

The Non-Identity Problem: An Irrefutable Argument against Representation of Future Generations?

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Introduction: The blind spot within sustainability theories

Intergenerational justice is a central normative foundation of virtually all sustainability concepts. During the past decades, intergenerational ethics has become firmly established as a branch of ethics, and there is now extensive literature on theories of intergenerational justice.¹ Within political philosophy, there is a growing library on the representation of future generations that provides the interested reader with more and more proposals for institutions to fulfill this task.² If the term 'institutions' is broadly defined, it encompasses organisations, laws, norms and all other sorts of societal arrangements. Such a broad concept enables us to identify all classifications of institutions in a multi-level model. On the first level we can distinguish:

a) Constitutional and other legal clauses: Some constitutions mention *expressis verbis* the 'rights' of future generations: Norway (Art. 110b); Japan (Art. 11); Iran (Art. 50); Bolivia (Art. 7); and Malawi (Art. 13). Others contain language that relates to ecological or financial sustainability such as the "protection of the natural basis of life" in 20a of the constitutional law of the Federal Republic of Germany or the 'debt brake' in article 126 of the Swiss constitution.³

b) Codes of conduct, self-commitments, acting morally: One strand of the literature argues that present people (and especially present members of parliament) should impartially consider the interests of future generations rather than ensuring representation of future generations.⁴ It is questionable if this will ever happen to the necessary extent. Nevertheless, it might be acknowledged that such moral behaviour by present elected representatives happens to a certain extent and thus is an 'institution' that benefits future generations.

c) Organisations with a specific mandate for the representation of future generations. (e.g. the Commission for Future Generations in Israel, the Ombudsman for Future Generations in Hungary or the Parliamentary Advisory Council for Sustainable Development in Germany.)

On a second level, institutions can be categorized according to the policy fields they treat. Those dealing with all areas of policy making must be distinguished from those which deal with only a few selected policy fields. In the case of the latter, the policy areas in question are

usually environmental or finance policy. However, other policy fields are also conceivable (e.g. pension, health, education or labour policy.) A fully fledged ‘future branch’ of government would have to deal with all policy fields without any restrictions.

On a third level, institutions can be distinguished according to their regional scope: They can be established at the international, supranational (as EU law or a new EU institution), national or a sub-national/regional level.

This multi-level approach is heuristically well-suited to exploring the ‘uncharted territory’ in the ‘universe of cases’ of institutions to represent future generations. The exact design, the projected impact, their scope – these questions will keep political theorists and philosophers busy for years.

But haven’t we overlooked something? This new research agenda outlined above implicitly assumes that there are obligations towards future generations in the first place. But this is contested. Especially the non-identity problem has often been viewed as a serious challenge to theories of intergenerational justice and models of representation of future generations. Viewed strictly, any single irrefutable “no-obligation” argument would necessarily and with one blow spell the end to any accounts of the representation of future generations.

The aim of this chapter is to discuss the challenge the non-identity problem (NIP) poses to theories of intergenerational justice – theories which postulate that the present generation has duties towards future generations.

The non-identity problem

In the literature, a particular intergenerational ethical problem has been discussed since the end of the 1970s⁵ under such headings as “the non-identity problem” (Parfit, 1987, p. 359) or “the future-individual paradox” (Kavka, 1982, p. 186). It has been viewed as such a serious challenge to the justification of *any* obligation towards future generations that the debate over the *extent* of such obligations, which began during the 1970s with a number of remarkable collections of essays (Bayles, 1976; Sikora and Barry, 1978; Partridge, 1980), has ebbed.⁶ Mulgan (2002) has noted that the “non-identity challenge” is to this day “plaguing present Western theories of generational justice” (p. 8). By the same token, Wolf (2009) states, “The non-identity problem calls into question whether distant future persons might claim rights against members of the present generation. (...) For this reason, some theorists have more or less abandoned the idea of intergenerational justice altogether” (p. 96). Parfit (1987), too, sees the significance of the non-identity problem as very great, claiming:

We may be able to remember a time when we were concerned about effects on future generations, but had overlooked the Non-Identity Problem. We may have thought that a policy like depletion would be against the interest of future people. When we saw that this was false, did we become less concerned about effects on future generations? (p. 367).⁷

Parfit’s statement can be interpreted to the effect that intellectually gifted people cannot deny the validity of the NIP. And indeed, for a time, it did achieve the status of a kind of paradigm

in the Kuhnian sense among philosophers (Kuhn, 1963). They stopped discussing the rights or wrongs of it, and were concerned only about researching issues within the paradigm itself (Cohen, 2009).⁸

The NIP can be formulated as follows: The present actions of members of the currently living generation determine not only what the conditions of life of future people will be, but also which people will exist (Kavka 1978, p. 192). If the NIP is a valid argument, actions in the present change the contents of the telephone book of the future, hence leading to “disappearing victims” and “disappearing beneficiaries” (Partridge, 2007, p. 3). If there were *certain* future persons who simply did *not yet* exist, there would be no NIP; the reason that there is a puzzle, however, is that *certain* persons will *never* exist if we behave in a particular way.

In this context, the terms “same-people choices” and “different-people choices” have become established (Parfit, 1987, p. 356). Decisions in the framework of an ethic which is valid in the near term, spatially and temporally (the “neighborhood ethic”), generally change neither the number nor the identity of those affected by an action, and are hence “same-people choices.” But if the identity of future persons is affected, we are in the realm of “different-people choices”. The latter occur whenever our decisions determine who is to reproduce with whom, and, consequently, which individuals are to be born and populate the future (Page, 2007, p. 133). The NIP theoreticians further distinguish between “different-people/same-number choices,” and “different-people/different-number choices,” depending on whether the number of people, too, would change.

Parfit (1987) has established a “time-dependence claim” (TDC), which he initially formulates as follows:

“TDC1: If any person had not been conceived when he was in fact conceived, it is *in fact* true that he would never have existed.” (p. 351; emphasis in original)

Since Parfit seeks to make his argument as strong as possible, he takes the female menstrual cycle into account. If the combination of the egg and sperm cells were to occur a few minutes, hours or days earlier or later, it is almost 100 per cent certain that a different sperm cell would be involved, because every second, a man’s genetic endowment, consisting of some 200 million gametes, is constituted anew (Partridge, 2007, p. 3). In the case of the female egg cell, however, the same cell may be involved regardless of whether the insemination occurs a little earlier or a little later. Hence, Parfit (1987) formulates a second version:

“TDC2: If any particular person had not been conceived within a month of the time when he was in fact conceived, he would in fact never have existed.” (p. 352)

Parfit rightly takes the fact into account that the identity of a person is at least partially constituted by his or her DNA. Mulgan (2002) reformulates Parfit’s idea, and calls it the “genetic dependence claim”: “If any particular person had not been created from the particular genetic material from which they were in fact created, they would never have existed” (p. 6).

In this context, the debate about “wrongful life” is interesting.⁹ This refers to cases in which it is against the interests of children to be born in certain circumstances. The standard example is the case of a doctor who has been approached by a couple wishing to have a child. Because

of a mild hereditary disease in the family, the hopeful parents decide in favour of in-vitro-fertilization in connection with pre-implantation genetic diagnosis (PGD), in order to ensure that the disease will not be transferred to the child. Of four embryos fertilized outside the womb, three bear the genetic defect, and one does not. The doctor then erroneously selects one of the embryos with the defect, which is then implanted into the woman and carried to term by her. When the parents notice after the birth of their child that it does in fact carry the hereditary disease, they sue the doctor for damages. Under the “genetic-dependence claim,” the doctor has in fact inflicted harm upon the parents, but not upon the child itself, for if the mother had, as the parents desired, received the healthy embryo, they would not have conceived the now existing child, but instead a different, non-identical one. Hence, the child has no grounds to complain. In this example, it is assumed that the child, in spite of its hereditary disease, will be able to lead a “life worth living,” in any case a better one than none at all. The question as to whether there is such a thing as life which is “not worth living” is difficult to answer.¹⁰ In the following, we will assume that there are such lives, for instance if a new-born child were to be born with a hereditary disease which would lead to its death after a few months, and which is known to cause great pain. If the “genetic-dependence claim” is valid, the paradoxical condition arises that any person with a life better than one “not worth living” could never be harmed by any action which was causal for his or her existence. When speaking of harm, it is usual to compare the existing situation of a certain person with the situation which would prevail if the harmful action had not taken place. If the former situation is worse than the latter, the conclusion to be drawn is that the person has suffered harm. Parfit (1987) refers to a “two-state requirement” (p. 487); Meyer (2003), more accurately, refers to the “better-or-worse-for-the-same-person” condition (p. 6). “Non-existence” cannot be considered the situation of a person. In such a “non-identity context,” the usual concept of damages and payment for damages is inapplicable: “We can no longer say that the persons harmed are worse off than they otherwise would have been. Had the harmful action not occurred, the persons in question would never have come into existence”, Laslett and Fishkin (1992, p. 4) conclude. American courts have used the non-identity argument to dismiss wrongful-life suits (Wolf, 2009, p. 96).

So what does all this have to do with generational justice? Gosseries (2008, p. 460) illustrates the connection by describing the situation of a father who drives to work every day with his car, thus harming the environment. If his daughter were to someday reproach him for this, he could respond that the point in time of his return home to his wife from work in the evening also affected the point in time of their sexual intercourse. If he had instead used his bicycle, he might have caused less harm to the environment, but then his daughter, the one who is now reproaching him, would never have been born. Presumably, a different sperm cell would have fertilized a different egg cell, so that instead of Individual X, Individual Y would have been born. According to the proponents of the non-identity argument, it is not possible to cause harm to future individuals (or to the generations they form), provided their life is worth living.

Consider the following example: If Generation 1 were to ensure that its entire electric power supply were to be generated by nuclear power, so that Generation 2 then inherited huge amounts of radioactive waste, and let us, for the sake of the extreme argument, assume one major nuclear accident per year, the members of Generation 2 would nonetheless be unjustified in making any accusations against Generation 1, for without the massive resettlement measures undertaken for the inhabitants of the contaminated regions, the members of Generation 2 would never have been born. For had the nuclear-power policy carried out by Generation 1 not been implemented, different sets of parents would have met,

married and reproduced, so that Generation 2a would have emerged, which would have been non-identical to Generation 2.

The important step taken by Parfit, Kavka and later an entire generation of theoreticians of the non-identity paradigm was to use the NIP not only for reproductive decisions, but also for decisions on policy and on individual life which have only a very indirect connection with reproductive decisions (Roberts and Wassermann, 2009, xvii). Only at this point does the NIP become a problem for theories of generational justice and the related research questions, especially in environmental or financial policy. In order to clearly identify this step, which is rarely identified as such in the relevant literature, I will in the following refer to the “non-identity problem as a problem for theories of generational justice” (NIPPTG) when I criticize not the validity of the non-identity argument *per se*, but the expansion of its scope of application.

Several unconvincing objections against the non-identity problem

As mentioned, the non-identity argument has gained great importance among philosophers. Let us now examine whether it is really an insurmountable hurdle and a nightmare for all theories of generational justice. The following arguments are in any case *not* suitable to refute it:

First objection: “People are more than their DNA”

One could raise the objection that the non-identity argument focuses only on the genetic structure of the human being, but not his/her socialization. Without here recapitulating the “nature versus nurture” debate, it is incontestable that no person’s personality is entirely defined by his/her genetic code. However, the proponents of the non-identity argument need not claim that. For their argument, it is enough that genes are *one factor* in making a person what he/she is. Let us assume that a mother aborts a baby and a year later carries another one to term. Even if we were to assume that the child who has now been born would undergo the exact same education and socialization as the one who had been aborted would have, they are still two different personalities. Almost certainly, they would not have the same appearance, the same size, and perhaps not even the same sex.

Wolf (2009) has been concerned with the gene-code-identity nexus, and notes that it is conceivable that a person’s identity does not change even if his/her gene code were to change *after* birth:

If a person were given a genetic therapy that changed the DNA in each of his cells, but left others of his characteristics unchanged, we would not regard him as having become a different person. Genetic therapy of this sort would not, for example, imply that the resultant individual no longer owned property that was owned by the person who chose to undergo the procedure, or that the person who left the operation would not be contractually bound to pay for it (since a different person had chosen to undergo it!). (p. 100).

The question of identity is certainly a thorny one. Wolf's argument is in my view too weak to refute the entire non-identity problem, as the identities of established persons cannot be compared with the identities of unborn ones. If a couple were to have 200 million children in other words and each sperm cell were to fertilize an egg, no child would be completely identical in appearance with any of his or her sisters or brothers. Each would, for example, have a different number and arrangement of birthmarks.¹¹ If we define "identity" narrowly – and distinct from "personality" – each of these potential children would have a different identity.¹²

Second objection: "We have moral responsibilities towards future people, even if their identities are indeterminate to us"

Inflicting harm on someone is not necessarily dependent upon knowing this person's identity.¹³ Let us assume that someone hides a bear trap, which snaps closed with a trigger mechanism, near a children's playground in a forest. Here, too, the intention is that some child be injured. The fact that the victim's identity at the time the trap is set has not yet been determined makes the deed no less evil. Particularly when someone hurts others "at random," the crime appears to us to be particularly heinous.

If we break a bottle at the beach, we have an obligation to pick up the pieces and throw them in the rubbish bin, not in order to protect any *certain* person from injury, but to ensure that *no one* will be injured (Partridge, 2007, p. 6). The principle of morality demands to fulfill obligations towards individuals by description and not denotatively; that is, due to shared general qualities and relations rather than qualities that distinguish persons as individuals like their genetic codes or personalities (Partridge, 2007, p. 6). The "children on the forest playground," and the "barefoot people walking on the beach" – all these are empty set identities, not identifiable identities of particular persons. And nonetheless, persons identifiable by name, such as you and I, have moral obligations towards them. In brief, the argument of indeterminacy in no way releases anyone from the duty to take into account, in our actions here and now, the interests of future generations, consisting of personalities yet to be determined.¹⁴

Unfortunately, that does not help us refute the non-identity problem. For this NIP is based on dependence, not on indeterminacy. Above, the behavior of a person who hides a bear-trap next to a playground was branded as immoral. Would we also do so if this heinous behavior were the necessary condition for the existence of the child who steps into the trap and is wounded?¹⁵ In my view, the answer would necessarily be no. Hence, our good arguments against the indeterminacy argument do not hold against the dependence argument and thus cannot obviate the non-identity problem.

Third objection: "The snowball effect of the non-identity problem is minimal"

Do all decisions really lead, directly or indirectly, to non-identical individuals in the second generation? According to Parfit (1987), "very many" do (p. 356).¹⁶ How many is a question we will address below. Parfit (1987) points to the snowball effect created by government measures:

Suppose that we are choosing between two social or economic policies. And suppose that, on one of the two policies, the standard of living would be slightly higher over the

next century. (...) It is not true that, whatever policy we choose, the same particular people will exist in the further future. Given the effects of two such policies on the details of lives, it would increasingly over time be true that, on the different policies, people married different people. And, even in the same marriages, the children would increasingly over time be conceived at different times. (pp. 361 et seq.)

This statement implies that a government policy can alter the 'genetic shuffle' of future meetings, reproductive encounters, and births in a way that the earth is soon repopulated by different individuals. But how decisively can government policy really mix up the gene pool of future generations within a limited period of time? Indisputably, the overlap between that generation which actually came into being and the one that would have come into being had this policy not been in effect would initially be very high, and over the course of time become smaller. It seems fair to say that the NIP would be refuted if an action harmful to posterity would for a long time result in a relatively large overlap between the people actually born and those potentially born, i.e., if the snowball effect of the NIP were minimal. But to know exactly how great this effect is, we have to calculate:

Example 1:

Let us take an environmental policy decision of the last century which has been seen by many as inimical to the world of the future: the decision to build nuclear power plants for the purpose of providing a significant share of our energy requirements. For a concrete country, e.g. Germany, for how many people did that policy decision change the point in time at which they met their partners and conceived children? For hardly any, at first glance, except for nuclear industry workers themselves. However, let us for the sake of the snowball-effect argument assume that as a result of direct and indirect effects, a quarter of the population had changed their plans with regard to procreation as a result of the policy decision to build nuclear power plants. According to such a scenario, it would have lasted 180 years before the German population would have consisted entirely of different individuals (assuming generations of thirty years).¹⁷

Within this period of time, the non-identity argument would not be fully applicable. Is a time span of 180 years long or short? Certainly not long enough to obviate the NIP. Unfortunately, the snowball effect of non-identity has a greater effect when the policy of the first generation is more inimical to the world of the future.

Example 2:

Let's assume that Generation 1 has built many nuclear power plants with poor safety features. The next generation, Generation 2, then suffers one major accident with massive radiation pollution every year. Virtually the entire population would thus have been affected by resettlement. For some 90 per cent of the population, the point in time at which Generation 2 conceives its children would have changed.

After almost ninety years, there would only be one single individual unaffected by this change.¹⁸ A policy threatening such harm to future generations would thus change the marriage decisions of considerably more people than was the case in Example 1. And the argument can be made stronger by referring to even more drastic cases that would influence the lives and marriages of almost everybody. There are thus enough examples under which the overlap between Generation 1, i.e. those born after a certain measure has been taken, and

Generation 1a, those who would have been born had it not been taken, will fairly rapidly approach zero.

By way of an intermediate summary, we can state that the three above cited counter-arguments – and others¹⁹ – do not succeed in refuting the NIPPTG.

Convincing objections against the “non-identity problem as a problem for theories of generational justice”

The “reincarnation-may-be-possible” argument

This argument is directed not only against the NIPPTG, but fundamentally against the NIP. The NIP is based on a very specific concept of the soul or of consciousness, stating that each soul and each consciousness is tied to a very definite body and can only exist together with that body. This “body-equals-person” concept is a typical Western, specifically Protestant view.²⁰ Hindus, Buddhists, Jains and Confucians, as well as adherents of other religions, believe that a person can be born into a new body after death. Their belief is that every person existing today has been born countless times prior to his/her present life, and that this process will continue in the future. When a new body is formed, no new person is created; rather, the identity of an already existing person is taken into a new body. Eastern religions and the philosophical traditions based upon them thus uphold a concept which is incompatible with the “person-equals-body” concept.²¹

The non-identity argument is based on the premise that people are not reborn. If this premise becomes unstable, the whole non-identity paradigm, too, is weakened (Mulgan, 2002; Tremmel, 2006a). For over 5,000 years, people in various cultures around the world have been thinking about death and of what comes afterwards. Even in the Stone Age, they conducted ancestor worship. In ancient Egypt, Osiris was the judge of the dead. While Christians believe in heaven and hell, Hindus and Buddhists believe in reincarnation. What remains of these beliefs after 250 years of the Enlightenment and the natural-scientific demystification of the world? The question of what happens after death is still undecided. In case of “undecidable questions,” neutrality is advisable. Nonetheless, an agnostic can, even in the realm of metaphysics, reject theories which are internally contradictory. Does the theory of reincarnation belong in that category, so that the advocates of the NIP are correct in categorically rejecting it?

The most important argument against reincarnation of the individual soul is the temporally limited nature of the ability to think: “If I am reborn in a new body, why don’t I remember my previous life?” The reader would not be unjustified in asking. One answer might be: “Because when your body dies, all your nerve cells stop working, and there’s no such thing as consciousness without the activity of nerve cells. For that reason, there’s no such thing as reincarnation.”²² On the other hand, as Mulgan counters, reincarnation offers the best explanation for such everyday phenomena as remembrance, memory, birth, the limitation of life, and the apparently innate characteristics of newborn babies. Others consider reincarnation, in connection with the karma theory, as the only satisfactory explanation for the unjust suffering of innocent people (Mulgan, 2002, p. 8).

In conclusion, we can state that the theory of reincarnation is not internally contradictory or illogical.²³ Even if, like all matters of faith, it is not accessible to scientific methods of proof, it is nonetheless, no less than other religious beliefs, a “rational comprehensive doctrine” in the Rawlsian sense (Rawls, 1993, p. 59, 1999, pp. 573-615).

One important characteristic of political philosophy is neutrality in questions of religion. It would be ethnocentric and unscientific to proclaim the “person-equals-body” concept as the only correct one. By the same token, however, it would also be ethnocentric to proclaim the Eastern concept of identity as correct, and the Western one as wrong. Hence, the “reincarnation-may-be-possible” argument can in no sense refute the NIP. But it can limit its scope. For the future, we must therefore exclude all Eastern doctrines from consideration in the following discussion, and remain solely within the cosmos of Western thought, or, more precisely, in that of the “person-equals-body” idea. For here, too, there are incisive counter-arguments to the non-identity thesis.

The “your-neighbor’s-children” argument

In the above discussion, individual decisions (“Dad drives a car instead of riding a bike”) and political programs (a generation’s energy or war policy) have been discussed in a single breath. Now let us examine an argument which can only be used in the first category, but, there at least, succeeds in accomplishing refutation of the NIP. Let us return to Gosseries’s example, which suggested that a father could justify his environmentally harmful driving habits to his daughter by means of the non-identity argument. Gosseries (2008) reports the fictitious conversation between the father and his daughter as follows:

Imagine then a father having to face his daughter. At seventeen, she has become a Green activist and asks him: ‘Why did you not choose to take your bike rather than your car? The atmosphere would be much cleaner today! And given your circumstances at that time, you had no special reason not to take your bike!’ The father may want to answer: ‘True. Still, had I done so, you would not be here. Since your life in such a polluted environment is still worth living, why blame me? I certainly did you no harm. Which of your rights did I violate, then?’ Some will find the father’s answer at best misconstrued, at worst shocking. And still, the way out may not be as obvious at it seems. (p. 460)

But must the daughter now really fall silent? In my view, she could answer as follows:

Very clever, Daddy. But have you ever stopped to think that our neighbor, Petra, who is also seventeen, also suffers from the exhaust from your car? She’s part of the next generation too, and I can’t imagine that the fact that you drove your car had anything to do with the point in time when she was conceived. So your behavior is unfair to all members of the coming generation, maybe except to me.

Here, while the daughter does not question the validity of the NIP in her own case, she correctly points out that it fails to constitute a challenge to complaints raised by her generational peers. They are harmed by the pollution stemming from the car. This is a refutation of NIP for *individual* (mis)deeds. But why does the “your-neighbor’s-children” argument lose its effectiveness with respect to *collective* actions, such as government policies? The reason is that in the example of energy or war policy, it is not only the point in

time of conception of one's own children that is changed, but also that of the children of all one's neighbors. The entire population as a collective – not only some individuals – is suffering from an action harmful to posterity.

The “butterfly-effect” argument

While the “your-neighbor's-children” argument only limits the realm of applicability of the NIPPTG, the “butterfly-effect” argument seeks to disarm it altogether. Let us take a second, closer look at the definition of the non-identity thesis:

An action in the present is causal not only for the conditions of life of future human beings, but also for the fact of which people will exist. Such an action cannot harm a person, because without that action, that person would never have existed. Put differently: *Because of* a specific action by a present agent, a future individual came into existence.

The “butterfly-effect” argument then addresses the claim of causality, i.e. the “because.” In order for the non-identity problem to arise, it is, as pointed out above, necessary that concrete actions or policies inimical to posterity have a practical – and not merely a theoretical – effect on the points in time at which marriages and conceptions take place. Let us use anecdotal evidence and ask some couples with children which events were responsible for the fact that they met in the first place. We could expect to receive such answers as, “Oh, we were in the same dance course,” or, “We happened to be sitting next to each other in the bleachers at a football game.” Such arrangements also seem to have a causal effect on the ‘genetic shuffle’ of future meetings, reproductive encounters, and births.

In the above example, we have referred to the construction of nuclear power plants in Germany during the 1960s and ‘70s. According to the non-identity-concept; this had been “causal” for the non-identity of members of the ensuing generations. The snowball effect has ensured that, after a certain period of time, the German population is no longer genetically identical to the population which would have existed had the government failed to pursue nuclear policies. But precisely this alleged “causality” does not exist. Rather, the nuclear-power policy was only one of countless aspects which affected the conjugal behavior of the German population during the 1960s and ‘70s. During this period, the Germans experienced the postwar reconstruction, the consumer wave, and the travel wave. With his sex education campaign, Oswald Kolle²⁴ changed what people did in their bedrooms; that was followed by the 1968 student uprising and the introduction of the contraceptive pill. Young people no longer met their future partners at tea dances, but rather, increasingly, at discos or on summer vacations. Moreover, the numbers of their sexual partners increased overall.

Can we say that the sexual revolution during the 1960s and ‘70s altered the ‘genetic shuffle’ of meetings, reproductive encounters, and births in a way that Germany was soon repopulated by different individuals? This would be just as right or wrong as to say that the government's nuclear policy mixed up the gene pool of a specific future generation of Germans. The non-identity-thesis misinterprets the cause-effect relationship. In view of the countless decisions which all help determine which egg cell and which sperm cell will combine, it would be misleading to pick out one and make it causally responsible for the effect, in this case the conception and later birth of a child. In other words, the non-identity argument describes causalities which are not provable. This does not mean that they don't exist. Just as, under

chaos theory, the flapping of the butterfly's wing in Asia could be responsible for causing a hurricane in the Caribbean, it is just as plausible that one of the countless events which will have occurred on the day on which a person was conceived would be a factor in determining that person's genetic code.²⁵ But it would be misleading to construct a mono-causal relationship from such a weak multi-causal context. The terms "necessary" and "sufficient" are inapplicable here, because they are part of a context of a limited – as a rule, single digit – number of influential variables. When we think about what "caused" something, we might hold variable A responsible for 50% of the effect, variable B for 30% and variable C for 19%. We know in the back of our mind that there is an undefinable number of additional variables that sum up to the last 1%, but we normally don't understand causality in that way.

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Let us once again look at Gosseries's example, which suggests that the father might justify his environmentally harmful driving habits to his daughter by using the non-identity argument. This time, the daughter gives her father a different answer:

Are you really trying to tell me that this behaviour of yours, which is harmful to succeeding generations, is responsible for the fact that I was conceived on March 14, 1996 and 8:11:43 p.m.? Okay, that may have been the reason that you were at home half an hour earlier than you would have been if you'd taken your bike. But on the day of my conception, if you were not caught in a traffic jam on the way home, and if you hadn't petted the cat on the way in, you would also come through the door a few minutes earlier. And if you hadn't gone to the refrigerator just before having sex with my mother, the point in time of my conception would also have been different. And anyway, the only reason you had to work so long since the beginning of 1996 was that the government had just passed a law lifting the restrictions on overtime work, which they had to do to meet the challenge of Chinese competition. All of these factors – and a billion other ones – are more responsible than you driving your car for the fact that I was conceived at exactly 8:11:43 p.m. So your car journey is not the reason and thus no excuse for the fact that you're polluting the atmosphere.

The "butterfly-effect" argument can not only be used against the claim that individual actions will lead to the non-identity of members of the ensuing generation but also against the claim that collective policies will have that effect. Hence, the NIP cannot be used to refute those who condemn the nuclear power policy for being intergenerationally unjust.

In this context, the exact formulation in Parfit's text is revealing. He wrote: "It is not true that regardless of which policies we choose, the same persons will exist in the remote future." (Parfit, 1987, p. 361). Note that Parfit did not write: "It is true that if alternative policies are chosen, different persons will exist in the remote future." Parfit had no greater chance of proving that a wasteful resource policy will cause different people to exist in the future than one might of proving that the flapping of a butterfly's wing had in fact engendered a hurricane on the other side of the world. Hence, he passes the burden of proof on to the opponents of the NIPPTG, demanding that they prove that a resource policy harmful to the future will not cause the existence of a different group of people in the future.

As my calculations showed for the snowball effect of the non-identity phenomenon, there is a big difference between the scenarios in which a generation builds twenty relatively safe nuclear power plants, as was the case in Germany, or 200 accident-prone ones, as we posited in our later scenario. But for the causality argument, this difference is relatively unimportant. Given the fact that 200 million male gametes exist at average at every second, this is comparable to the difference between the flapping of an eagle's wing, instead of a butterfly's.

Every combination of a certain egg and a certain sperm cell is the result of a countless number of actions and results with no obvious relationship to one another. It is thus impossible to associate certain specific political programs with certain specific effects upon concrete personal identities. The point in time of the combination of a certain egg and a certain sperm cell depends on the most insignificant conceivable events during the minutes before that occurrence. A yawn, a cough, a sneeze, a glance upward, a drink of this or that – all these are actions which can cause an individual with a different genetic code to be created. It has been said that the NIP is a problem for theories of intergenerational justice. Well, within the context of intergenerational justice theories, the most discussed policies are the expansion of public debt and the present rate of destruction of the natural environment. Such applications are not likely to uproot and resettle 99 per cent of the population. No matter how much the proponents of the NIPPTG puff up their examples, they will never account for anything more than a miniscule factor in a network of billions of other miniscule factors.

The narrow range of applicability of the NIP

In Western thought – and again, we are remaining within its realm – there are indeed areas in which the non-identity thesis holds. This statement may surprise the reader, but remember that I, at the outset, distinguished between the NIP as such and the NIPPTG, the "non-identity problem as a problem for theories of generational justice." Now that I have sufficiently criticized that expansion of its scope of applicability, let me investigate the areas in which there is in fact a genetic non-identity, and a resulting "problem." These include cases from medical procreation clinics, for instance after a PGD, in which several embryos are selected and implanted, and the others disposed of. The major difference with respect to the NIPPTG context and the applications discussed above (e.g. environmental destruction, public debt) is that there, the egg cell has not yet been fertilized. As mentioned, of the 200 million sperm cells which a man ejaculates at one time, each could conceive a genetically different child. In the NIP cases involving PGD, however, the selection is made between only a handful of genetically different embryos. One of the 200 million sperm cells that could have fertilized the egg has in fact fertilized the egg. Here, the butterfly-effect argument does not apply.

It is surprising that on the one hand, Parfit considers the non-identity argument as applicable – and indeed, as applicable to a very broad range of cases – but on the other hand supports the “no-difference” view (Parfit, 1987, pp. 366-371); in other words, he claims that this makes no moral difference. For in reproductive medicine, which is for good reasons currently experiencing a vociferous ethical debate, the non-identity thesis is an important moral argument. If it is to be applicable to the situation such as public debt or environmental destruction, it should be of moral significance here as well. For this reason, the “no-difference” view is implausible.

Other arguments against the non-identity problem

The three arguments presented above (“reincarnation” argument; “your-neighbor’s-children” argument; “butterfly-effect” argument) seem to me to be the strongest, but there are also others deserving of mention, such as Gosseries’s “catching-up” argument and Meyer’s new definitions of the concept of “harm.”

Gosseries (2008) proposes a path that would in some cases circumvent the NIP, eg in the example he himself uses about the father who drove to work rather than taking his bike on the day he conceived his daughter:

If we consider that the fulfillment of the obligation to bequeath a ‘clean’ environment should be assessed at the end of each person's life (complete-life obligation), the following strategy can be envisaged. As long as the father's pro-car choice was a necessary condition for his daughter's existence, it remains unobjectionable. However, as soon as the daughter was conceived, all his subsequent polluting actions were no longer falling within the ambit of the non-identity context. Nor is there any reason to hold the view that given his pre-conceptual polluting behaviour, the father's obligation to bequeath a clean environment should be attenuated accordingly. In principle, we should expect the father to catch up as soon as his daughter has been conceived in order to be able, at the end of his life, to eventually meet the requirements of his constitutional obligation. This ‘catch up’ argument relies on the existence of a generational overlap. (p. 461)

As stated above, the normal use of the word “harm” involves a comparison between the actual situation of a certain person and the situation which would have prevailed had the harmful action not been carried out. Lukas Meyer’s “threshold-value concept” changes the definition of the term “harm” as follows: “An action (or inaction) at time t_1 harms someone only if the agent causes (allows) the quality of life of the person harmed to fall below a threshold to be specified” (Meyer, 2003). Meyer comprehensively *accepts* the NIP. His solution is a second-order-solution in order to circumvent the negative ramifications for theories of intergenerational justice.²⁶ But as my intention is here to refute the NIPPTG in the first place, I don’t need to go further into the “threshold-value concept,” even if it is admittedly influential in the literature and has helped in shaping the NIP as a paradigm.²⁷

Conclusion

This chapter discussed the challenge the non-identity problem poses to theories of sustainability and intergenerational justice – theories which postulate that the present generation has duties towards future generations. After presenting the NIP, several counterarguments were discussed. Some hold; others do not. But those counterarguments that are valid are strong enough to refute the NIP as a challenge to theories of intergenerational justice. It is thus no obstacle in the search for the best institutions to represent future generations.

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¹ For an overview, see Gosseries and Meyer (2009); Tremmel (2009).

² The number of proposals on how to represent future generations has become considerable. For further reading, see Kates (2011); Göpel and Arhelger (2011); Ekeli (2005); Wood (2004); Barry (1999); Stein (1998); Doeleman and Sandler (1998); Dobson (1996); Goodin (1996); Schlickeisen (1994); Kavka and Warren (1983); and the second part of the *Handbook*

of *Intergenerational Justice*, ed. Tremmel (2006b). The research agenda of the ENRI network may serve as an further example.

³ Lists of these can be found in Tremmel (2006b, 192-196); Brown-Weiss (1989).

⁴ For instance Jensen (2013); Beckman (2013) also denies the need for new institutions that represent future generations on the premise that future generations are not bound by the decisions made today.

⁵ First formulated by Schwartz (1978), Adams (1979) and Bayles (1980), then described in greater detail by Kavka (1982), and developed most effectively by Parfit (1987). His section on *Future Generations* (pp. 351-438) is to this day the point of reference for most authors discussing the topic. More recent works include Gosseries (2002); Page (2007, pp. 132-159) and the collection of essays by Roberts and Wassermann (2009).

⁶ The non-identity problem seems to be a veritable nightmare not only for all theories of generational justice which postulate duties toward future individuals but also for theories of historical justice involving issues of past injustices, such as slavery or land confiscation, and possible restitution claims in the present day. For reasons of space, we will not address this here.

⁷ Parfit (1987) supports the “no-difference view” (p. 367). However, his statement also makes clear that he has absolutely no doubts regarding the validity of the non-identity problem.

⁸ To some extent, this is also true for Meyer 2003, 2004, 2005.

⁹ Peters (2009); Nelson and Robertson (2001); Shiffrin (1999); Strasser (1999); Roberts (1998); Shapira (1998); Jackson (1996); Heyd (1992); Morreim (1988).

¹⁰ Parfit (1987, p. 358) believes that there is such a thing as a life not worth living.

¹¹ The reason for that is the differing epigenetic manifestations of genetic material in various cellular phenotypes.

¹² One could of course claim that our moral duty only extends to the *personalities* and not the *identities* of future human beings (cf. Grey, 1996), but that does not seem intuitively logical to me.

¹³ The following argument is carried out in the literature *partially* with the terms “person-affecting principle” and “impersonal principle.” However, both terms are ambiguous, and hence prone to misunderstanding, as Wolf has shown (2009, p. 97). I have therefore consciously avoided using them. All arguments against the NIP that lead to total utilitarianism with ensuing problems like the ‘repugnant conclusion’ are avoided here. It is just not necessary to mention them. There are enough arguments to refute the NIP within the realm of person-affecting theories.

¹⁴ So too Wolf (2009, pp. 105-110).

¹⁵ It should be noted that the analogy becomes invalid once an immoral person *kills* at random. The reason is that taking a life does not change the identity of a member of the next generation, but annihilates this identity altogether.

¹⁶ “Very many of our choices will in fact have some effect on both the identities and the number of future people” (Parfit, 1987, p. 356).

¹⁷ Given a population of 80 million in Germany, 60 million are initially unaffected. In the first round of marriages, each of those unaffected has a chance of 6/8 to meet a partner who is likewise unaffected. After the first generation, there will therefore be 6/8 x 60 million unaffected people. Expressed mathematically: of the entire population V , the initial number of unaffected people (the 0th generation) is B_0 ; then, after one generation, the number of still unaffected people will be $B_1 = (B_0/V) \times B_0 = (B_0)^2/V$. Since the second round of marriages will involve the same conditions, after two generations, the number of remaining unaffected

people will be $B_2 = (B_1/V) \times B_1 = (B_0)^4/V^3$. After the n^{th} generation, it will be $B_n = (B_0)^{(2^n)} / [V^{(2^n-1)}]$. Solving that for a (the number of generations) yields $n = \ln [\ln(B_n/V) / \ln(B_0/V)] / \ln 2$, or in this example:

$n = \ln [\ln(1/80000000) / \ln(60000000/80000000)] / \ln 2$; $n = 5.983124$.

Since one generation corresponds to 30 years, there would, after $5.983124 * 30$ years (i.e., 179.49 years) be only one remaining unaffected person.

¹⁸ Precisely 89.47 years. $n = 2.982416835$ generations. $B_0 = 8$ million.

¹⁹ In the journal *Ethics* of July 1986, which is entirely dedicated to a discussion of Parfit's *Reasons and Persons*, Woodward (1986) raised additional objections to the non-identity-problem. However, in the same issue, Parfit (1986) convincingly refuted them, so that I will not address them further here.

²⁰ The term "Western concept" here should not be understood to be synonymous with "Christian concept," since Catholicism and Orthodoxy do recognize a body-soul dualism, and assume an immortal soul, which does not, however, reincarnate. Protestantism tends more toward monism in the sense of a "body-equals-person" concept. However, I cannot, for reasons of space, enter into a discussion of the theological details here.

²¹ There are certain differences in the transmigrating-of-souls concepts of these religions, which cannot be discussed here for reasons of space. Also, that which is reborn (the *atman*), does not necessarily correspond to Western concepts of self-consciousness. For the differences between the various Eastern religions and philosophical traditions, see Kim and Harrison (1999).

²² The Far Eastern philosophical tradition sees the soul as indivisible. The question: "Why don't I remember?" is, in the Far Eastern view, misplaced. It is not the individual that is reborn, but rather the migrating substance (Brahman, "omni-soul") which periodically takes on bodily form, and assumes a variety of – not always human – forms of existence. The issue is hence no longer the return of the consciousness, but rather the participation in the whole. For more, see O'Flaherty (1980).

²³ Moreover, there are dissonances within the "body equals person"-concept even in the West. A person born without a brain (anencephalus) is not considered a person, even though his body might be completely intact. Even in the West, someone who had part of his/her brain implanted would no longer unquestionably be seen as the same person as he/she had been prior to the operation.

²⁴ A German-Dutch journalist/filmmaker whose work helped spark Germany's "sexual revolution" of the 1960s and '70s.

²⁵ The term "butterfly effect" was coined in 1963 by the meteorologist Edward N. Lorenz (Lorenz, 1963). In the context of a long-term weather prognosis, Lorenz investigated the behavior of heated liquids and gases with a simplified convection model, which he then characterized with three interconnected differential equations. He projected the numerical results into phase space, and obtained an infinitely long structure in three-dimensional space, which did not intersect itself and had the form of two butterfly wings. Interestingly, Lorenz stumbled upon the chaotic behavior of his model more or less by coincidence. In order to save computation time, he used the intermediate results of calculations he had already carried out, but only took three decimal places into account, even though his computer was operating with a precision of six decimal places. At the point of departure, the weather curves were so close that the deviation could indeed have resulted from the flapping of a butterfly's wing.

However, that small “error” continued on and caused increasing deviations, until the old and the new weather curves were completely different.

²⁶ For reasons of space, we cannot here examine whether the common definition of “harm” is unusable, and hence a new definition is necessary. At first glance, that does not appear to be the case.

²⁷ See, for instance, the entry “Intergenerational Justice” in the *Stanford Encyclopedia of Philosophy*, written by Meyer (2003).