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SCIENTIFIC IMMORTALISM AND THE PROBLEMATIC
FUTURE OF TECHNOCENTRIC IMMORTALITY

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Abstract: Scientific immortalism is an ideology that argues in favor of technologically facilitated immortality. According to proponents of scientific immortalism immortality will be achieved through the future technological realizations of prospective advances in knowledge of medical, biological, informational and material sciences. Supporters of scientific immortalism therefore usually believe that biotechnological modification and enhancement of humans is the most authentic, secure and safe way towards the ideal of immortal beings. This indicates that in scientific immortalism science is mostly seen as an innovative and sophisticated tool for acquiring some of the classical goals of religion. The long historical discourse of religion and philosophy, however, shows that immortality isn't a uniform concept and faith in immortality may come in many different forms. Justification of goodness of technocentric immortality therefore crucially depends on the precise specification of the right kind of immortality. The article deals with the characterization of different forms of immortality, which are relevant to the current debate about the predictions of scientific immortalism. It is argued, that some forms of technocentric immortality could lead to the loss of beneficial human values and toward the destruction of usual features of personal identity. Scientific immortalism should, therefore, stay scientific and accept that the superstitious idealization of science doesn't miraculously imply, that the future of technologically mediated immortality will be necessary always good.

Key words: scientific immortalism, posthumanism, biotechnology, human enhancement, personal identity, human values, religion.

1. Introduction

Scientific immortalism is a view that advocates technocentric immortality. It's an ancient idea with a new hat. Spirituality may be valuable, but sometimes, science and technology may be even more helpful. According to scientific immortalism, the objective of science and technology should be in the contravention of human limitations (More, Vita-More 2013, 212). The temporality of humans is surely a grave limitation, and so the ultimate goal of scientific inquiry should be human immortality. Science is the instructor, technologies are the muscles and the human eternal life is the object. Or so, some scientific immortalist believe (Bostrom 2005; De Grey 2008; Sandberg 2013).

But it's not just about a belief. Scientific immortalist typically declare that the prospect of earthly immortality is real (De Grey 2008, 25; More, Vita-More 2013; Kurzweil 2013). Some scientific immortalists state that some of the present humans will be technologically immortal (Rose 2013, 204). Several scientific immortalists even suppose that in the future all people will be immortal (Best 2004; Koene 2013). Other proponents of scientific immortalism further speculate that immortality could have been achieved a long time ago, had we given up on religion and focused on scientific knowledge (Minsky 2013, 170.). Scientific knowledge is the real master of life and death, and thus science could execute the essential promises of mythology and religion (Umbrello, Lombard 2019, Schussler 2019). According to scientific immortalism science and religion, however, aren't antagonistic. Religious scriptures were right. What they lacked was the required knowledge of the tangible technical skills that can lead to actual immortality. Proponents of scientific immortalism, therefore, suggest that the place for real immortality is here, and by here they mostly mean in the almost real technology of the incoming future.

It is not surprising that there is something seductive about these talks of immortality and the future. After all, the future is the place where everybody wants to be, and being in all future moments is perhaps immortality. The connection between the future, immortality, desires, dreams, and existence seems pretty straightforward. Scientific immortalist, therefore, argue mainly about the right technological realization and effective scientific vision, which could hurry up the results of human eternity. This article isn't dedicated to the fascinating debate about the realm of the so-called immortalization technologies. Scientific immortalism is also interesting because of the core belief in the necessary goodness of technocentric immortality. Contrary to scientific immortalism many philosophers know that the results of the experiment with the philosopher stone may vary.

This article is a critical analysis of the relation between scientific immortalism and immortality. Scientific immortalists generally assume that immortality is good per se. In this article we analyze this claim within the framework of the categories of death, mortality, immortality, values, identity and logical requirements of immortality. The first part of the article is devoted to explanation of scientific immortalism and its relation to death (section 2.). The second part focuses on the problem of negative evaluation of death and mortality, which implies clarification of different forms of immortality (section 3.). These types of immortality are then tested against arguments contrary to immortality (section 4. and 5.). We argue that scientific immortalism could partly refute these objections, but that does not mean that technocentric immortality is good. It could just mean that for humans technocentric immortality is potentially meaningless.

2. Scientific immortalism and death

Scientific immortalism is an ideology that depends on the possibility of radical human enhancement. A fundamental human limitation is temporality. If death means the end of human life, then it also means the end of an enhanced human life. That is why death is the greatest evil for scientific immortalism (More, Vita-More 2013, 213). For N. Bostrom death is a tyrant that must be overcome (Bostrom 2005, 273). A. Sandberg suggests that death is the greatest obstacle to happiness (Sandberg 2013, 56). For A. de Grey death is simply repulsive (De Grey 2013, 217). Some scientific immortalists even point out that the search for immortality was the main precursor to scientific explorations (Bostrom 2006, 64), and the pursuit of immortality is a moral obligation (Geddes 2004, 239). Scientific immortalists usually predict that technocentric immortality will be achieved in the next century (Best, 2004, 237).

The assumption of immortality invokes a discussion on the technological capacity for immortality. The main candidates are human cyborgization (Kurzweil 2013), genetic engineering (Magalhaes 2004), advanced regenerative medicine (De Grey 2008), therapeutic cloning (West 2004), virtualization (Sandu 2015; Sandu, Vlad, 2018), mind uploading (Koene 2013), cryonics (Ettinger 1966), nanomedicine (Freitas 2004) or a combination of these different technologies (Rose 2013, 201). Proponents point to some promising findings in gerontology research (De Grey 2008, 25) and the expected results of technological progress (Rose 2013, 204). Opponents suggest that there are natural biological limits of the human lifespan (Dong, Milholland, Vijg 2016). However, the aim of this article isn't focused on the assessment of the debates on the technological feasibility of immortality. From the philosophical viewpoint, the sole

belief in immortality is interesting. But before we can explore immortality, a more precise definition of the concept of death is needed.

In scientific immortalism death is understood as non-existence (More 2013, 15). If one assumes that non-existence can be imagined, then there are various ways of doing so. Generally, it is assumed that death is in a certain sense the antithesis of life, the cessation and limit of life. The definition of death adopted in this article is: Death is the state of non-existence that occurs following the irreversible loss of an individual's life functions.

Admittedly this definition of death is not uncontroversial. The first problem is semantic. One can question whether non-existence can be a state. The familiar dispute over the referential and quantitative issues of negative existence would lead us into an extensive and complex discussion. We shall therefore leave them aside. Here we shall consider the state of non-existence in the intuitive and heuristic way of ordinary language.

The second problem is one of classification. If we accept that it is meaningful to refer to a state of non-existence, then we need to classify what that non-existence is. It is probable that we are not thinking of non-existence *per se* but of a particular type. The definition given above classifies death as a state that occurs following loss of life. This temporalized perception of non-existence may not be acceptable to everyone, but this article is devoted mainly to the problem of continuing life and to general perceptions of death, and so we shall leave aside the questions about the value of non-temporalized non-existence.

The next problem with the definition is that while it may be based on a widespread view of death, it is not the only view. The proposed definition hinges on the termination thesis of death. The termination thesis holds that death means the end of an individual's existence (Feldman 2000, 100). In some religious and philosophical conceptions, however, the transformative thesis is advocated. The minimalist version of the transformative thesis holds that death is not the end but a transition to something different. The positive version of this thesis is concerned with identifying what that something different might be. But the transformative thesis is hard to accept from a scientific immortalist viewpoint. If (eternal) personal life exists after death, then attempts at achieving immortality through technology are not only pointless but perhaps also damaging. Moreover, scientific immortalism tends towards naturalistic and scientific thinking. Technocentric immortality is generally based on the termination thesis of death rather than the transformative one.

The familiar problem with the criteria of death is another potentially problematic aspect of this definition. The question is which criteria point to the true loss of life functions. Having strict criteria is not unimportant, but the definition given above favours none of these criteria. It is not the

precise moment at which death occurs that is important for immortality, but whether it occurs at all. In this sense the definition is neutral on the criteria. What is important is whether the criteria point to a state that is irreversible. Many of the well-known criteria of death would appear to meet this condition.

The last problem is a rhetorical one. In some cases, we talk of living people despite the fact they fulfil the definition of death. Aristotle is dead – but not entirely. Aristotle may no longer exist but his ideas do. In this sense Aristotle lives on through his work, in the same way as our dead predecessors live on in our memories of them. Expressions of this nature can have various social, emotional, psychological and other functions (Matei, Preda 2016). We need to recognize though that their meaning is oppositional to the actual death of the person. Our dead predecessors are only metaphorically alive because they are truly dead. Scientific immortalism is about extending this true life not the metaphoric one.

These objections highlight a number of the problems with defining death. For us, however, death is interesting because of the way it is perceived in scientific immortalism. Scientific immortalists consider death to be an evil because of the absence of existence, the temporal persistence of death and the reality of death. A definition whereby death is the irreversible state of non-existence following the loss of a person's vital functions therefore probably suffices for the scientific immortalist view. Having clarified this conception of death we can move on to the problem of immortality.

3. Immortality

In order to understand immortality one must first understand mortality. When we assume that we are mortal, we generally think that at some point in the future we will die. Mortality is therefore a dispositional property for death. We have already defined what death is so we can now arrive at a more precise definition of mortality. Mortality is an (living) individual's dispositional property for non-existence, which occurs during the irreversible loss of life functions. However, death can potentially occur in a variety of situations. At some point we will certainly die, but under certain circumstances it could happen at any time. This means that from the view of mortality we consider death to be both necessary and (variously) possible. This enables us to reveal two further refinements to the definition of mortality that capture our basic intuitions on mortality.

The first intuition assumes that death can occur at any moment. It would seem that each moment of our existence is endangered by the possibility of death. The conditioned nature of mortality means that death is possible at some future moment. Definition: Conditional mortality is an individual's dispositional property for the irreversible loss of existence at

some future point. The second intuition assumes death must occur sometime. While we can generally suppose that our death will necessarily occur at a specific moment in the future, in this supposition death is not a possibility but a necessity. Regardless of when we die, it is clear we will die sometime. Definition: Non-conditional mortality is an individual's dispositional property for the irreversible loss of existence at a specific moment. It would seem that humans are both conditionally and non-conditionally mortal. These conceptions of mortality are not entirely unproblematic.

The first problem concerns the difficulties of defining death. These were dealt with in the section on defining death and so we will not readdress them here. The second problem is categorical. The definitions of conditional and non-conditional mortality rely on the assumption that there are some dispositional properties. The idea that dispositional properties exist is a controversial one. The problem is that these properties indicate future realization (Goodman 1983, 42). Recognizing the existence of such predicates could lead to other ontological links. This, though, does not necessarily mean that they cannot be used from the ordinary viewpoint.

Another potential problem concerns epistemology. How can we know that we are mortal? If death is non-existence, then we can hardly experience, know or feel death. It seems we can never know we are dead. This epistemological objection is based on the personal consequences of the termination thesis (Schumacher 2011, 120). If we don't exist, then we can't know that we don't exist. But that doesn't mean that if we do exist, then we don't have good reason to suppose that at some time we won't exist. This knowledge is not innate, a priori or essential. We learn about death from experience. Experience tells us that many people are dead. None of them escaped death. If all these people are dead, then they must all have been mortal. Therefore, it is not entirely true that we cannot know death. We know it from thinking about our experiences, which in all probability point to the reality of our own mortality. We have entirely "good" reasons to suppose that there is such a thing as mortality.

Having clarified the conceptual framework and the problem of mortality we can move on to immortality. Immortality is evidently a property that means that a given person will not (somehow) die. It is therefore a dispositional property indicating that person will be able to prevent his or her death. Immortality is therefore the converse of mortality. We have already defined mortality, so we can now go on to define immortality. Immortality is an individual's dispositional property that protects against the non-existence that would occur following the irreversible loss of life functions.

Immortality is based on the negation of mortality. Mortality can be conditional, and non-conditional. The same is true of immortality which can be divided into conditional and non-conditional immortality. Non-

conditional immortality is an individual's dispositional property to necessary existence at all future moments. Irreversible loss of life functions is ruled out at all future moments. The individual will therefore be immortal at all future moments. Conditional immortality is individual's dispositional property to a possible existence at any future moment. Irreversible loss of life functions is ruled out at whichever future moment. The individual will be immortal at any future moment.

These forms of immortality may be similar, but they differ in one fundamental way. Where non-conditional immortality is concerned the individual will necessarily be alive at all future moments, but the conditionally immortal individual may be alive only at any future moment. Non-conditional immortality is thus irreversible and non-voluntary, while conditional immortality is reversible and voluntary. This distinction may seem marginal, but it may be crucial to the problem of desirability and goodness of technocentric immortality in scientific immortalism.

4. Immortality and the finiteness argument

Contrary to scientific immortalism many philosophers have argued, that key aspects of our life depend not on phantasies about immortality, but on the positive reality of mortality. The loss of mortality, that is immortality, could therefore also mean the loss of life as valued by humans. Since the loss of life as valued by humans would not be beneficial, mortality is not bad, but in fact necessary and good. Arguments of this kind usually rely on human life having a definite timespan, on the finiteness of life. T. May for instance thinks that an infinitely long life would have no meaningful content for humans (May 2009, 61). According to May meaningful activity is about favouring one activity over another. Favouring one activity over another only makes sense if the choices available are restricted in time or are finite. The fact that they are finite renders them meaningful. Infinity disqualifies meaningfulness. Immortality robs a person of a life with significant meaning (May 2009, 62).

M. Nussbaum (Nussbaum 1994) posits a similar argument. Nussbaum is not concerned with the loss of the meaning of life but with the loss of the value of life. It is an argument that is not simply an implicitly individualist one. According to Nussbaum mortality is essential to the human value system (Nussbaum 1994, 226). By contrast immortality means the disappearance of any kind of meaningful value system; it means the death of values (Nussbaum 1994, 226). An immortal life would lack various core values that shape the positive relationship people have with their own lives and with the lives of others. Nussbaum elaborates on this argument by listing specific values. These include courage, love, friendship, justice, restraint, self-sacrifice, compassion and other moral

virtues (Nussbaum 1994, 226). The specific examples are not perhaps that important. Generally the problem is: How can we respect life if we are immortal? If life truly could not come to an end, then all other values emanating from it would clearly be pointless, if not destroyed. The risk of death, mortality, therefore has a positive value.

These two arguments hinge on finiteness. In its general form the finiteness argument supposes that if immortality precludes any kind of finiteness, then it destroys the meaning of our life (May) or our entire value system (Nussbaum). Destroying the meaning of our life, or our value system, is unacceptable to us, so immortality would therefore not be acceptable. The scientific immortalism assumption about positive technocentric immortality need not be substantiated. On the contrary if this argument were truly valid then one could accuse scientific immortalism of having unarticulated negative consequences.

Let us look at the criticisms of this argument. Proponents of scientific immortalism might focus on the second assumption in the finiteness argument. Should we consider the loss of meaning and values to be unacceptable? The characteristic argument in scientific immortalism is that in the future new values will be created. Transhumanists and scientific immortalists are keen to emphasize that new technologies will mean that new suitable values and lifestyles will be required (More, More 2013, 213; Frunza 2017, 7). They do not consider the destruction of the usual values or the traditional meaning of life to be necessarily bad. One could consider destruction to be a beneficial acceleration of scientific immortalism efforts at human and posthuman enhancement. If the change in values does not concern us, then immortality may not either. The finiteness argument therefore needn't be seen as a threat to scientific immortalism and its belief in immortality.

This criticism of the finiteness argument does not adequately capture the problem. The problem is not the impossibility of replacing values but the inappropriacy of replacing human values. The validity of the argument does not preclude the possibility of a new value system being created. Quite the opposite, the persuasiveness of the finiteness argument lies in the problem of replacing, or destroying, the human system of values or meaning. Neither May nor Nussbaum rule out the idea that immortality may have value or meaning. Scientific immortalists can argue in favour of these other values, but if technocentric immortality means the substitution and end of human values, then one may question whether this kind of immortality is of value to humans. The finiteness argument does not therefore suggest that destroying the meaning of human life or of the human value system is unacceptable per se, but rather that is unacceptable to us.

The loss of values and meaning depends on the first assumption of the finiteness argument. The second criticism of the finiteness argument could therefore focus on this first assumption. The first assumption states

that if immortality precludes any kind of finiteness then it destroys the meaning of our life (May) or our value system (Nussbaum). The problem with this implication may be the antecedent. If the antecedent is not valid, then the consequence – the destruction of values and meaning – need not apply either. Immortality destroys the meaning of our life, or our value system, only if it precludes any kind of finiteness. The validity of this statement is therefore crucially dependent on the form of immortality assumed.

In the previous section we have defined non-conditional and conditional immortality. Non-conditional immortality implies an individual's existence at all future moments. An immortal person thus conceived of must live forever. There are no circumstances, and there is no situation, under which loss of life functions could occur. This kind of immortality is total, absolute, irreversible and necessarily infinite. Since this kind of immortality is necessarily infinite, it has to preclude the possibility of any kind of finiteness. The assumption that technocentric immortality is non-conditional therefore unquestionably underpins the antecedent of the first premise of the infinity argument. If the immortality assumed is this form of immortality, then the idea about the destruction of values may be valid.

Scientific immortalism is not necessarily bound to the validity of this form of technocentric immortality. A conditionally immortal person may be alive at any future moment, but that means he or she need not be alive at some future moments. This kind of immortal person may, but need not, live forever. Conditional technocentric immortality is therefore not necessarily infinite. If it is not necessarily infinite, then this kind of immortality does not preclude the possibility of the end or finiteness. Conditional technocentric immortality allows this possibility, and so there is no obligation to assume the consequences of the implication of the first assumption. The destruction of the values and meaning of life in the finiteness argument hinges upon the complete elimination of the possibility of death. Our value system or the search for meaning is based on the risk of death. Not only those who necessarily die live with this risk, but also those who may die, that is, conditionally immortal people. It is perhaps true that non-conditional technocentric immortality leads to the destruction of the meaning of life and its values, but conditional technocentric immortality does not necessarily lead to this conclusion, and so this finiteness argument is not entirely destructive against scientific immortalism.

Scientific immortalism may therefore partially cast doubt on the validity of the finiteness argument. Absolute, total, non-voluntary technocentric immortality is not necessarily acceptable to humans, as this finiteness argument rightly indicates. On the other hand, the finiteness argument does not necessarily disqualify conditional technocentric immortality. It is therefore much better for scientific immortalism to

assume this second kind of immortality. It appears that limited technocentric immortality could be acceptable after all. Perhaps, though, the problem is not whether technocentric immortality is acceptable but whether it is desirable.

5. Immortality and the Makropulos Case

The Makropulos Case is a play by the writer Karel Čapek (Čapek 2015). It is about the immortality of the main protagonist, Elina Makropulos. The opera by Leoš Janáček based on this play was the inspiration for the well-known argument about the undesirability of immortality. The argument was developed by B. Williams (Williams 1973). Like the previous argument this one highlights the fact that immortality is not necessarily beneficial since human mortality provides meaningfulness. The difference is that Williams's argument does not concern values per se, but the value of personal immortality.

The plot of the Makropulos Case opens with Makropulos, a Rudolphine alchemist, discovering an elixir for immortality. Makropulos offers the elixir to his daughter Elina. Elina takes it and becomes immortal. For centuries she travels around Europe, searching for love, success and fulfilment. In the end, however, she discovers that she believes in none of these and envies mortal beings for their naïve, but meaning giving beliefs. She therefore decides to return to where it all began. She goes back to Prague and terminates her immortality.

Williams thinks Elina's decision is understandable. The problem with immortality is the threat of existential emptiness. Williams's argument is based on the idea that if we were truly immortal, then we would think immortality was unpleasant and absurd. Williams reaches this position via two stages. First he addresses the problem that death is bad. He believes death is bad because it sometimes prevents us from fulfilling our resolutions, desires and projects. The loss of the ability to implement these projects is bad, and so it is reasonable to consider death to be bad as well (Williams 1973, 82). Cautiousness of death and delaying death are justified. Williams does not therefore doubt that death is bad, he considers it to be a fact.

In stage two Williams points out that the fear of death doesn't imply that immortality is desirable or that mortality is negative. Elina may have considered death to be bad; however, that did not prevent her from envying the mortality of others or regretting her own immortality. The understandable attempt to delay death need not mean postponing it indefinitely. On the contrary, immortality, at least for Elina, appears to be a worse option than mortality and death. But why did Elina ultimately choose to end her immortality? The postponement of death is, Williams posits, justifiable if death will prevent that person from realizing projects

and desires they consider beneficial. Elina had undertaken all her projects and had come to understand their meaningfulness or naivety. This is why she ultimately surrendered to resignation and cynism, and made her final decision. Elina had achieved all that she wanted and her life had subsequently become empty, boring and unbearable.

The same argument can be made in a less metaphorical format. Williams's criticism of immortality is based on two assumptions: A desirable life must be one that maintains that person's life; a desirable life means realizing projects the person considers important. Immortality is undesirable because it does not allow that person to maintain his life, or if it does, then it leads to the exhaustion of all meaningful projects. Either we don't have personal immortality or we have an unbearably exhausting personal immortality. In either case this kind of immortality is not desirable from the individual viewpoint. Williams's argument exceeds the finiteness argument. The assumption that immortality destroys the usual values is perhaps not so important. What is important is that immortality could destroy the person. If this were true, nobody with any common sense should choose immortality. The scientific immortalist attempt at immortality would therefore be irrational.

Williams's argument is not unproblematic. Most of his criticism is aimed at the second assumption, that of the project problem. One may question which projects are important to people. Clearly not all projects are of equal value. Williams therefore distinguishes between conditional and categorical desires (Williams 1973, 86). Categorical desires are projects that give meaning to our lives. Conditional desires simply sustain our lives momentarily. Williams supposes that immortality will ultimately rob us of these categorical desires. His critics have concentrated on the appropriacy of this distinction (Fischer 1994, 260), on the nature of categorical desires (Bradley and McDaniel 2013, 120) and on the possibility of renewing categorical desires (Bruckner 2012, 629). We can leave this problem aside. Immortality will necessarily lead to the exhaustion of all meaningful projects only if immortality is infinite, non-conditional. This type of immortality was rejected in the previous section and so we shall look at the first assumption in Williams's argument.

The first assumption concerns the problem of identity. The assumption that a desirable life must retain that person's life is trivial. Immortality could then be good (or bad) for us if it is our own immortality. Williams assumes that if immortality lasts a sufficiently long time then personal identity is under threat. However, that depends on the type of identity. In this case Williams is not thinking of identity in the robust metaphysical sense. Metaphysical conceptions of identity are concerned with the conditions under which objects generally persist. These conditions can be formulated in various ways. With a certain degree of liberalness, one could imagine a conception that metaphysically underpins the identity of some eternal or immortal object. Williams was not thinking

about the biological identity of a person either. For him, Elina was, in terms of identity, one and the same person biologically (Williams 1973, 92). The problem lies in a different kind of identity, a practical (psychological) identity. According to this conception of identity, a person is the same practically speaking if certain psychological characteristics are maintained over time.

In practical terms we often use and examine this identity. For instance, sometimes we accept the idea that a person becomes a new person following a transformative experience. It seems that for Williams immortality is one of the most radical transformative experiences. This is because with infinity the possibility of change increases endlessly and with it comes the demise of the original person. The paradox of immortality lies in choosing our own possible demise. That is not a good prospect. Hence choosing immortality ceases to be desirable for that person.

Williams's assumption could be incorrect for two reasons. It is based on practical identity but Williams does not break it down any further. It should be noted that we usually consider this identity when we are thinking about decisions that affect our personal future. We think about whether some decision will lead to our psychological characteristics being maintained in the long run. We generally wish to be the same in the future. We could call this kind of practical identity prospective practical identity. We consider prospective practical identity when judging future changes to the person. But this is not the only way of thinking about practical identity. Sometimes we look backwards instead of forwards. We retrospectively judge whether our decisions ultimately led to our current psychological characteristics. When we consider retrospective practical identity, we assess changes to the person in the past.

These two kinds of practical identity can lead to different outcomes in Williams's identity problem. In the prospective one it could seem that over a sufficient length of time the person could change psychologically, or potentially cease to exist. However, this needn't apply to the retrospective one. In fact, the future immortal person may be grateful for having opted for immortality in the past. Generally, in the retrospective approach many of the changes to our personality, desires, wishes, longings may seem to be the right ones even when they didn't on the prospective view. It may even seem that we have become the person we are today because of these changes. That does not mean that immortality isn't necessarily unpleasant. It simply means that identity could be safeguarded on the retrospective reading. However, it should be recognized that on the prospective reading this is not necessarily the case.

This brings us to the second problem with the assumption of identity. Why is identity not safeguarded on the prospective reading? The potential for unacceptable personal changes increases over the course of an infinitely long life. But this again depends on the kind of immortality we

are talking about. Non-conditional immortality can only mean living for all infinity. Having to live forever endlessly increases the potential for personal change. This kind of immortality is also hard to accept for various other reasons. Williams uses Elina as his example, but her immortality is not a given. Her immortality can end; it is conditional. Conditional immortality does not lead to an ever-higher likelihood of personal change. If we suppose that immortality is conditional, then the fears inherent in the prospective problem of identity need not be substantiated.

Williams's argument operates on two levels. The first assumption is based on the identity problem and the second is based on the project problem. The negativity of immortality lies in the fact that it may not necessarily end up being our personal immortality or that it will be an exhausting personal immortality. If these premises are valid, then the scientific immortalist arguments favouring technocentric immortality are not substantiated or beneficial. However, scientific immortalism has the potential to avoid these consequences. The force of the argument is weakened by the fact that it could point to a different type of technocentric immortality and a different type of identity. Conditional technocentric immortality does not fully prevent all important projects from being exhausted. It is possible to imagine an immortality in which there is sufficient time for people to pursue, implement and renew their projects. Similarly, Williams's assumption of identity is weakened by a different type of practical identity. A retrospective practical identity does not preclude the possibility that the identity of a conditionally immortal person is safeguarded. Scientific immortalism is therefore capable of refuting both the finiteness argument and Williams's argument against immortality.

However, none of this means that technocentric immortality is good.

6. Conclusion

It has been shown that scientific immortalism has the capacity to demonstrate that fears of technocentric immortality are not necessarily valid. However, the fact that they are not necessarily valid does not mean that they are unsubstantiated. The finiteness argument and Williams's argument point to various complications with immortality. The finiteness argument indicates that immortality can in certain cases lead to negative social consequences. Williams's argument shows that the problem with personal immortality is the inherent risk of an exhausting and absurd personal emptiness.

Doubt can be cast on both arguments by highlighting the fact that there are imaginable conceptions of a different kind of immortality and a different kind of identity which need not lead to negative consequences.

Only non-conditional technocentric immortality will necessarily destroy the value system of humans. It is also the only kind of immortality that will necessarily lead to the emptiness and demise of the person. Conditional technocentric immortality does not necessarily rule out the persistence of values or the person, but that does not mean that conditional technocentric immortality necessarily excludes the possibility of destruction of values or persons. And this is precisely the problem with the debate on technocentric immortality.

One can imagine that an almost infinite and therefore also a conditionally immortal life could lead to alienation from human values and meaning. Similarly, one can imagine that this type of conditionally immortal life thus could ultimately lead to exhaustion and loss of a person's authenticity. As a person's conditionally immortal life progressed, this could become likely. The problem is not infinity, the problem is the amount of time. The crucial point with the whole problem of so-called technocentric immortality in scientific immortalism is that it centres around the controversy over the acceptable length of conditional immortality. Ultimately conditional immortality is perhaps not immortality but rather a long-lasting form of technocentric mortality. Thus, the real debate is not about immortality but about what is a good and tolerable length of human life, human longevity. This is not a trivial question, and the possible normative aspects are certainly complex. It is possible that Elina may be robbed of her values in precisely three hundred years; it is also possible that Methuselah may not have lost his values even after 968 years. However, in the end none of this changes the implication that immortality is not a de facto problem, because technocentric immortality in the absolute (non-conditional) sense seems to be potentially absurd. Scientific immortalism would therefore do best and leave the talks about immortality where they belong. Where is true immortality?

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