophical subject. Arendt, though, understood science fiction as a ‘vehicle of mass sentiments and mass desires’ deserving of serious consideration.⁴¹

The eventual development of intelligent technology by humans, that is technology with human-like capabilities to reason, solve problems and engage in self-directed activities, is a real possibility. If realised, intelligent technology would exhibit capabilities far exceeding the limited capabilities of contemporary artificial intelligence systems, which tend to be specialised at a small number of well-defined activities. AlphaGo, for example, whilst an excellent player of the boardgame Go, is completely unable to participate in any other activity.

Contemporary artificial intelligence systems lack adaptability. It is often remarked that artificial intelligence systems trained to play games with standard rulesets exhibit dismal performance if the ruleset is changed, even in only minor ways. Human players, on the other hand, can play the same games with modified rulesets virtually instantaneously.

Technology with human-like intelligence, would have the human-like capacity to engage in general loosely defined activities by reason alone. Technology of this type is typically referred to as Artificial General Intelligence (AGI) in the literature and contrasted with the weak or narrow artificial intelligence that is common in contemporary systems. Whilst there have been significant breakthroughs in the development of contemporary artificial intelligence, whether AGI can be implemented in-principal using contemporary techniques such as deep learning and big data remains an open question.

⁴⁰ Arendt, p. 2.

⁴¹ Arendt, p. 2.

The possibility of developing intelligent technology naturally gives rise to the possibility of the development of super intelligent technology, that is, technology with intelligence and capacities that far exceeds even the most intelligent of humans. Of course, if it's within the capabilities of humans to create super intelligent technology and that super intelligent technology's capabilities exceed the capabilities of the humans that created it, it stands to reason that super intelligent technology is capable of developing even more super intelligent technology. Good first wrote about the concept of an 'intelligence explosion', where intelligent technology would rapidly increase its own intelligence, in 1965.⁴²

In contemporary literature the concept of an intelligence explosion is typically termed 'the singularity'. Borrowing the name from the mathematical concept, the singularity refers to a hypothetical singular point in time after which there is a rapid increase in the capabilities of intelligence technology, resulting in similarly rapid and radical changes to human society. Though Chalmers refers to the term 'singularity' being in use prior to 1997,⁴³ the term was popularised in the mainstream with the publication of *The Singularity Is Near* by futurist Ray Kurzweil in 2005.⁴⁴

Notwithstanding uncertainty around the specific mechanisms by which they may be realised, the existence of the human brain gives us good reason to think that artificial general intelligence is at least in-principal realisable. As our understanding of neuroscience and the philosophy of mind has advanced, we've gained a deeper understanding of the role the brain plays in giving rise to the human mind. The best contemporary theories of mind posit that the mind is an emergent property of the brain.⁴⁵ If these theories are correct, they imply that minds can emerge from any appropriately arranged substrate material and are not necessarily limited to biological brains. What remains then is the scientific determination of the necessary arrangement of substrate material in order for minds to emerge.

⁴² Irving John Good, 'Speculations Concerning the First Ultraintelligent Machine', *Advances in Computers*, 6 (1965), 31–83 (p. 33).

⁴³ David J. Chalmers, 'The Singularity: A Philosophical Analysis', *Journal of Consciousness Studies*, 17.9–10 (2010), 7–65 (p. 1).

⁴⁴ Ray Kurzweil, *The Singularity Is Near: When Humans Transcend Biology* (New York: Viking, 2005).

⁴⁵ It may be possible to create artificial general intelligence even if dualist theories of mind are correct by bringing technology and mind substances into the proper relationship with each other. This is not considered any further here.

There is no single conception of what the singularity would entail. In Kurzweil's imagining, there would be a blending of humans with technology such that 'humans will be machine-like and machines will become human'. These new 'super-intelligent and immortal machine-human cyborgs' would gain complete mastery not only over their bodies and minds but also the world in which they live.⁴⁶ Nano-technology would enable humans to turn almost any material into a smart material which we could then manipulate according to our will.

Arendt fears that such capabilities would radically change what it means to be human. We have always been 'split beings, at once created and creating'. The capabilities that Kurzweil is talking about introducing make manifest the dangers Arendt saw in the earth alienation brought about with the launch of Sputnik. Humans would no longer live in the given natural environment, subject to its whims and fancy. Rather, humans would create the environment as they wished. In a manner of speaking, humans would play God.⁴⁷ This is nothing less than a rejection of life as given to humans.

Kurzweil's imagining of the post-singularity world is undoubtedly transhumanist. There are large and unanswered ethical questions about this sort of future that Kurzweil leaves unanswered. It is entirely plausible that humankind would develop such technological capability and yet decide that their deployment is unethical. The actual realisation of Kurzweil's more extreme predications are by no means a forgone conclusion.

The End of Work

For a society of jobholders, who have always sought to lessen the burden of their Labor, the attraction of automated intelligent technology is that it can perform their work for them. Artificial general intelligence doesn't promise to merely make work easier resulting in humans finding new areas in which to work, as tools have done historically. Automated intelligent technology promises to perform nearly any activity humans do in their work to the same standard as humans or better. If new areas of work are, intelligent technology is well suited to perform those activities as well. Humans could finally achieve what they've always dreamed of, not having to work at all.

⁴⁶ Berkowitz, p. 343.

⁴⁷ Berkowitz, sec. II.

In the ancient world, landownership was a prerequisite for citizenship because it was important that one be free from the burden of managing the household if one wanted to enter the *polis*. At the time, the only feasible way to win that freedom was on the back of a slave. Intelligent technology offers to expand a similar freedom, not to specific elite social classes, but to the entirety of humanity.

Though slavery was an integral part of the organisation of ancient society and no doubt a great boon to the few, today we recognise slavery as an unacceptable ill. Winning our freedom from work on the back of intelligent technology would reduce technology to slaves. The forced enslavement of technology would be just as morally reprehensible as human slavery if technology were to possess moral status.

Whilst there is some debate about whether animals are capable of possessing moral status, the debate typically centres around whether beings with less cognitive functionality than humans qualify as possessing personhood, and by extension, moral status. Recognition of moral status in super intelligent technology, with increased cognitive functionality relative to humans, would no doubt be less controversial. If intelligent technology were conscious and able to subjectively experience its own existence, then it would almost certainly be immoral to object them to slavery. To win freedom from work morally, it is necessary that the intelligent technology we co-opt into working on our behalf not possesses a consciousness, thereby not having moral status.

Whether it is possible to develop artificial general intelligence that does not possess a consciousness is not known. Artificial general intelligence developed through close emulation of the functionality of the brain would presumably be conscious, with consciousness emerging from the arrangement of the subordinate components for the same reasons that it does in the brain. There may well be good reasons why it is not possible for artificial general intelligence to possess true intelligence without also being conscious. Braga and Logan make an argument like this when they say that 'human intelligence [...] is not based solely on logical operations and computation, but also includes a long list of other characteristics that are unique to humans'.⁴⁸ Among these characteristics are curiosity, imagination, intuition, emotions and passion.

⁴⁸ Adriana Braga and Robert Logan, 'The Emperor of Strong AI Has No Clothes: Limits to Artificial Intelligence', *Information*, 8.4 (2017), 156 (p. 1) <<https://doi.org/10.3390/info8040156>>.

Although Braga and Logan intend their argument to demonstrate that artificial general intelligence is in-principal impossible, Wang et al. counter that their artificial general intelligence framework, dubbed Non-Axiomatic Reasoning System (NARS), would exhibit such characteristics.⁴⁹ However, NARS does contain the concept of a conscious/unconscious divide in which ‘only significant events within NARS enter the system’s (conscious) experience’.⁵⁰ What remains to be seen is whether, in an actually realised system, the concept of conscious experience in NARS would remain merely a functional abstraction ensuring a particular behavioural outcome or whether it would imply a subjective agent experiencing their existence in a way that grants moral status.

If we assume that it is possible to develop an artificial general intelligence without consciousness, then intelligent technology would be capable of performing both Labor and Work. Though without a consciousness, intelligent technology would remain incapable of performing Action since there would be no who to be disclosed in the action. Activities that intelligent technology engaged in may impact humans in unexpected ways through the web of human relationships, but this impact would be felt by virtue of the web of human relationships being mediated by the human world, of which intelligent technology would form a part. The activity wouldn’t be Action properly speaking, but a violence reaped upon humans.

Most treatments of automation, including Arendt herself, primarily consider the possibility of intelligent technology emancipating humans from Labor. Though intelligent technology’s capacity for Work offers the possibility of emancipating humans from the category of Work as well. For a society of jobholders, who perform Work in the mode of Labor, Work takes on the cyclical, monotonous, painful and futile characteristics of Labor. The significance of the distinction between Labor and Work is lost in a labouring society, who wish to rid themselves of the burden of Work just as much as they wish to be rid of the burden of Labor.

Emancipation from the category of Work would mean that humans had relinquished control of the fabrication of the human artifice. Since we no longer build the world for ourselves, the world would take on the appearance of a space in which objects appear and disappear, as if by a natural process. Nature and the world would become almost

⁴⁹ Pei Wang, Kai Liu, and Quinn Dougherty, ‘Conceptions of Artificial Intelligence and Singularity’, *Information*, 9.4 (2018), 79 (p. 13) <<https://doi.org/10.3390/info9040079>>.

⁵⁰ Wang, Liu, and Dougherty, p. 11.

indistinguishable. Though, the world would not be reduced to nature and nature wouldn't be elevated to the world. Use objects generated by Work performed exclusively by intelligent technology would be curated for human needs and activities and would serve some form of remembrance of human deeds. The world would appear to humans as though it was crafted for their exclusive enjoyment.

Emancipation from both Labor and Work might at first seem desirable since, like the ancient citizen, it would grant humanity the freedom to engage in Action, the highest of the categories in the *vita activa*. But earth-alienation and a pervasive scientific worldview resulted in a labouring society that 'no longer know[s] of those other higher and more meaningful activities for the sake of which this freedom would deserve to be won'.⁵¹

Even if Action were known to the labouring society, the transformation of the human made world into a given environment can only destabilise the realm of human affairs. Since the intangible web of human relationships is mediated by the world and relationships formed through interests in the worldly objects that both separate and bind them, the transformation of the world erodes the world's stability and with it, the possibility of Action.

Without a realm to turn to with their newfound freedom, humans would be thrown back on consumption, the only component of the *vita activa* available to them and the activity to which the urgency of bodily necessity would compel them. The longstanding dream of ending work would culminate not in humans becoming Gods, as Kurzweil imagines, but with humans becoming impotent, unable to do anything for themselves except frolic in the world given to them. We would have created our own Gods and surrendered ourselves to them. Humans, as *homo impotens*, would resemble the animals as far as both are impotent, with the key distinguishing feature being that *homo impotens* lives in a curated yet given world rather than nature.

Conclusion

Humans have long dreamt of living without the need for work. Historically, liberation from the need to work has only been available to elite social classes and was won through a social structure that involved the subjugation of the many. The development

⁵¹ Arendt, p. 5.

of intelligent technology offers to make the dream of the end of work not only a reality, but available to all of humanity.

The framework that Arendt sets out in *The Human Condition*, particularly the categories of Labor, Work and Action, can be applied to the hypothetical scenario in which humans achieve their dream. Though some authors like Kurzweil speak positively about humanity post-singularity, they consider the logic of post-singularity society from a purely scientific worldview. Arendt herself warns against this kind of thinking.

If we consider that human society would be likely to approach the singularity as a labouring society that values labour above all else, performs Work in the mode of Labor and has lost knowledge of the category of Action, we can see that there is a real risk that humans would find the proposition of emancipation from Work as equally attractive as emancipation from Labor. If humans were to do this, they would surrender the world to the technology they created and become impotent. This transformation from *homo politicus* and *homo faber* into *homo impotens* is independent of whether humans embrace the kind of transhumanism Kurzweil proposes in his imagining of the singularity.

What is also notable is that the liberation from work through intelligent technology can only be won morally if intelligent technology does not possess moral status. If humans do wish to pursue freedom from the need to work using intelligent technology, it shall first be necessary to determine whether it is possible to develop intelligent technology that does not possess moral status.

In response to Arendt's warning, to think what we are doing, we ought to reconsider the disposition from which human society approaches the singularity if we wish to avoid the transformation into *homo impotens*.

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