

Attitudes, intentions and procreative responsibility in current and future assisted reproduction

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Abstract

Procreative obligations are often discussed by evaluating only the consequences of reproductive actions or omissions; less attention is paid to the moral role of intentions and attitudes. In this paper, I assess whether intentions and attitudes can contribute to defining our moral obligations with regard to assisted reproductive technologies already available, such as preimplantation genetic diagnosis (PGD), and those that may be available in future, such as reproductive genome editing and ectogenesis, in a way compatible with person-affecting constraints. I propose the parent-child relationship argument, which is based on the moral distinction between *creating* and *parenting* a child. Hence, I first argue that intentions and attitudes can play a role in defining our moral obligations in reproductive decisions involving PGD. Second, I maintain that if we accept this and recognize reproductive genome editing and ectogenesis as person-affecting procedures, we should be committed to arguing that prospective parents may have moral reasons to prefer reproduction via such techniques than via sexual intercourse. In both cases, I observe an extension of our procreative responsibility beyond what is proposed by the consequentialist person-affecting morality.

KEYWORDS

ectogenesis, intentions, person-affecting, PGD, procreative responsibility, reproductive genome editing

1 | INTRODUCTION

The availability of techniques such as in vitro fertilization (IVF) and preimplantation genetic diagnosis (PGD) has given prospective parents significant control over their reproductive decisions. Several bioethicists argue that, because of the greater possibilities of assisted reproductive techniques, parents not only have more tools to

promote their procreative freedom but they also have new moral obligations.¹ This is especially relevant if we consider that through

¹Battisti, D. (2021). Affecting future individuals: Why and when germline genome editing entails a greater moral obligation towards progeny. *Bioethics*, 35(5), 487–495; Buchanan, A., Brock, D. W., Daniels, N., & Wikler, D. (2012). *From chance to choice*. Cambridge University Press; Buller, T., & Bauer, S. (2011). Balancing procreative autonomy and parental responsibility. *Cambridge Quarterly of Healthcare Ethics: CQ: The International Journal of Healthcare Ethics Committees*, 20(2), 268–276.

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the aforementioned techniques, it is possible not only to avoid transferring in the uterus an embryo with certain genetic diseases or disabilities but also to deliberately choose embryos in order to have a child with a disability. Attention to the new procreative obligations is also motivated by the development of future reproductive techniques. In the near future, through reproductive Genome Editing (rGE), we will be able to directly choose some genetic traits of the future individual by modifying in vitro human embryos' DNA before implantation, effectively treating some genetic diseases,² such as Duchenne muscular dystrophy, cystic fibrosis and Huntington's disease.³ One day, it may even be possible to employ full ectogenesis, namely, the gestation of human foetuses outside the maternal womb from conception to birth, which could make it easier and safer to intervene on the characteristics of the future individual.⁴

Procreative obligations are often discussed by evaluating only the consequences of reproductive actions or omissions. In this paper, instead, I focus on the role of procreative intentions and attitudes in defining procreative responsibility, namely, the set of prima facie moral duties faced by those who are about to generate a new individual.⁵ In other words, defining procreative responsibility means assessing which moral duties prospective parents have in the procreative context. More specifically, my aim is to assess whether—and if so, how—attitudes and intentions can play a moral role in defining our moral duties regarding the use of assisted reproductive technologies already available and those that may be available in the future, such as rGE and ectogenesis.

Note that I am not going to argue that intentions and attitudes are morally relevant. Here, I merely recognize that for many people, such aspects are crucial in defining the morality of an action or omission and then, assuming their relevance, I assess their possible role in defining procreative obligations. Moreover, by focusing on procreative attitudes and intentions, I do not intend to discard the fundamental role of consequences in the definition of procreative responsibility, but rather to contribute to shaping a more integrated account capable of considering additional relevant aspects of common-sense morality.

My investigation assumes a person-affecting morality, which I will define in the next section, and my main argument is twofold: first, intentions and attitudes can play a role in defining our moral duties

concerning reproductive decisions involving PGD in a way compatible with person-affecting constraints; second, if we accept this and we recognize rGE and ectogenesis as person-affecting procedures, we should be committed to arguing that prospective parents may have moral reasons to prefer reproduction via such techniques than via sexual intercourse.

The paper is structured as follows: In Section 2, I will assume what I call the consequentialist person-affecting morality as a reasonable account to deal with the consequences of procreative decisions in assisted reproduction. Then, I will present and assume the implications of that account concerning PGD, on the one hand, and rGE, on the other, considering it a starting point for my reflection on person-affecting procreative attitudes and intuitions. In Section 3, I present and criticize one of the most influential accounts that consider attitudes and intentions to define procreative obligations in the field of PGD, namely, the parental virtue approach. To overcome some of the criticisms of the parental virtue approach, in Section 4, I propose the 'parent-child relationship' argument, which is based on the moral distinction between the intention to create and the intention to parent a child. I argue that this argument offers a convincing way to deal with attitudes and intentions in a way compatible with person-affecting morality. In Section 5, I assess the implication of such an approach with respect to the selective context, and I argue that some procreative choices involving PGD may be morally problematic—although they do not directly harm anyone—and this allows us to argue in favour of an extension of our procreative duties beyond what was proposed by the consequentialist person-affecting morality. In Section 6, I will focus on procreative choices in a context in which rGE and ectogenesis are available. I first apply the parent-child relationship argument in the field of rGE and argue that, in these circumstances, deciding to use IVF to put the future child in a position to be modified may even enhance the parent-child relationship, showing greater propensity by parents to take care of their child. I claim that the same argument can be even better applied to ectogenesis. I conclude that if we consider procreative intentions and attitudes as morally relevant in these future scenarios, we may have moral reasons to prefer reproduction through these technologies rather than through traditional reproduction.

2 | PROCREATIVE DECISIONS IN ASSISTED REPRODUCTION: CONSEQUENCES AND BEYOND

As already stated in the previous section, much of the bioethical debate around reproductive decisions in assisted reproduction evaluates procreative obligations in terms of consequences. Along this line, one might ask whether intentionally giving birth to a child with a disability D through IVF plus PGD, that is, selecting an embryo in vitro according to genetic information, is morally wrong because it causes harm to the future child. Although it is intuitive to answer 'yes'

²Note that here, I do not consider the possibility of enhancing some characteristics or changing some aesthetic traits in the future child via assisted reproduction technologies. I tried to investigate parental obligations in this field in Battisti, D. (2020). Genetic enhancement and the child's right to an open future. *Phenomenology and Mind* (special issue "Human reproduction and parental responsibility: New theories, narratives, ethics") 19(0), 212–223.

³Tang, L., Zeng, Y., Du, H., Gong, M., Peng, J., Zhang, B., Lei, M., Zhao, F., Wang, W., Li, X., & Liu, J. (2017). CRISPR/Cas9-mediated gene editing in human zygotes using Cas9 protein. *Molecular Genetics and Genomics*: MGG, 292(3), 525–533.

⁴Gelfand, S., & Shook, J. R. (2006). *Ectogenesis*. Editions Rodopi B.V.

⁵In this paper, I use prima facie moral obligations, prima facie moral duties and moral reasons interchangeably, though some philosophers might reject this assumption, since distinguishing them could be useful in identifying their comparative moral force. This assumption is in line with Savulescu, J., & Kahane, G. (2009). The moral obligation to create children with the best chance of the best life. *Bioethics*, 23(5), 274–290. I decided not to distinguish between such concepts, since it is beyond the scope of the article to assess the strength of moral duties based on attitudes and intentions in assisted reproduction, as the aim is primarily to argue for their existence.

to this question, there is a well-known difficulty in justifying this answer, due to Parfit's Non-identity Problem.⁶ If prospective parents give birth to a child with a disability D—which is generally considered *harmful* but compatible with a life worth living—⁷ it does not seem to be possible to maintain that this choice wrongs or harms *that* child. If the parents had chosen differently, the specific child would not have existed, since a different embryo—and consequently a different numerical identity,⁸ that is, a different union between a sperm and an oocyte—would have been born.

Several attempts have been provided to solve this problem by trying to make our judgments, intuitions and moral reflections consistent: for instance, some argue in favour of a sort of impersonal harm, leading to the moral obligation to create a world with greater aggregate well-being through reproduction,⁹ whereas others provide noncomparative accounts of harm.¹⁰ Still others 'bite the bullet' and accept the conclusion that parents do nothing wrong in intentionally selecting a child with disability D.¹¹ The latter strategy is based on what I call the *consequentialist person-affecting morality*, according to which an action or omission is morally wrong only if that action or omission makes things worse for, or harms, someone; conversely, an action is right if it makes things better for, or benefits, someone. This paper assumes that this moral perspective is the best one for dealing with the consequences of procreative decisions. Moreover, consequentialist person-affecting morality reflects an area of common ground between competing theories, as all agree that our conduct must be constrained at the very least by person-affecting consequences.

Let us see what the implications of assuming a consequentialist person-affecting morality are. In a scenario in which *only* selective techniques such as PGD are available—let us call it 'the selective context'—this perspective generally embraces the 'Minimal Threshold Model', according to which every reproductive choice is legitimate, except bringing children into the world when there are good reasons to think that their quality of life will fall below the threshold that makes lives 'not worth living'. According to John Harris, these conditions are circumscribed to rather rare

cases where extreme suffering completely outweighs any expected positive experiences.¹² More specifically, the concept of 'life not worth living' can intuitively be applied when diseases 'exhaustively determine the child's future'¹³ and render all his or her present and future goals impossible to pursue. From this perspective, selecting for disability D via PGD is permissible, as long as D is compatible with a life worth living.¹⁴

According to some advocates of the consequentialist person-affecting morality, our obligations towards progeny may change due to the availability of rGE.¹⁵ rGE is a procedure that could soon make it possible to modify an in vitro early embryo's DNA before implantation to avoid several genetic diseases or disabilities. In the more distant future, with rGE, it may also be possible to avoid complex multigenic diseases in the offspring.¹⁶ Some authors argue that rGE should be considered a *person-affecting practice*: this means that a specific future person can be benefited or harmed by using rGE on the early embryo from which such a person will develop.¹⁷ Stemming from a consequentialist person-affecting perspective, this may mean taking on a greater moral obligation than what we have in a context in which only PGD is available.

But what do these obligations consist of? In a previous paper I argued that only parents who are already in the IVF process, that is, when the numerical identity of the future child already exists, have moral duties not to harm the future individual by using or refraining from using rGE.¹⁸ For the aims of the paper, it is worth noticing that such an argument cannot maintain that *all* prospective parents who decide to generate a child have a moral obligation to put their future child in the conditions to be treated with rGE or not, that is, to prefer assisted reproduction to natural reproduction.¹⁹ At the moment of this decision to have a child, the numerical identity does not yet exist, and a procreative decision (e.g., reproducing by sexual intercourse rather than reproducing through assisted reproduction) will determine which child will be born. Due to the specificity of human reproduction, in fact, the child born through sexual intercourse cannot complain about the parents' decision not to employ assisted reproduction, since if they had employed it, that child would never have existed: instead, a different union of oocyte and sperm would have been

⁶Parfit, D. (1984). *Reasons and persons*. Oxford University Press.

⁷With *harmful*, I refer to a condition that generally harms an actual person, namely, a person whose identity does not depend on the occurrence of such a condition. In other words, if an existing person is affected by D, they are in a worse situation than another where they are not affected by D.

⁸Generally, numerical identity is the relationship that an object has with itself and with nothing else. To define numerical identity, here, we assume the 'origin view', provided by Parfit, D. (op. cit. note 6).

⁹Singer, P. (2015). *Practical ethics* (2nd ed.). Cambridge University Press (Virtual Publishing); Holtug, N. (2010). *Persons, interests, and justice*. Oxford University Press; Savulescu, J., & Kahane, G. (2009). The moral obligation to create children with the best chance of the best life. *Bioethics*, 23(5), 274–290; Harris, J. (2001). One principle and three fallacies of disability studies. *Journal of Medical Ethics*, 27(6), 383–387.

¹⁰Harman, E. (2009). Harming as causing harm. In M. A. Roberts & D. T. Wasserman (Eds.), *Harming future persons* (pp. 137–154). Springer Netherlands; Rivera-López, E. (2009). Individual procreative responsibility and the non-identity problem. *Pacific Philosophical Quarterly*, 90(3), 336–363; Meyer, L. (2004). Historical injustice and the right of return. *Theoretical Inquiries in Law*, 5(2), 305–316.

¹¹Bennett, R. (2014). When intuition is not enough. Why the Principle of Procreative Beneficence must work much harder to justify its eugenic vision. *Bioethics*, 28(9), 447–455; Boonin, D. (2014). *Non-identity problem and the ethics of future people*. Oxford University Press.

¹²Harris, J. (1990). The wrong of wrongful life. *Journal of Law and Society*, 17(1), 90–105.

¹³Buller, T., & Bauer, S. (2011). Balancing procreative autonomy and parental responsibility. *Cambridge Quarterly of Healthcare Ethics: CQ: The International Journal of Healthcare Ethics Committees*, 20(2), 268–276.

¹⁴The Minimal Threshold Model is quite similar to the person-affecting procreative beneficence proposed by Magni (Magni, S. F. (2021). In defence of person-affecting procreative beneficence. *Bioethics*, 35(5), 473–479) and to the Principle of Procreative non-Maleficence proposed in Van der Hout, S., Dondorp, W., & De Wert, G. (2019). The aims of expanded universal carrier screening: Autonomy, prevention, and responsible parenthood. *Bioethics*, 33(5), 568–576.

¹⁵Battisti, op. cit. note 1; Magni, op. cit. note 14.

¹⁶Savulescu, J., Pugh, J., Douglas, T., & Gyngell, C. (2015). The moral imperative to continue gene editing research on human embryos. *Protein & Cell*, 6(7), 476–479.

¹⁷Battisti, op. cit. note 1; Palacios-González, C. (2021). Reproductive genome editing interventions are therapeutic, sometimes. *Bioethics*, 35(6), 557–562; Cavaliere, G. (2018). Genome editing and assisted reproduction: Curing embryos, society or prospective parents? *Medicine, Health Care, and Philosophy*, 21(2), 215–225.

¹⁸I decided to leave vague the concept of harm.

¹⁹Battisti, op. cit. note 1.

created.²⁰ In light of this, prospective parents have no moral reason based on consequentialist person-affecting morality to prefer assisted reproduction to procreation through sexual intercourse: this can only be considered a morally neutral choice.²¹

Although this argument can be criticized, as well as its assumptions in considering rGE a person-affecting practice,²² it is not the task of this paper to defend this perspective.²³ Here, I just assume these implications for both contexts (PGD and rGE) to evaluate if and how they can be integrated considering the moral role of procreative intentions and attitudes.

In fact, although many people agree that consequences are a very important aspect of morality, they may not be the only ones. For instance, several authors maintain that attitudes and intentions are also crucial aspects of morality and considering them may be a useful strategy to deal with procreative duties in order to overcome some of the counterintuitive implications of the consequentialist person-affecting morality.²⁴ From this perspective, focusing on why parents want to make a specific procreative decision and, accordingly, on their intentions and attitudes may add pivotal details to our moral understanding of reproduction, giving us more tools for understanding our procreative duties.

Starting from these considerations, I will try to propose a convincing account to justify the moral relevance of attitudes and intentions in defining procreative duties in a way compatible with the

person-affecting morality and that can be integrated with the aforementioned consequentialist person-affecting perspective's conclusions. To be considered 'compatible', and hence relevant in this moral evaluation, attitudes and intentions should be person-affecting, namely, directed towards an actual person; from this perspective, positive and negative attitudes towards, say, creating a world with greater well-being than another (but without regard to the well-being of particular persons) should not be considered person-affecting any more than having positive or negative attitudes towards fictional entities such as elves and goblins would be.

3 | ATTITUDES AND INTENTIONS IN THE SELECTIVE CONTEXT: THE PARENTAL VIRTUE APPROACH

Let us consider again the selective context. In this respect, several models dealing with attitudes and intentions have already been proposed, such as the parental virtue approach,²⁵ the principle of deliberate impossibility,²⁶ the collective wrong account,²⁷ and the defective character account.²⁸ It is beyond the scope of this paper to provide a detailed account of all these proposals. Here, I focus on one of the most influential ones, namely, the parental virtue approach proposed by McDougall, since it will be useful in presenting a different strategy that builds upon the moral relevance of the parent-child relationship.

According to McDougall, *parental* decisions begin before the child's existence and not only before birth but also before conception; in other words, they start when the parenting project is imminent. Therefore, some constraints that are proper for parents should apply to the *procreative* sphere. Stemming from the fact that 'an action is right if and only if it is what a virtuous parent would do in the circumstances',²⁹ she proposes three parental virtues that are particularly suitable for the procreative context, namely, *acceptingness, committedness, and future-agent-focus*. These virtues concur in favouring the *flourishing* of the future individual, the primary and general objective of the virtuous parent.

Since the characteristics of the child will be unpredictable, accepting the child regardless of their traits is a necessary characteristic of the virtuous parent. With regard to parental commitment, human beings are born with physical and psychological needs that they cannot satisfy independently; they are therefore in a situation of extreme dependence that the parent must take on responsibility for. A virtuous parent should also preserve and at the same time promote the future autonomy of the child as a good moral

²⁰Clearly, the child cannot complain because not being born is worse than being born; it is beyond the scope of the paper to evaluate this important question, namely, the comparison between existence and nonexistence. Here, I just argue that the child cannot complain simply because there is no alternative scenario in which that specific child does not have a genetic disease treatable in vitro embryo through rGE. For a discussion on the comparison between existence and nonexistence, see Parfit, op. cit. note 6; McMahan, J. (2009). Asymmetries in the morality of causing people to exist. In M. A. Roberts & D. T. Wasserman (Eds.), *Harming future persons* (pp. 49–68). Springer Netherlands; Hare, R. M. (1988). Possible people. *Bioethics*, 2(4), 279–293; Heyd, D. (1992). *Genethics*. University of California Press.

²¹Notice that here, I am considering only procreative obligations toward the future child. There may be moral reasons to procreate via rGE, based on the interests of society as a whole. For a discussion on this line, see Anomaly, J. (2018). Defending eugenics. *Monash Bioethics Review*, 35(1–4), 24–35.

²²Alonso, M., & Savulescu, J. (2021). He Jiankui's gene-editing experiment and the non-identity problem. *Bioethics*, 35(6), 563–573; Douglas, T., & Devolder, K. (2021). Gene editing, identity and benefit. *The Philosophical Quarterly*, 72(2), 305–325. <https://doi.org/10.1093/pq/pqab029>; Rulli, T. (2019). Reproductive CRISPR does not cure disease. *Bioethics*, 33(9), 1072–1082; Rehmann-Sutter, C. (2018). Why human germline editing is more problematic than selecting between embryos: Ethically considering intergenerational relationships. *The New Bioethics: A Multidisciplinary Journal of Biotechnology and the Body*, 24(1), 9–25; Douglas, T., Powell, R., Devolder, K., Stafforini, P., & Rippon, S. (2010). Resisting sparrow's SexyReductio: Selection principles and the social good. *The American Journal of Bioethics: AJOB*, 10(7), 16–18; Sparrow, R. (2022). Human germline genome editing: On the nature of our reasons to genome edit. *The American Journal of Bioethics*, 22(9), 4–15.

²³I tried to defend such an argument in Battisti D., (2021). Ridefinire i confini della responsabilità procreativa alla luce del continuo sviluppo delle tecniche di riproduzione medicalmente assistita (Unpublished doctoral thesis). University of Insubria, Varese, IT.

²⁴Bramble, B. (2021). The defective character solution to the non-identity problem. *The Journal of Philosophy*, 118(9), 504–520; Chambers, K. L. (2019). Wronging future children. *Ergo*, 6(5), 119–141. <https://doi.org/10.3998/ergo.12405314.0006.005>; Noggle, R. (2019). Impossible obligations and the non-identity problem. *Philosophical Studies*, 176(9), 2371–2390; Lotz, M. (2011). Rethinking procreation: Why it matters why we have children. *Journal of Applied Philosophy*, 28(2), 105–121; Kahane, G. (2009). Non-identity, self-defeat, and attitudes to future children. *Philosophical Studies*, 145(2), 193–214; McDougall, R. (2007). Parental virtue: A new way of thinking about the morality of reproductive actions. *Bioethics*, 21(4), 181–190; Wasserman, D. (2005). The nonidentity problem, disability, and the role morality of prospective parents. *Ethics*, 116(1), 132–152.

²⁵McDougall, R. (2009). Impairment, flourishing, and the moral nature of parenthood. In K. Brownlee & A. Cureton (Eds.), *Disability and disadvantage* (pp. 352–368). Oxford University Press; McDougall, op. cit. note 24; McDougall, R. (2005). Acting parentally: An argument against sex selection. *Journal of Medical Ethics*, 31(10), 601–605.

²⁶Noggle, op. cit. note 24.

²⁷Lotz, op. cit. note 24.

²⁸Bramble, op. cit. note 24.

²⁹McDougall (2005), op. cit. note 25.

agent. Notice that such virtues should guide the parenting choice keeping in mind the Aristotelian idea of the golden mean. In fact, if a lack of acceptance reveals a vicious character of the parent, the same can be said of the propensity to accept any trait of the future individual. For example, passively accepting that a child develops aggressive character traits may not be what the virtuous parent should do.³⁰

In light of this account, McDougall argues that parents-to-be should not seek specific traits such as the sex of their future child or aesthetic traits through selective reproduction since it would be contrary to acceptingness.³¹ Embryo selection would be in line with acceptingness only if procreators tried to avoid a trait that is incompatible with the individual's flourishing, such as selecting against some quite severe disabilities.

A more controversial case is represented by the selection for certain traits that are generally understood as disabilities. Consider the famous case of Sharon Duchesneau and Candy McCullough, a couple who sought to have a deaf child using the sperm of a man with five generations of deaf relatives. The couple's choice to have a deaf child was motivated not so much by the intention of limiting the possibilities of the future individual but by the idea of having a child who would flourish within the context of a particular cultural identity. From this perspective, those parents seem in line with the virtue of commitment to the parenting project. McDougall claims, however, that some doubts may arise regarding the accordance with the virtue of acceptance. By seeking deafness in their future child, prospective parents would not accept the ability to hear, which certainly is not in contrast with the flourishing of the individual, in the same way as the sexual trait. Furthermore, according to McDougall, selecting a deaf individual would still be contrary to the virtue of future-agent-focus. Nevertheless, she also acknowledges that the latter could perhaps be construed as supporting the selection of a deaf child if they would be raised within a deaf community.³²

3.1 | Criticisms of the parental virtue approach

The parental virtue approach faces several criticisms. First, there is an objective difficulty in defining human flourishing and McDougall's account may imply a very low requirement with regard to the quality of life. According to Saenz, if the virtue of acceptance only requires that traits incompatible with flourishing be avoided through PGD, this seems to imply a rather minimal standard.³³

To this criticism, it could be replied that acceptingness is only one of the virtues to be considered: some traits may be compatible with it, but at the same time, do not favour the promotion of the open future. However, this highlights a second problem with McDougall's

model, namely, the inability to adequately inform procreative choices: shifting attention from one particular virtue to another reveals different and even incompatible duties involved in their child's flourishing and this actually risks not providing future parents with an effective guide for procreative choices.³⁴

Third—and more important for the purposes of this paper—we should note that selecting an embryo with a particular trait does not necessarily mean contradicting acceptingness, since the future parent could still welcome and accept the individual who will be born, regardless of their genetic characteristics, even if previously there was a selective process.³⁵ In other words, McDougall fails to acknowledge that there is a substantial moral difference between preferring and attempting to create a child with certain characteristics and being disposed to reject a future child if it fails to have those characteristics. Let us assume that a couple wants to select an embryo that will develop into an individual who will have blue eyes and that, if this does not happen, the parents would give it up for adoption. Although it is clear that these parents are not guided by acceptingness, according to Wilkinson, this is not because of their intention to select a child with certain characteristics.³⁶ Rather, it is due to their intention to reject the child if it has traits that differ from those they have selected for. It is therefore not unreasonable to argue that a reproducer can select an embryo with some specific traits and, subsequently, recognize that, since they decide to transfer it into the uterus, they will have to be guided by acceptingness and unconditional love.

This effective critique of acceptingness is based on the claim that it is not obvious that the procreators and parents encounter, at least in selective contexts, similar moral obligations. Since the future individual does not yet exist, there may be reasons to claim that a procreator may have different obligations than the ones faced by a parent once the child exists. On the contrary, according to McDougall, procreators and parents should share the same moral attitudes informing their conduct; however, she does not provide any arguments to support this view, and this is one of the main reasons why McDougall's account seems unsatisfactory. Why should a procreator have specific attitudes or intentions towards a future child, whose identity depends on those same attitudes and intentions that inform reproductive decisions? McDougall's account provides no answer to this question.

Although in a nonprocreative context, we may agree that parental character traits are morally relevant, they are directed toward a specific individual whose identity does not depend on having or not having those parental character traits. Having parental virtues in the procreative context, on the other hand, may lead to conceiving in another moment, giving birth to another child or leading to a different embryo from those resulting from the IVF process. In

³⁰McDougall (2007), op. cit. note 25.

³¹McDougall (2005), op. cit. note 25.

³²McDougall (2009), op. cit. note 25.

³³Saenz, C. (2010). Virtue ethics and the selection of children with impairments: A reply to Rosalind McDougall. *Bioethics*, 24(9), 499–506.

³⁴Chambers, K. L. (2016). *Choosing our children: Role obligations and the morality of reproductive selection*. Doctoral Thesis, UCLA, available on: <http://escholarship.org/uc/item/02d5x49x>

³⁵Wilkinson, S. (2010). *Choosing tomorrow's children*. Oxford University Press.

³⁶Ibid.

other words, such procreative attitudes are directed towards no specific future child; hence, they cannot be considered person-affecting.

This is even more evident if we consider not only acceptingness but also the future-agent-focus virtue. It is difficult to prescribe to the procreators to act in accordance with the future-agent-focus virtue, namely, to act bearing in mind the necessity of the future individual to have an open future, if the action informed by this virtue, in fact, determines not so much the opening of the child's future, but what child will come into the world. Again, the focus-agent-focus virtue may be perfectly sensible in a nonprocreative context, but this is not enough to claim that it should be applied also in the procreative one.

In sum, the parental virtue account thus constructed is not compatible with a person-affecting framework and McDougal does not provide a compelling argument of why a procreator should follow the same virtues as the parent since without such an assumption, no prescription proposed by her would be adequately justified. Therefore, to understand whether parental intentions and attitudes really matter in defining procreative duties, we need to build a different account that provides a justification of the intuition according to which, in some circumstances, selecting one embryo instead of another would be wrong because this would contradict the *parental* attitudes or intentions. In order to do so, in the next section, I will present the parent-child relationship argument.

4 | THE PARENT-CHILD RELATIONSHIP ARGUMENT: A FIRST DEFINITION

The parent-child relationship argument has already been used by several scholars to define obligations in procreation. In this section, I start building the case for the parent-child relationship argument by discussing and criticizing the account already present in the literature. Then, in Section 4.1, I propose a more refined version of the argument that can be adequately justified to assess procreative duties in assisted reproduction.

Anyone wishing to become a parent recognizes that through procreation, we bring about the creation not only of a new individual but also of a new relationship. Deciding to parent a child means creating a relationship that shapes the meaning of the lives of both the parent and the offspring.³⁷ This relationship is not only genetic but also psychological, physical, intellectual and moral.³⁸ According to Overall, deciding to create a relationship means seeking a connection with a new human being, a connection that will not only bind the parent to that new human's needs but also make the parents themselves needy and vulnerable in ways they have never been before.³⁹ Although Overall argues that the fact of creating a 'mutually enriching, mutually enhancing love that is the parent-child

relationship'⁴⁰ provides moral reasons for deciding to have a child, I do not have a position on this aspect; rather, I limit myself to observing that these considerations also make the parent-child relationship valuable in a certain way. The parent-child relationship is structurally asymmetrical since the parents not only decide to create a relationship but to create the person with whom they will enter a relationship. Furthermore, the child will initially be vulnerable, totally dependent and needy. Without parents or other responsible adults, the child cannot survive. From this, it is reasonable to understand that deciding to be in a parent-child relationship commits the parent to have some intention or attitude towards their child, namely, at the very least, a willingness to care for and protect them.

For the purposes of the paper, it is crucial to assess whether the moral relevance of the parent-child relationship should also bind the procreator to the role of the parent and, therefore, have some *parental* attitudes and intentions. This does not seem so obvious considering that procreators and parents may reasonably have different roles and thus different obligations. In this respect—as I argued in the previous section—the parental virtue approach does not provide reasons to believe that procreators should have specific parenting attitudes or intentions towards the future child.

One argument in favour of this position is provided by Chambers, who focuses on the moral relevance of the beginning of a relationship, which is as much a part of it as its midpoint or end. Because of this, procreators are committed to having at least some parental intentions and attitudes. Although people in a relationship may acquire greater or different obligations as the relationship progresses—such as when two people go from a date to marriage—that does not mean that there are no moral issues regarding how the relationship begins. She proposes a significant example, namely, a love affair. It implies that the partners admire and respect each other, not only once the relationship is in progress but also when it is about to begin. Starting a relationship in an inappropriate way, such as pretending to engage in a sincere romantic relationship with someone with the express purpose of stealing from the partner and then draining their bank account, can corrupt the moral quality of the relationship, regardless of whether it subsequently gets better or worse. The scammer could sincerely fall in love with the partner he wanted to rob and decide not to pursue his primary purpose; however, this does not mean that the attitudes and intentions with which the love affair began are not morally blameworthy.⁴¹ Likewise, Chambers argues, some procreative attitudes could reasonably corrupt the moral quality of the parent-child relationship.

What may be the implications of considering the relevance of the parent-child relationship in this way? A first answer may be that procreators should act with an attitude that contemplates the *good* of the future individual with whom they will be in a relationship.⁴² At first glance, this may appear to be a rather demanding claim. If the decision to have a child must be motivated solely or primarily by the

³⁷Chambers, op. cit. note 24.

³⁸Overall, C. (2013). *Why have children?* MIT Press.

³⁹ibid.

⁴⁰ibid.

⁴¹Chambers, op. cit. note 24.

⁴²Wasserman, op. cit. note 24.

desire to give a good life to a future being, few parents would be able to justify their procreative decisions, since many other reasons can drive people to procreate. From this perspective, parents-to-be who decide to have a child mainly because they would enrich the parent-to-be's existence or because this may repair their marriage could not 'pass the test' of such a version of the parent-child relationship argument.

However, in line with Wasserman, we can acknowledge that the good expected from the child's life can still play a significant role in decisions motivated in part by selfish reasons, preferences, attitudes and intentions.⁴³ The desire to create and raise a child, or a specific kind of child, can be a selfish desire in some respects, but this does not always exclude considerations related to the child's well-being and love for him or her. Therefore, even if parents are unable to generate a child solely for reasons aimed at his or her own good, they could create a child for reasons that *include* those aimed at the child's own good. In this 'revised' version of the parent-child relationship argument, morally problematic procreative choices are those informed only by selfish or sadistic intentions and attitudes.

Nevertheless, we should note that situations in which the prospective parent is not at all moved by certain attention to the good of the future individual are rare. Therefore, an appeal in these terms to the parent-child relationship would produce rather weak moral constraints. For example, even the choice of deliberately selecting a child with D may be considered morally appropriate, although this is *mainly* (but not solely) motivated by selfish considerations, e.g., wanting to have a child with a lifelong disability, so that the child will always be dependent on the parents rather than becoming independent and moving out, or wanting a future child who shares some parent's specific traits, despite recognizing that the latter may cause suffering. I argue that this version of the argument requires too little and, in Section 4.1, I will claim that accepting the parent-child relationship argument brings out greater procreative duties.

Moreover, it should be noticed that the parent-child relationship argument understood in these terms may face serious criticisms. Emphasizing the moral relevance of starting a new relationship to bind the procreator's conduct to the role of parent as suggested above is not enough to speak of moral duties to act informed by certain intentions or attitudes in a procreative context: they would not be compatible with a person-affecting morality. Having different procreative attitudes and intentions may in fact lead to conceiving at another moment, giving birth to a different child, or leading to a different embryo from those resulting from the IVF process. Although in a nonprocreative context the relevance of some attitudes and intentions may be sensible because they are directed toward a specific individual whose identity does not depend on having or not those parental character traits, this is not the case in the procreative context. In this respect, Chambers' example of the love affair is not suitable since it implies that the scammer has some negative attitudes

towards an actual person, whereas it does not seem to be the case at the time of the decision to reproduce. Here, we can reasonably claim that the relationship is corrupted since the scammer did not respect an actual person at the beginning of their affair, regardless of whether the scammer later falls in love with the person he wanted to cheat and changes his mind about the scam; conversely, when we decide to procreate, we are not dealing with any actual person. In other words, the parent-child relationship argument thus constructed encounters the same criticism that we made regarding the parental virtue approach.

4.1 | A more refined version of the parent-child relationship argument

Here, I propose a more convincing version of the parent-child relationship argument that explains why some *parental* attitudes and intentions are also morally relevant in the *procreative* context. To do this, we should appreciate a more sophisticated and morally relevant aspect emerging from the beginning of a parent-child relationship. This aspect also leads us to recognize that the parent-child relationship brings out greater moral demands than the minimum requirement of just considering the good of the future individual, and consequently, at least some procreative choices could be considered morally problematic, even though they do not harm the future child.

The beginning of a parent-child relationship in the context of an intentional procreative act implies two types of attitudes, namely, those that are purely reproductive and those that are genuinely parental. The former imply only wanting to *create* a child, while the latter imply wanting to *parent* one. Such a distinction is proposed by Kahane—though he distinguishes between *creating* and *having* a child—who then derives, in the selective context, obligations like those that I also will recognize in this section 4.1 and in Section 5⁴⁴; however, he does not seem to link this distinction, at least directly, to the moral relevance of the parent-child relationship and its beginning. This generates problems in ultimately justifying the obligations that he derives. On the one hand, the distinction between creating and having a child enables us to justify the fact that the beginning of a parent-child relationship is also morally relevant in the procreative context, since—as I will argue in the following lines—it is possible to appreciate the existence of person-affecting attitudes in the decision to procreate. On the other hand, it should be noted that such a distinction by itself is not sufficient to state that procreators should be committed to having certain parental attitudes and intentions, since the justification of the moral constraints is still dependent on appreciating the moral value of the parent-child relationship and its beginning. By understanding this distinction through the lens of the parent-child relationship argument, I believe that at least a further justification can be given for Kahane's conclusions.

⁴³Ibid.

⁴⁴Kahane, op. cit. note 24.

To explain the moral relevance of the distinction between having and parenting a child, let us consider again the example of the couple that, through PGD plus IVF, deliberately select a child with a disability D. Here, the procreators wish not only to create a child with D but also that any embryo chosen for transfer to the mother's womb *develops* into an individual with D. Although in the bioethical debate we talk about 'choosing an embryo with D', this is inaccurate; according to Kahane, we should, in fact, acknowledge that at the time of the embryo's creation, the latter is not literally affected by or free from D. An embryo at most has the biological potential to develop into a child free from D or affected by it. This is quite evident if we consider that many disease-causing mutations in a gene may be nonpenetrant, namely, when an embryo has a mutation that raises the risk of having a disease but then the resulting child never develops it. Nevertheless, Kahane argues that even when we know for certain that the presence of a certain genetic variant determines that the child has disease D, e.g., an autosomal dominant mutation, it is not 'metaphysically' impossible for the embryo to develop into an individual without D, namely, the future child *could be* different from how the prospective parents want it. This requires parents to implicitly formulate a second desire, alongside that of creating a child with D; parents should also wish the embryo to *develop* into a child with D—which is the condition sought by the parents at the time of their creation—and that nothing happens, not even a 'miracle' or the discovery of a cure for D, which prevents their future child from having D.⁴⁵

Though the first desire, namely, creating a child with D, is not person-affecting since the identity of the child depends on the attitudes and intentions of the procreators, we should notice that the second desire or attitude is no longer aimed at an individual whose identity depends on the act informed by this desire; it is instead aimed at a specific individual. In other words, prospective parents would claim 'whatever embryo I will create and transfer to the uterus to have a child with D, I want that specific embryo to develop into a child with D'. Such a desire or attitude is a sort of 'person-affecting' one⁴⁶ since it seems to be directed toward a specific person, even if, at the time of the parental decision, it is not yet known who that person will be. If we conceive this desire within the parent-child relationship argument, we can observe that it can morally corrupt the relationship between the child and the parents, and it is precisely this that makes the prospective parents' choice to procreate with this desire morally problematic.

To make this point clearer, consider the following example that involves a relationship: Sally wants to have a roommate, so she puts an ad online. She does not know who the roommate will be, but whoever they are, she has the intention of lying to them about the rent, so that they will pay more than their fair share. Even though Sally does not know who her future roommate will be, her bad intention is still a person-affecting one. Clearly, Sally's actions harm the new roommate, who will be duped; nevertheless, and most

importantly for the point discussed here, it is also a bad way to start the relationship that Sally will have with her roommate, whomever they are, and this problematic aspect seems independent of the occurrence or not of harm.⁴⁷ Even if the roommate turns out to be lovely and has a good relationship with Sally, who then changes her idea about duping them, or even if the scam will not harm the new flat mate, but will in fact benefit her overall (e.g., it could be that, even accounting for Sally's scam, the rent in this flat is significantly lower than that of comparable flats in the area), Sally has started the relationship in a morally problematic way. The prospective parent who intends for their future child (whoever that will be) to develop D starts their parent-child relationship in a similarly problematic way.⁴⁸

Considering this, we can recognize that the parent-child relationship argument implies that prospective parents commit procreators to have attitudes and intentions that are not in contrast with the desires and hopes that their children's lives go well and that they are safe from suffering. These requirements overcome the minimal ones proposed in Section 4, which suggest taking into account the good of the future individual just as one of the aspects of the procreative decision. If we acknowledge that through the procreative act prospective parents also intend to parent a future individual and not just create them, then it follows that they face moral reasons to act with some parental attitudes and intentions by virtue of the new relationship that they will necessarily create. In other words, in contrast with the minimum standard account discussed in Section 4, prospective parents would be required not only to have attitudes and intentions that include the good of the future individual but have attitudes and intentions that are not in conflict with what is expected to guide parents once the child is born.

Notice that the fact that the future child's identity depends on the parents' actions (and consequently also on their intentions and attitudes) does not exempt future parents from having moral reasons to consider, for example, a genetic disease like D undesirable for the child, that is, for an individual with whom parents will enter a relationship that binds them to have certain attitudes towards them. The moral relevance of the parent-child relationship commits parents to desire and hope that their children's lives go well and that they are safe from harm. This is the same constraint that, according to many people, parents of an already existing child encounter.

⁴⁷I am deeply indebted to Gary O'Brien, who suggested this example.

⁴⁸Note that this argument is not intended to support that the second desire should be understood in the *de dicto* rather than *de re* sense. According to some scholars, to avoid the nonidentity problem one should stop referring to the benefit of the specific child (*de re* sense), but rather speak of the benefit of whoever will occupy that child's place (*de dicto* sense). From this perspective, let us consider the paradigmatic case of the woman with rubella who wants to have a child. According to the supporters of the *de dicto/de re* distinction, she should wait three months in order to avoid provoking deaf blindness in her future child because although her child in *de re* sense will not be benefited from the woman, her child in *de dicto* sense will. On the contrary, the second desire proposed here—namely, hoping and wanting that, whatever the identity of the future child will be, they will develop in order to have certain characteristics—refers to a specific person even if we do not yet know who that person will be. To put it in an example, let us consider again the case of Sally, who does not know the future flat mate she would like to scam; however, even though she does not know who her flat mate will be, by putting the ad online, she will start a relationship with them, who is a specific person, in a morally problematic way.

⁴⁵*ibid.*

⁴⁶*ibid.*

Of course, the moral defect of the second desire discussed here cannot be considered a real 'harm' to the future individual. The fact that procreators have sadistic and exclusively selfish impulses does not *necessarily* make the life of their future child better or worse, as long as it is worth living, since the alternative is nonexistence. Nonetheless, I argue that, regardless of the considerations linked to the harm towards the future individual, it is still possible to *wrong* them. The individual born thanks to the sadistic and selfish impulses of the parent cannot complain of being born in the only condition in which they can exist; however, they may still be sorry or resentful that the parent has started the parent–child relationship with conduct informed by an attitude that is contrary to parental attitudes of care. What is corrupted through some procreative choices is, in fact, the parent–child relationship at its very beginning.

A clarificatory remark. This argument is not committed to claiming that *all* the parents' attitudes or desires must necessarily be in line with loving or protecting them, but only the desires and attitudes that inform their conduct.⁴⁹ A parent may in fact feel envy or have the desire to wrong the child for many reasons or to prevent them from leaving the family house or country to pursue a great career for the sake of enjoying a greater closeness with them. However, as long as the parent feels those desires as out of line with 'proper parenting' and then decides to act informed by other attitudes and intentions that are instead in line with childcare, they do not undermine the parent–child relationship and cannot be considered a 'bad parent'. Many times, we are not in control of our desires and attitudes and prescribing people to have certain specific desires and attitudes even if they do not inform our conduct seems like an overly moralistic intrusion into the human psyche. What we can do, however, is critically reflect on our desires and hence act appropriately by deciding *which* desires should inform our conduct. In this way, the parent–child relationship account proposed here can maintain that desires and attitudes are important to moral conduct without embracing overly implausible assumptions about the moral relevance of attitudes and intuitions, for example, that *all* our desires should be committed to love and care of the child even though they do not ultimately inform parents' conduct.

The parent–child relationship argument thus constructed presents at least two advantages over the parental virtues approach and the version of the parent–child relationship argument presented in Section 4. First, thanks to the distinction between creating and parenting a child, it can underlie attitudes and intentions compatible with the person-affecting morality, avoiding criticism faced by the other approaches. Second, it does not need to directly rely on some specific normative account, such as virtue ethics or deontology. This argument just assumes an intuition that many people share—and that could be defended by several moral theories—that some specific intentions and attitudes, such as caring should inform parents' conduct, and actions or omissions informed by intentions and attitudes in conflict with 'proper parenthood' should be considered

morally problematic. If we accept this and recognize the plausibility of the parent–child relationship argument that I proposed in this section, we should be committed to accepting the conclusions that we discuss in the next sections.

5 | IMPLICATIONS OF THE PARENT–CHILD RELATIONSHIP ARGUMENT IN THE SELECTIVE CONTEXT

This section assesses the implications of the parent–child relationship argument in the selective context. A procreator moved by sadistic and selfish attitudes—who uses IVF + PGD to intentionally select an embryo with certain characteristics that favour the aims of domination and control over the future child—would not start the parent–child relationship in a morally appropriate way. They not only intend to create an individual under certain conditions, but they would prefer that the child develop certain conditions, and this would give the child reasons for resentment. Even if they could not have existed otherwise, they can point out a moral defect in the attitudes that led to the beginning of the relationship they have with their parents. The relationship was started in a bad way because of the moral attitude of the parent, who desired and hoped that the child would develop a condition involving suffering or disability. Although this condition is necessary for the existence of the future individual, this does not legitimize the prospective parents demonstrating indifference to or even taking satisfaction in the fact that the child experiences such suffering.

From this perspective, not only sadistic and selfish parents but also future parents with disabilities D who want a child similar to themselves—but at the same time recognize in D a condition that is likely to cause suffering or reduce opportunities—can be at odds with the parent–child relationship argument.⁵⁰

Nevertheless, there are cases in which the desire to create a child under certain conditions is not in line with the desire for them to develop under the same conditions. Consider a 35-year-old woman who employs IVF and PGD and discovers that she can only have a child with, say, Trisomy 21. In this case, the woman does not necessarily want the child to develop into an individual with that condition. The woman could decide to proceed with the pregnancy without showing indifference towards the condition that her child will experience. In this context, the woman's relationship with her future child is by no means incompatible with the desire for love and care. Therefore, she does not display any defective or vicious attitudes or intentions.⁵¹

Likewise, according to the parent–child relationship argument, there is no ground for criticizing future parents who leave it to chance to decide which child they will have. In this case, the parents do not intend to create an individual with D or necessarily parent an individual with D.

⁴⁹I thank Silvia Ceruti for discussion on this point.

⁵⁰Kahane, *op. cit.* note 24.

⁵¹*Ibid.*

Moreover, there may be cases in which parents with a desire to parent a child with D conceive of D as a trait that causes neither disability nor suffering. Consider again the case of Sharon Duchesneau and Candy McCullough; in this context, the parents did want the embryo to develop into a deaf child, but according to the couple, deafness is neither a trait that significantly compromises the physical and mental well-being of the child nor does it significantly reduce the number of opportunities for those affected to implement their life plans.⁵²

Someone may argue that although the intentions and attitudes considered in themselves are not subject to moral blame, they are misinformed. That is, the desire for the child to develop into a condition that does not lead to disability is incompatible with the action of selecting an embryo that will develop in an individual with deafness since this condition cannot fail to be a disability. If this were true, then the intention of the couple would be morally legitimate but, nevertheless, it would be incompatible with the action informed by it.⁵³ Here, we notice that procreative responsibility strictly *depends* on what definition of disability we consider appropriate. I do not have room to consider all the definitions of disability and assess what conditions fall under such definitions.⁵⁴ However, in line with many authors, we note that if one does not see D as a disability, then one should be committed to claiming that, in some cases, it is morally legitimate to cause D in an existing individual.⁵⁵

The argument that I support here fails to justify the intuition according to which it would be morally problematic to generate a life *barely* worth living, without, however, hoping that this life will develop and then remain in that situation. By slightly modifying a precedent example, we assume that the individual is in a much more serious condition than existence with Trisomy 21, but in any case, has a life that is barely worth living. Many people would agree that the woman is behaving in a morally wrong way if she decides to become pregnant, even if the life of her future child would be minimally worth living. There seem to be no reasons to support the moral wrongness of this conduct, as long as this is also motivated by parental love for the creation of a new relationship and not by the selfish or sadistic desire that this trait remains in the future individual. However, a *prudential* argument could be advanced: since it is highly probable that a life just worth living could become unsustainable, this would offer a reason to avoid procreating such a life even if this is not necessarily contrary to the possibility that the generated individual has a life worth living.⁵⁶

⁵²This belief is in line with the *Mere Difference View*, according to which disability does not make a person overall worse off, but just a difference, such as sexual orientation, the colour of the skin, gender, etc. For a defence of this perspective, see Barnes, E. (2016). *The minority body: A theory of disability*. Oxford University Press.

⁵³Kahane, op. cit. note 24.

⁵⁴Savulescu, J., & Kahane, G. (2011). Disability: A welfarist approach. *Clinical Ethics*, 6(1), 45–51; Buchanan, A. (1996). Choosing who will be disabled: Genetic intervention and the morality of inclusion. *Social Philosophy & Policy*, 13(2), 18–46.

⁵⁵Kahane, op. cit. note 24; Brock, D.W. (2005). Shaping future children: Parental rights and societal interests. *The Journal of Political Philosophy*, 13(4), 377–398; McMahan, J. (2005). Causing disabled people to exist and causing people to be disabled. *Ethics*, 116(1), 77–99.

⁵⁶Glover, J. (2006). *Choosing children*. Oxford University Press.

Finally, in terms of the selection of non-health-related traits, such as sex or eye colour, the parent–child relationship argument does not seem to conflict with the attitudes and intentions that inform procreative actions in this area. In fact, choosing to have a child with blue or brown eyes or of specific sex does not seem contrary to an attitude of care and protection towards the child⁵⁷: the future parent does not want the child to develop in a condition of suffering or disability, but in a nonharmful condition that falls within the range of normal functioning of human beings that meets the parent's preferences. Therefore, there is good reason to believe that such intentions are not necessarily morally problematic, though they would be so if the parent decided to give the child up for adoption if the latter did not present the desired character. The second wish involved in this type of decision is similar to that of a couple who hopes that their future child will be male or female or of another couple who instead hopes that their child has blue eyes. These wishes appear to be in line with or at least not in conflict with care and protection for the future child. This aspect also allows us to appreciate a further difference with the parental virtue approach.

In sum, the parent–child relationship argument allows us to state that at least some procreative intentions and attitudes in the selective context are morally problematic in a way compatible with person-affecting morality, even if there is no one who is harmed by the parents-to-be's behaviour.

6 | APPLYING THE PARENT–CHILD RELATIONSHIP ARGUMENT TO FUTURE SCENARIOS: TOWARD A GREATER MORAL DUTY?

I now apply the parent–child relationship argument to a scenario in which future and still hypothetical reproductive techniques such as rGE and ectogenesis are available. Let us first consider rGE. In order to understand the moral role of attitudes and intentions in the field of rGE, remember that I have assumed that rGE is a person-affecting procedure and this implies that parents who already are in the IVF process, namely, when the numerical identity of the future children already exists, have moral duties not to harm the future individual by using or refraining from using rGE based on consequentialist person-affecting morality. Considering attitudes and intentions, failing to respect the moral obligation based on a consequentialist person-affecting morality, should be morally wrong not only because it harms the future individual but also because such conduct would imply procreative attitudes contrary to the parent–child relationship, namely, the parental role that the procreator plays at that moment. Note, however, that here, we are considering the moral relevance of

⁵⁷Here, I am not considering other relevant ethical issues that might arise from the selection of these traits. Indeed, some might argue, for example, that sex selection may be associated with and fosters a cultural attitude of discrimination against women or the intersexual community. Furthermore, in some parts of the world, having a certain gender could still be a disadvantage. For a treatment, see Strange, H., & Chadwick, R. (2010). The ethics of nonmedical sex selection. *Health Care Analysis*, 18(3), 252–266.

procreative intentions when the parents are already in the IVF process, namely, in a *postconception scenario*. This certainly makes it easier to justify the fact that parents are required to have some parental attitudes towards the individual who will surely exist since there is someone towards whom our intentions and attitudes are directed, namely, the future child. However, the appeal to attitudes and intentions may be redundant if we already recognize and accept the existence of some consequentialist person-affecting obligations.

Assessing whether intentions and attitudes play a role in informing procreative decisions is more relevant in *preconception scenarios*, namely, when the embryo numerically identical to the future individual does not yet exist. In this context, as stated in Section 2, consequentialist person-affecting morality cannot inform our conduct, since, at the time of this decision, the embryo sharing the same numerical identity with the future child does not yet exist. Here, I argue that if we accept the parent-child relationship argument, even in this scenario, we should commit ourselves to supporting the existence of new moral reasons with respect to what is claimed by the consequentialist person-affecting morality.

To do this, we should note that assuming that rGE is a person-affecting procedure also implies that the availability of such a procedure allows us to increase control over the life of whoever will be our child when the latter is procreated via IVF. While through natural reproduction there is limited control over some characteristics of the future individual, the implementation of rGE would allow an extension of the parent's power, since the embryo could be qualitatively modified before being transferred to the mother's uterus. By deciding to reproduce through IVF in light of the availability of rGE, prospective parents put whoever will be their future child in a condition in which she can be affected—either benefited or harmed—more by the parents' decisions than a child created via natural reproduction.⁵⁸ Therefore, by having a future child who can be affected more by their decisions, parents would then have more opportunities to express their parenting attitudes and intentions towards the future individual, namely, *more room* to express care and protection towards their future child.

Consider again the two desires implied in creating a new parent-child relationship and apply them to rGE. As in the selective context, the future parents are committed to having two distinct wishes when they decide whether to procreate through IVF, in light of the availability of the rGE. The first is to create one or more embryos: such a desire is immune from moral praise or blame because it is not addressed to any specific individual. In this context, our desires, attitudes and intentions cannot find a personal target towards whom to be directed. The second desire, implicit in the parents' decision, may instead be that, whatever the identity of the embryo, the latter can develop in the *ideal conditions* to prevent

the future child from being harmed or in suffering condition. This second wish has a specific individual as an object, that is, any embryo that will be created by the IVF process and will be subjected to rGE or not, even if, at the time of formulating the desires, the parents do not yet know the identity of their child.⁵⁹

Such a desire not only does not undermine the parent-child relationship but even enhances and promotes it: in fact, given the availability of rGE, the parents' decision to resort to IVF can be understood as an action aimed at increasing control over the well-being and opportunities of the future child, thus demonstrating a greater propensity to take care of the interests of their child during the beginning of the parent-child relationship. Through the decision to reproduce with IVF, prospective parents deliberately decide to bring into the realm of procreative responsibility the characteristics of the future child that are possible to affect via rGE and which it would not have been possible to affect via sexual intercourse. The prospective parents take charge of the starting step of the development of the future individual that, by opting for artificial reproduction, falls within the field of choice, and therefore of morality, and no longer of chance. Therefore, if we accept the plausibility of the parent-child relationship argument, then the availability of rGE leads us to have moral reasons for preferring reproduction through IVF to natural reproduction. Such a choice allows us to enhance the parental attitudes of care and protection towards the future child, and it would be the *best way* to begin the parent-generated relationship. Notice that this is no longer a neutral choice as for the consequentialist person-affecting morality, but a morally relevant one.

This argument is somewhat morally similar to a more familiar one according to which a parent with a young child would have moral reasons to accept a job offer that guarantees them a better salary because in this way, they could provide the child with more educational opportunities, better healthcare, and so forth. Again, thanks to a better wage, the parent can afford to take care of the child more compared to a scenario in which the parent had not accepted the job offer. The child certainly benefits from this choice in comparative terms, but the parent-child relationship is also improved as the parent shows a greater care attitude towards the child.

Of course, in the rGE context, the child cannot be harmed or benefited by the parent's decision to employ IVF in order to use or not use rGE, since such decisions determine their existence and, consequently, their identity. However, the child may not only not feel regret at the parent's decision, but they can even be pleased because this act embodied procreative intentions and attitudes aimed at protecting and caring for the child themselves.

⁵⁸Of course, a woman could affect their child before birth, say, taking teratogenic drug, or doing something that could cause harm to the child. However, here, I just argue that if a woman or a couple decide to undergo IVF and rGE is available, the prospective parents can potentially affect some characteristics of the future child in a way that is not possible in an embryo created via sexual intercourse.

⁵⁹Some couples or single reproducers may want to undergo IVF and then rGE in order to cause disability in the future child. I think that it may still be in contrast with the parent-child relationship argument in the same way that it is for a couple that selects for disability in those conditions I mention above. Furthermore, once the numerical identity is created regardless of the intentions that motivated the creation of the embryo, the same constraints linked to harm arise that the parent encounters when she is within the IVF process. Nonetheless, I acknowledge that the second desire here described can reasonably guide many reproductive decisions regarding rGE when the future individual does not yet exist.

This line of thought does not apply only to rGE but also, and perhaps above all, to the future and still hypothetical possibility of ectogenesis. The potential advantage of ectogenesis would be to allow the foetus to develop in an environment not affected by possible illnesses of the mother, alcohol, or drugs that the pregnant woman could use, or and more importantly, being treated through foetal therapy or genetic treatment to avoid disability or diseases. Although encouraging research has been done in this regard,⁶⁰ the realization of a totally extra-uterine pregnancy is still a long way off. Assuming its future availability, we should note that ectogenesis cannot be directly described as a 'person-affecting' technique, since this is simply a way of gestation that does not by itself affect the future individual.⁶¹ However, I still consider it a person-affecting technique because it would make it possible to have the ideal place to apply interventions—such as genetic modification (germline and somatic) and foetal therapy—on the embryo and foetus during development in a more secure way than in the uterus. In other words, ectogenesis would allow taking care of the future child, from its very beginning until its birth. Deciding to procreate using it would therefore be a decision that can embody morally positive attitudes towards the future individual, who is put in a position to be protected in a greater way than in a natural pregnancy.⁶²

Some might argue that the use of ectogenesis could be more easily justified on the basis of consequences once we are in a postconception scenario, that is, when the embryo is created. In fact, the already existing embryo would be in a condition to be harmed or benefited by the use or not of ectogenesis. On the other hand, some might even claim that the choice to transfer the embryo to the uterus rather than resorting to ectogenesis could promote a better relationship, through body sharing between the mother and the foetus, than ectogenesis.⁶³ I do not want to enter into this issue. Here, I limit myself to saying that in a preconception scenario, where no reasons based on consequences may apply, a parent encounters moral reasons for preferring to procreate through ectogenesis over natural reproduction.

In light of such considerations, I argue that considering attitudes and intentions in defining procreative responsibility through the lens of the parent-child relationship in the field of the aforementioned future scenarios leads us to embrace the following requirements:

All prospective parents in the economic and technological conditions to do so have moral reasons to reproduce through the following practices:

- a) IVF, in such a way as to subject the designated embryo to transfer in utero to rGE every time the latter is affected by treatable genetic diseases that harm the future individual;
- b) Ectogenesis, in such a way as to subject the developing embryo to treatments, genetic or otherwise, whenever the latter is affected by conditions potentially harmful to the future individual.

Such requirements seem justifiable not so much because of the potential harm inflicted on the future individual, but because of the parental intentions and attitudes of care and protection required of future parents in the procreative context. From this perspective, these technologies make it possible to enhance and promote the parent-child relationship more than natural reproduction. Applying the parent-child relationship argument not only 'reaffirms' the duties already established by the consequentialist person-affecting morality regarding rGE for parents-to-be who are already in the IVF process, but justifies brand new moral reasons, further expanding procreative responsibility. Clearly, for these moral constraints to be applied, the techniques under discussion must be effective, safe, legal and economical.

Moral reasons or duties based on intentions and attitudes are certainly less stringent than those based on consequences. Nevertheless, if we accept their moral relevance, these can at least play a role in informing our choices in the procreative context. Moreover, such moral constraints should not be conceived as absolute but as *prima facie*; therefore, they will have to be weighed against other morally relevant issues in the reproductive context, such as psychological, physical and social burdens or other morally relevant considerations.

7 | CONCLUSION

In this paper, I investigated the roles of attitudes and intentions in defining procreative responsibility in the field of assisted reproduction in a way compatible with person-affecting morality. To do this, I assumed the consequentialist person-affecting morality to deal with the consequences of procreative choices and its implications in both contexts of PGD and rGE. I considered this perspective a starting point to integrate the *prima facie* moral duties deriving from procreative intentions and attitudes. After presenting and criticizing the parental virtue approach, which deals with such moral aspects in the selective context, I proposed the parent-child relationship argument. It argues that reproductive decisions imply two desires: one of creating a child—not subject to moral blame—and the one that the embryo develops under a specific condition, which is a person-affecting attitude and is morally relevant to determining our procreative obligations. Hence, I argued that procreating via PGD may be morally problematic in some circumstances, extending the

⁶⁰Aguilera-Castrejon, A., Oldak, B., Shani, T., Ghanem, N., Itzkovich, C., Slomovich, S., Tarazi, S., Bayerl, J., Chugaeva, V., Ayyash, M., Ashoukhi, S., Sheban, D., Livnat, N., Lasman, L., Viukov, S., Zerbib, M., Addadi, Y., Rais, Y., Cheng, S., ... Hanna, J. H. (2021). Ex utero mouse embryogenesis from pre-gastrulation to late organogenesis. *Nature*, 593, 119–124. <https://doi.org/10.1038/s41586-021-03416-3>

⁶¹Here, I am not considering any epigenetic changes that might emerge from the difference in place of gestation.

⁶²Some might argue that ectogenesis requires a radical rethinking of the relationship between foetus and mother and this could have negative consequences on the parent-child relationship. Therefore, it should not be employed. For the sake of this argument, I argue that these moral reasons should be balanced as I suggest at the end of this section. Here, I just observe that moral reasons also emerge for deciding to reproduce via ectogenesis rather than natural reproduction.

⁶³I thank Massimo Reichlin for bringing out this point.

minimal demands of the Minimal Threshold Model embraced by the consequentialist person-affecting morality. Moreover, I argued that selecting embryos for having non-health-related traits in the future child, such as colour eye or sex, does not necessarily conflict with the parent-child relationship argument. Then, and most importantly, I applied the parent-child relationship argument to a future, and still hypothetical, scenario in which rGE and ectogenesis are available. I argued that employing such techniques may not only be in line with the promotion of the parent-child relationship but also enhance it, showing greater propensity by parents to take care of their child's interests and protect them. Then, I concluded that if we consider procreative intentions and attitudes morally relevant, we may have moral reasons to prefer reproduction through these technologies rather than through natural reproduction. Here again, considering the moral role of intentions and attitudes allows us to extend our prima facie moral duties over those accepted by the consequentialist person-affecting morality, inaugurating an extension of procreative responsibility.

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CONFLICT OF INTEREST STATEMENT

The author declares no conflict of interest.

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