Postnatal human genetic enhancement and the *parens patriae* doctrine

Sivan Tamir

Genetic Policy and Bioethics Unit, The Gertner Institute for Epidemiology and Health Policy Research, Ramat-Gan, Israel

Corresponding author. E-mail: sivan.tamir@mail.huji.ac.il

ABSTRACT

This paper explores the role of the state, acting as *parens patriae*, with respect to the future-looking technology of postnatal human genetic enhancement (PoGE), applied to minors by their parents or the state. Considering postnatal rather than prenatal genetic enhancement (PGE) allows us to explore the putative obligations of the state with respect to actual persons, in contrast to future persons the subjects of speculative investigation in the traditionally studied case of PGE. Part I features PoGE, mostly by analogy to PGE and other (non-genetic) postnatal enhancements. Part II examines the nature and scope of the *parens patriae* doctrine, distinguishing between its protective and substitutive facets. I conclude, drawing on contemporary legal constructions, that: a) the state’s interference in parental genetic enhancement (GE) discretion, under its protective role, should generally be minimal, reserved to extreme cases where grave harm to the child has been caused or is reasonably foreseeable; and b) since we cannot readily find parents obligated to genetically enhance their offspring, the state as *parens patriae*, under its substitutive role, will be respectively exempt from such duty towards state-dependent-children, save for certain GEs considered a *sine qua non* necessity, equally obligating parents and state to provide children with.

KEYWORDS: genetic enhancement, neutrality, parens patriae, postnatal, prenatal, state

INTRODUCTION

This paper is about the future technology of postnatal human genetic enhancement (PoGE), namely *in vivo* somatic cell genetic modification of *already existing*
individuals, and the prospective challenges that the application of the technology to minors will present to state intervention via the parens patriae doctrine.

From our present perspective, human genetic enhancement (HGE) through gene modification is a putative futuristic prospect. It is a highly contentious, value-vexed, provocative technology that has been occupying the minds of scholars across various disciplines for the past several decades. As opposed to the elaborated theoretical discussion relating predominantly to prenatal genetic enhancement (PGE), its postnatal counterpart has been largely overlooked thus far in the heated academic discourse surrounding human enhancement. Presumably, such neglect might be rationalized by the highly speculative nature of PoGE, and attributed inter alia to the skeptical tone arising from the current scientific state-of-affairs regarding the future ability to perform effective postnatal genetic modifications. Nonetheless, these purported reasons need not discourage us from recognizing that such technology may emerge in the future and therefore merits some thought presently.

A close reading of the literature suggests that it would be incorrect to claim that the scholarly discourse has thus far ignored PoGE altogether. However, while postnatal enhancement technologies such as neuroenhancement (discussed below) are being deliberated, some of the particular considerations relating to PoGE seem to be lost within the general enhancement debate, and other considerations, such as the role of the state (beyond regulation) with regard to such enhancement—are generally disregarded. So, although PoGE has its unique features meriting attention (described below), it has not yet been discussed distinctively from, or independently of, prenatal enhancement, which typically (although not exclusively) applies to genetic interventions.

Where the postnatal phase of HGE is given independent standing, various issues may crop up that either derive in particular from such a setting, eg questions regarding autonomy, rights, and identity of postnatally genetically enhanced individuals, or—although also applying to prenatal enhancement—are valued differently postnatally. State intervention is exactly one such example.

In this paper, I focus my attention on the role of the state with respect to PoGE. In particular, I examine the application of the parens patriae doctrine to PoGE of minors, distinguishing between two different facets of the state’s role as parens patriae: ‘protective’ and ‘substitutive’ (ie in lieu of parent/s). With regard to the protective facet, I attempt to identify PoGE-specific (harm-related) circumstances that might invoke the doctrine, in order to determine both the ground and the threshold for state intervention in such cases. With regard to the substitutive facet, I consider whether the state is duty-bound, within its surrogate role, to genetically enhance what I term ‘state-dependent

---

1 See for instance, Glenn Cohen who discusses some implications of postnatal (biological and non-biological) enhancements, in I. Glenn Cohen, What (if anything) is Wrong with Human Enhancement? What (if anything) is Right with It? 49 TULSA L. REV. 645, 648–679 n.86 (2014). See also John Robertson, who touches lightly on the subject in John A. Robertson, Procreative Liberty in the Era of Genomics 29 AM. J. L. & MED. 439 (2003).

2 For a comprehensive analysis of the state’s regulatory options with respect to enhancement, see Cohen, supra note 1, at 652–55.

3 See Nick Bostrom & Anders Sandberg, Cognitive Enhancement: Methods, Ethics, Regulatory Challenges, 15 SCI. ENG. ETHICS 311, 320 (2009), http://www.nickbostrom.com/cognitive.pdf [referring to prenatal enhancement through supplementation of long-chained fatty acids to the maternal diet during late pregnancy (and for an additional period, postpartum)].
children’ (SDC), who have not (yet) been enhanced in this fashion by their natural parents.

In my analysis, I frequently refer to PGE (solely) for purposes of analogy. Such analogy serves to delineate PoGE, and at the same time accentuates various features and dilemmas of PGE. While these two technologies share some common characteristics, they widely differ in several crucial respects; most significant of all is the moral status of the candidate for enhancement. My analysis demonstrates, among other things, the implications of these differences for the application of the *parens patriae* doctrine to our setting.

At the outset of my paper, I would like to make the following basic presuppositions.

(i) HGE will be possible in the forthcoming future;
(ii) The technology will prove to be sufficiently effective and safe and, consequently, will be prevalently implemented; and
(iii) PoGE technology will be preceded by PGE technology. Hence, with the introduction of the technology of postnatal enhancement, both technologies will be available—usually making the use of either an informed choice between two options. (Actually, there is a third option, which I term the ‘natural choice’, namely not to enhance.)

But before we begin, in order to frame the debate, an introductory note is warranted: for purposes of our analysis, enhancement shall be narrowly construed as ‘a targeted manipulation of certain features of one’s genetic constitution, aimed at improving particular traits and aptitudes for purely elective reasons’; that is, being ameliorative without directly intending to treat a genetic condition or correct a genetic flaw. Also, this paper will not consider self-enhancement of adults, or enhancement of mentally incapacitated individuals, focusing strictly on the enhancement of children by their parents/guardians or the state.

The paper is divided into two parts: Part I is dedicated to the introduction of PoGE. It offers some comparative examples of other (non-genetic) postnatal enhancements, as well as a distinction between PoGE and PGE relevant features. Part II concerns the state’s role as *parens patriae* in the context of PoGE. Its first section addresses in brief (political and moral) state neutrality, as a threshold condition for state intervention in PoGE of children. Following the conclusions of this section (rejecting a policy of pure neutrality for our setting), the second section will analyse the state’s obligations to actively intervene to safeguard the interests of children under the *parens patriae* doctrine, in the specific context of PoGE, under two different facets of the state’s role as *parens patriae*: ‘protective’ and ‘substitutive’, as will be distinguished further below.

I. POSTNATAL HUMAN GENETIC ENHANCEMENT

Let us imagine an era where PoGE is routinely practiced and is considered a legitimate parental shaping tool of one’s children. This (presently) science-fictionesque scenario might very well become a reality in the not-so-distant future. The ineluctable prospec-
tive reality seems to be that we are at the threshold (which, in scientific terms, would read as somewhere between a few years and a few decades) of PoGE becoming available to the public, with many important aspects yet to consider.
This rather optimistic or perhaps ominous prediction of PoGE, depending on one’s point of view, is based *inter alia* on scientific advancements such as CRISPR-Cas9 gene-editing technique, presently still in its infancy.\(^4\) The CRISPR tool allows precise altering of genetic sequences in (human) living cells, far more accurately and efficiently than was ever before feasible, and is relatively safe, technically accessible, and affordable, essentially bringing about the ‘democratization of gene targeting’.\(^5\) While therapeutic aims of this technology are presently being researched,\(^6\) CRISPR-Cas9 may also be potentially used to generate genetic modifications for purely elective reasons, in the future.\(^7\)

The advent of PoGE is also based on optimistic academic attitudes that accept the inevitability of such genetic modification techniques entering our lives and becoming a conventional self-shaping practice and a parental shaping tool.\(^8\) Encountering such scientific advents with a properly laid out idea about the state’s function in this respect—both in the sense of its obligations and in the sense of the limits of its prerogatives—can be valuable for the (seemingly, perpetual) race between scientific progress and its regulation by the state. This is particularly so, in view of the typically conservative perceptions of the state’s obligations toward its citizens, insofar as novel technologies are concerned.

Before we engage in featuring PoGE, a few words about HGE and genetic exceptionalism may be in order.

### HGE and Genetic Exceptionalism

The ambitious goal of human enhancement can be achieved through various endeavors. Glenn Cohen offers a rather teleological taxonomy of different kinds of human enhancement, where he *inter alia* distinguishes between, biological and non-biological enhancements—within which a further distinction is made between genetic

---

\(^4\) CRISPR—clustered regularly interspaced short palindromic repeat, importantly offers ‘the ability to target and study particular DNA sequences in the vast expanse of a genome’; an ability which could, *inter alia*, be harnessed to edit genes. For a detailed scientific explanation, see Ekaterina Pak, *CRISPR: A Game-Changing Genetic Engineering Technique*, SITN, July 31, 2014, http://sitn.hms.harvard.edu/flash/2014/crispr-a-game-changing-genetic-engineering-technique/ (accessed Jan. 26, 2015); Heidi Ledford, *CRISPR: Gene Editing is Just the Beginning*, NATURE (2016), http://www.nature.com/news/crispr-gene-editing-is-just-the-beginning-1.19510 (accessed Jun. 21, 2016).

\(^5\) John Travis, *Making the Cut – CRISPR Genome-Editing Technology Shows Its Power*, 350 SCIENCE 1456 (2015).

\(^6\) See eg Ayala Ochert, Second Chinese Team Create Genetically Modified Human Embryos, 846 BioNEWS, Apr. 11, 2016, http://www.bionews.org.uk/page.asp?obj_id=638096&PPID=637798&sid=407 (accessed May 20, 2016); Sheena Saayman et al., *The Therapeutic Application of CRISPR/Cas9 Technologies for HIV*, 15 EXPERT OPIN. BIOL. THER. 819, 830 (2015). For a summary of the initial conclusions of the first International Summit on Gene Editing, aiming to provide guidance for the ethical use of the CRISPR technology at the present stage of science, see Organizing Committee for the International Summit on Gene Editing, *On Human Gene Editing: International Summit Statement*, THE NATIONAL ACADEMIES OF SCIENCES, ENGINEERING, AND MEDICINE, Dec. 3, 2015, http://www8.nationalacademies.org/opnnews/newsitem.aspx?RecordID=12032015a (accessed Jan. 26, 2016).

\(^7\) For some interesting examples of potential somatic cell (therapeutic and non-therapeutic) gene editing, using the CRISPR technology, see Sarah Polcz & Anna Lewis, *CRISPR-Cas9 and the Non-Germline Non-Controversy*, J LAW BIOSCI. 1, 6–11 (2016), DOI:10.1093/jlb/lsw016.

\(^8\) See eg Nicholas Agar, *Liberal Eugenics – In Defence Of Human Enhancement* 34–8 (Blackwell Publishing 2004); Nicholas Agar, *Liberal Eugenics*, 12 PAQ 137, 139 (1998); Françoise Baylis & Jason Scott Robert, *The Inevitability of Genetic Enhancement Technologies*, 18 BIOETHICS 1, 19–20, 22–23, 25 (2004).
enhancements (GEs) and non-genetic biological enhancements. Given our present-day (relative) genetic ignorance, I deem HGE as exceptional and therefore merit special attention. This is not a value-laden position, but rather a pragmatic assertion, which I term ‘functional genetic exceptionalism’. This refers to the exclusive actual and potential applications of the biologically unique features of genetics (eg heredity; identity, ie unequivocal individual identification through ‘genetic fingerprinting’, etc.). Arguably, such uses of genetics merit special treatment, if not special status, because of the various potential opportunities and possibilities for (personal and societal) benefit and harm that they entail. This seems particularly true, where the GE of minors is concerned. I therefore endorse this type of genetic exceptionalism, as it applies to PoGE. While assuming such an approach does not necessarily entail that PoGE will have morally or otherwise significant differences in relation to other postnatal biological and non-biological enhancement, such exceptionalism is required for conducting my analysis, and more importantly—as a precautionary approach to HGE in its inception.

Further support for my view can be found in Maxwell Mehlman’s defense of a genetic exceptionalism approach to HGE, identifying a few of its distinctive features and potentials, such as: (i) GE is potentially substantially more effective and profound and could produce longer-lasting effects than current means of self-improvement (eg memory enhancement courses, physical exercise to build muscles, etc.) and unlike them—does not require maintenance; (ii) unlike genetic interventions, other interventions “rarely stray from ‘normal’ population ranges for physical characteristics” and these changes are usually transitory; and (iii) ‘[g]enetic enhancement could affect a greater number of characteristics at one time’.

I suggest that another nearly unique aspect of GE, ‘exceptionalizing’ it from other types of human modification, is that it could be done prenataally. This provides GE with a unique, extra ‘antecedent’ dimension.

A. Featuring PoGE
In the following sections, I illustrate the features of PoGE, first by briefly comparing it with existing non-genetic postnatal enhancements and then by distinguishing it from PGE.

---

9 See Cohen, supra note 1, at 646–51.
10 I distinguish between ‘functional genetic exceptionalism’ and what I term as ‘public policy genetic exceptionalism’, that is, the approach grounded in general public (health) policy considerations, manifested in the regulation of issues such as genetics in healthcare, human medical research, privacy, and anti-discrimination. Upon reflection, I find this approach to be appealing and justified to a lesser extent. In this (public policy) respect, I support the claim that genetic matter and information do not warrant different treatment from that accorded to other biological matter and medical information. For a detailed argument questioning and rejecting claims in favor of genetic exceptionalism, see Thomas H. Murray, Genetic Exceptionalism and ‘Future Diaries’: Is Genetic Information Different from Other Medical Information? in GENETIC SECRETS: PROTECTING PRIVACY AND CONFIDENTIALITY IN THE GENETIC ERA 60 (Mark A. Rothstein ed., 1997). However, such a conceptual change ought to be carefully promoted and embedded in regulation that will replace the specific legal defense accorded in some jurisdictions to genetic privacy and anti-discriminatory conduct, with a broader, non-genetics-specific legal protection (such as that suggested by Rothstein). See Mark A. Rothstein, Genetic Exceptionalism & Legislative Pragmatism, HASTINGS CENT. REP., Jul.–Aug. 2005, at 27.
11 Murray, supra note 10.
12 MAXWELL J. MEHLMAN, WONDERGENES – GENETIC ENHANCEMENT AND THE FUTURE OF SOCIETY 59–64 (2003).
1. A Sample of Contemporary (Non-Genetic) Postnatal Enhancements

In this section, I consider the following examples of contemporary postnatal biological or biomedical non-genetic enhancements, applied to minors with the aim of ameliorating appearance or cognitive abilities, for non-therapeutic purposes: elective cosmetic surgery, neuroenhancement, and human growth hormone (hGH) treatment. These elective enhancements commonly share a transparent social context (ie current trend, peer pressure, and social biases), which inspires them; what Cohen terms in his law and economics oriented approach: ‘the coercion of voluntary enhancements’.\(^\text{13}\) Arguably, such social motivation will equally apply to PoGE in the future. In order not to digress from the topic of our discussion into the enhancement debate, I shall leave it an open question whether enhancing minors’ physical appearance/cognitive capacities/height, through PoGE and performing such enhancements through the respective non-genetic postnatal enhancements discussed below, should be differently evaluated from an ethical perspective.

\(a\). Elective cosmetic surgery. In recent years, ‘elective’ cosmetic surgery\(^\text{14}\) performed on adolescents seems to be in rising demand, almost to the point of becoming a (somewhat disconcerting) trend.\(^\text{15}\) The reasons for such demand among teenagers are various: low self-esteem, peer (social) pressure,\(^\text{16}\) parental projection, child introjection, etc.

Now, while the minimally invasive procedures, such as laser hair removal, laser skin resurfacing, and laser treatment of leg veins, might seem less objectionable (particularly in late adolescence), cosmetic surgical procedures, such as, breast augmentation, breast reduction in men (gynecomastia), and liposuction, given the risks they bear, may nevertheless invoke concern and criticism.

It is hard to tell whether the ‘genetic scalpel’ of the genetic modifier will be as targeted and accurate as that of a plastic surgeon. If anything, it will be exposed to various epigenetic\(^\text{17}\) influences, which may affect the outcome of enhancement. But I can imagine GEs aimed at influencing external physical features, to be painless, relatively risk-free, and with non-immediate, presumably gradual end results (as the outcome of such physical enhancements may take time to manifest), in comparison to cosmetic surgery. These features (the first two, at least) might render GE more appealing to minors, or more accurately—to their parents, potentially leading them to frivolously apply

---

\(13\) Cohen, *supra* note 1, at 658–59.

\(14\) Elective surgery—as opposed to medically and aesthetically justified *reconstructive* surgery.

\(15\) See [American Society of Plastic Surgeons](http://www.plasticsurgery.org/Documents/news-resources/statistics/2014-statistics/plastic-surgery-statistics-full-report.pdf) (accessed Apr. 24, 2016); 2011 [Cosmetic Surgery Age Distribution, Age 13–19](http://www.plasticsurgery.org/Documents/news-resources/statistics/2011-statistics/2011_Stats_Cosmetic_13_19.pdf) (accessed May 3, 2012).

\(16\) ANI, *Peer Pressure Compels Teens for Cosmetic Surgery*, [Times of India](http://articles.timesofindia.indiatimes.com/2009-11-19/parenting/28108341_1_cosmetic-surgery-plastic-surgery-liposuction) (accessed Jan. 26, 2015).

\(17\) Epigenetics is the inheritable external influence of lifestyle and environmental factors that does not involve changes to the DNA sequence, through chemical alterations to the epigenome that regulate the activity (expression) of all the genes within the genome. See [What is the Epigenome?](http://ghr.nlm.nih.gov/handbook/howgeneswork/epigenome) (accessed May 11, 2015); Mark A. Rothstein et al., *The Ghost in Our Genes: Legal and Ethical Implications of Epigenetics*, 19 Health Matrix 1 (2009); Eva Jablonka & Marion J. Lamb, *Evolution in Four Dimensions – Genetic, Epigenetic, Behavioral, and Symbolic Variation in the History of Life* (2006).
such form of targeted enhancement, to literally mould their children according to their desired aesthetic vision and conception of the good. This could potentially harm the child in various respects (see below discussion on PoGE-specific harm) as well as fracture parent–child relationship, as might do the other following examples of postnatal enhancement.

b. Neuroenhancement. Contemporary neuroenhancement practices are aimed at improving humans’ cognitive features, performance, and behavioral functioning (eg memory, learning, creativity, alertness, etc.) by using neurotechnologies for non-medical or non-curative reasons.

Various neurotechnologies are currently being explored and gradually implemented. These include transcranial magnetic stimulation (TMS) therapy for mood disorders,\(^\text{18}\) brain–computer interfaces and more.\(^\text{19}\) The most prevalent technology available is that of performance-enhancing psychotropic drugs (methylphenidate, eg Ritalin, and dexamphetamine compounds, eg Adderall) used for the treatment of conditions such as ADHD (attention deficit/hyperactivity disorder), narcolepsy, etc., that also function (off-label) as cognitive enhancers in healthy subjects. That is, used by individuals, including minors, who do not in fact suffer from attention deficit or other concentration problems.\(^\text{20}\)

There are, of course, other forms of more ‘moderate’ non-biological (education-related) cognitive improvements of children that are currently practiced, such as extensive private tutoring, preparatory courses for young preschool children in order for them to be accepted into high-demand private schools, etc.\(^\text{21}\)

The underlying reasons for neuroenhancement of minors by their parents/caregivers are not only subjective personal parenting goals (ie to produce children who shine in their academic achievements and supersede their peers by consuming performance-enhancing drugs), but also objective ‘environmental’ factors, such as: local social conventions; the competitiveness of the school; the uptake of such drugs by peers, etc. Such factors serve as a coercive influence upon parents, and perhaps even upon children aspiring to improve their academic performance—which might drive the intake of such stimulant drugs, among children and adolescents.\(^\text{22}\)

Cognitive enhancement carries both positional and absolute benefits for the enhanced

\(^\text{18}\) TMS is a non-invasive neurotechnology that has been approved by the FDA for treatment of major depression and is said to have no side effects. See FDA Clears Neurostar® TMS Therapy for the Treatment of Depression, MNT, Oct. 9, 2008, http://www.medicalnewstoday.com/releases/124958.php (accessed Jul. 9, 2012).

\(^\text{19}\) James J. Hughes, The Struggle for a Smarter World, 39 FUTURES 942 (2007); Nick Bostrom & Anders Sandberg, Cognitive Enhancement: Methods, Ethics, Regulatory Challenges, 15 SCI. ENG. ETHICS 311, 317 (2009), http://www.nickbostrom.com/cognitive.pdf. DOI:10.1007/s11948-009-9142-5.

\(^\text{20}\) Sarah Glazer, A Cross Section of Contemporary Ethical Debate About Altering the Human Body – Enhancement, HASTINGS CENTER (2006), http://www.thehastingscenter.org/uploadedFiles/Publications/enhancement%20primer.pdf (accessed Apr. 24, 2015).

\(^\text{21}\) Education has been analogized to genetic enhancement by David Heyd, Jürgen Habermas, and others. See David Heyd, GENETHICS 177–90 (1992); Jürgen Habermas, THE FUTURE OF HUMAN NATURE 49, 83–4 (William Rehg, Hella Beister & Max Pensky trans., 2003); Cohen, supra note 1, at 646, 657; Sivan Tamir, Postnatal Human Genetic Enhancement: Identity, Rights and the State, 126–31 (Jul. 2015) (unpublished Ph.D. dissertation, The Hebrew University of Jerusalem) (on file with the Law Library, The Hebrew University of Jerusalem).

\(^\text{22}\) Ilina Singh & Kelly J. Kelleher, Neuroenhancement in Young People: Proposal for Research, Policy, and Clinical Management, 1 AJOB NEUROSCIENCE, no. 1, 2010, at 3, 9.
individual. Brain-meddling cognitive enhancement also carries a potential for directly influencing the identity of the child (in the narrative, biographical sense) from within.

Now, should the case of neuroenhancement be differently evaluated if performed through genetic intervention? I shall briefly consider this query with respect to one exemplary aspect:

\[ b(i) \text{ (Ir)reversibility} \]

It is quite likely that postnatal cognitive GE will be identity-affecting to some extent\(^\text{23}\) as arguably is the case of neuroenhancement by performance-enhancing drugs. Such an analogy, however, calls for caution in light of some significant dissimilarity between using stimulant medication and being cognitively enhanced, genetically. One such difference is that users can go off medication, at will, and revert to their original baseline personality during such intermissions.\(^\text{24}\) Such a possibility will probably not be available, on a frequent basis, at least, for GE implementers. But even if we assume, at least for the sake of argument, that human genetic engineering will possess a quality of ‘reversibility’ (under certain conditions), insofar as the cognitive psychological aspect of mental states is concerned, such reversal could never be perfect in the sense of expunging the procedure’s signature on the reversibly enhanced individual. It is likely to leave a residual imprint on the enhanced child’s personality that cannot be fully erased retroactively; memory and experiential content of one’s former life under past (narrative) identity constitution, will simply not allow it. Presumably, fickle repeated attempts of modifying and then reversing a child’s cognitive GE is likely to cause her psychological harm (see below discussion on PoGE-specific harm).

c. \( hGH \) treatment. Treating children with growth hormone deficiency (GHD), who suffer from slow growth due to low levels of natural \( hGH \) secretion, with \( hGH \), clearly responds to a medical need. This seemingly justifies daily injections taken over years, normally until adulthood, and the child’s self-perception as ‘ill’—all for the promise of attaining the lower level of the normal height range (namely, remaining short). However, it has been contended that what could colloquially be described as ‘hype for height’—namely, electively prescribing \( hGH \) for non-GHD children of ‘idiopathic short stature’ (ISS)\(^\text{25}\) who appear to have no underlying medical problem—is quite another matter, featuring biomedical enhancement.\(^\text{26}\) Treating normal short stature with \( rhGH \) (recombinant—biosynthetic, genetically engineered \( hGH \)),\(^\text{27}\) has been critically named: ‘endo-cosmetology’ and ‘vertical cosmetics’, hinting at the unwarranted

---

\(^\text{23}\) Depending on the child’s identity developmental stage and on the identity’s ‘intrusion tolerance’ in the face of changes brought on by the act of enhancement. For an elaborate account of the potential effects of PoGE on the enhanced child’s identity, see Tamir, supra note 21, at 80–134.

\(^\text{24}\) Ilina Singh, Not Robots: Children’s Perspectives on Authenticity, Moral Agency and Stimulant Drug Treatments 39 J. MED. ETHICS 359, 361–62 (2013), http://jme.bmj.com/content/39/6/359.full.pdf+html. DOI:10.1136/medethics-2011-100224.

\(^\text{25}\) Idiopathic short stature is short stature that cannot be attributed to a specific cause.

\(^\text{26}\) Peter Conrad & Deborah Potter, Human Growth Hormone and the Temptations of Biomedical Enhancement, 26 SOCIOL. HEALTH ILL. 184, 195 (2004).

\(^\text{27}\) Arlan Rosenbloom, Pediatric Endo-Cosmetology and the Evolution of Growth Diagnosis and Treatment, 158 J. PEDIATR. 187, 188–90 (2011).
dispensation of hGH to simply short (but otherwise healthy) children.\footnote{28} It is the product of ‘heightism’, a discriminating social bias, typically favoring high stature (although also applicable to unusually tall individuals, thereby similarly favoring ‘normal’ stature),\footnote{29} and positively correlating social, political, financial success, and wellbeing with one’s relative height. In the USA, the FDA (Food and Drug Administration) approved the use of hGH for children with ISS in 2003,\footnote{30} while similar approval has, so far, not been granted in Europe.\footnote{31}

It would seem that the treatment’s benefits for ISS children in terms of their final height—revolving around a modest gain of approximately 2.5–5 cm, on average\footnote{32}—and the consistent improvement in their psychological wellbeing is uncertain and may be unjustly overstated,\footnote{33} while its risks (such as malignancy\footnote{34}) are downplayed (as well as underinvestigated).

What is more, with height being a positional good, ie ‘whose value is dependent on others not having [it]’,\footnote{35} rather than an absolute good—one that is good in itself, it is debatable whether it ought to be an object for enhancement.\footnote{36} This is particularly so, given the following facts: hGH treatment guarantees limited positional benefits; it is not risk-free; the compelling motivation for enhancement through hGH is social prejudice; and its high cost renders it selectively available for children whose parents can afford

\begin{footnotes}
\item[28] Alice Dreger, *Are Children Dying for an Inch or Two?* CHICAGO TRIBUNE, Mar. 20, 2011, http://articles.chicagotribune.com/2011-03-20/news/ct-perspec-0320-height-20110320_1_growth-hormone-hgh-drug-companies (accessed Jul. 9, 2012).
\item[29] See NATIONAL ORGANIZATION OF SHORT STATURED ADULTS (NOSSA), http://www.nossaonline.org/faq.html (accessed Apr. 29, 2012). Apparently, NOSSA is no longer in operation as of May, 2013. See http://heightism.blogspot.com (accessed Jun. 1, 2013).
\item[30] Conrad & Potter, supra note 26, at 194.
\item[31] Dana S. Hardin, *Treatment of Short Stature and Growth Hormone Deficiency in Children with Somatotropin (rDNA origin)*, 2 BIOL. TARGETS THER. 655, 656 (2008), http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2727887/pdf/btt-2-655.pdf (accessed Apr. 24, 2015); Steven D. Chernausek, *Management of Idiopathic Short Stature*, in 2015 MEET-THE-PROFESSOR: ENDOCRINE CASE MANAGEMENT (Carol Hatch Wysham & Marc-Andre Cormier eds., 2015), http://press.endocrine.org/doi/pdf/10.1210/MTP4.9781936704941.ch43 (accessed Apr. 24, 2015).
\item[32] Although a rather recent study has found that by dispensing larger doses of rhGH to children, the mean adult height was more dramatically increased by 9.5 cm for males and 8.6 cm for females. But, the authors have also noted that such studies are few and supported a call for additional trials ‘to determine the efficacy, ideal dosage, health-related quality of life, long-term safety of GH therapy, and cost’. See Juan F. Sotos & Naomi J. Tokar, *Growth Hormone Significantly Increases the Adult Height of Children with Idiopathic Short Stature: Comparison of Subgroups and Benefit*, 15 INT. J. PEDIATR. ENDOCRINOL. 1, 21 (2014).
\item[33] According to one cited meta-analysis of studies of rhGH treatment, the Cochrane study, ‘there is no evidence that growth hormone treatment improves health-related quality of life or psychological adaptation’. See Conrad & Potter, supra note 26, at 194; David B. Allen, *Lessons Learned from the hGH Era*, 96 J. CLIN. ENDOCRINOL. METAB. 3042, 3045 (2011); Hardin, supra note 31; Rosenbloom, supra note 27, at 190.
\item[34] Rosenbloom, supra note 27, at 191.
\item[35] Nick Bostrom, *Human Genetic Enhancements: A Transhumanist Perspective* 37 J. VALUE INQ. 493 (2003); Bostrom & Sandberg, supra note 19, at 328.
\item[36] See eg Nick Bostrom’s suggested policy with respect to positional goods: ‘... an enhancement that has both significant intrinsic benefits for an enhanced individual and net positive externalities for the rest of society should be encouraged. By contrast, enhancements that confer only positional advantages, such as augmentation of stature or physical attractiveness, should not be socially encouraged, and we might even attempt to make a case for social policies aimed at reducing expenditure on such goods, for instance through a progressive tax on consumption.’ Bostrom, supra note 35, at 502.
\end{footnotes}
it and may thus gain somewhat unfair competitive advantage, thereby widening and perpetuating social inequality.\textsuperscript{37}

Now, imagine that instead of daily injections of hGH over a period of years, from a fairly young age, achieving a rather modest (and limited) improvement, one could alter their child’s height to a desirable measure (give or take a few millimeters) through a one-off painless, seemingly risk-free\textsuperscript{38} targeted genetic intervention, with more speedy results, performed when the child was old enough to voice her opinion on the matter. On its face, this would seem consistent with the interests of the child. But, what if the possibility of genetically enhancing height beyond ‘normal’ range is abused by parents to create a hideously tall child, who consequently suffers from social ridicule, as well as a handicap (since the world is not adapted for individuals of such unusual stature)? Arguably, this could be construed as a PoGE-specific harm (see discussion below).

To conclude, this brief overview of representative samples of contemporary (mostly) biological or biomedical non-genetic enhancing practices of existing children provides some indication of the current trends in children’s enhancement practices, the socially induced motivation for enhancement and how it is reflected in societal values, and an idea of what the alternative route of PoGE might involve. Presumably, PoGE, like its present-day non-genetic counterparts, will not be affordable for all and the motivation for GE would still be attributed to social trends and biases.

Now, arguably, a clearer understanding of what PoGE actually entails can be gained by distinguishing it from the more familiar or traditionally analysed technology of PGE.

2. A Distinction between PoGE and PGE Relevant Features

Seemingly, PoGE can be distinguished from PGE by the following, essentially postnatal-typical, features (ie they equally apply to other, non-genetic postnatal enhancements).

\textit{a. Indisputable existence and moral status of the enhanced.} The scholarly literature is traditionally focused on the \textit{prenatal} phase of GE, where we are meddling with the genetic constitution of future or potential persons (eg frozen embryos or fetuses).\textsuperscript{39} These are of a disputable moral status or entirely lacking it and, consequently, not subjects of rights against others. Such focus on the prenatal phase obviously limits the discussion by rendering the investigation of the interests of such future, or potential persons—speculatively at best, thereby failing to address certain aspects that need to be considered in the future application of such technology. In contrast, the postnatal scenario presents us with a different challenge—that of existing concrete individuals, actual persons who possess the primary criteria of personhood, namely: consciousness,

\textsuperscript{37} Dov Fox, \textit{Human Growth Hormone and the Measure of Man}, 7 \textit{NEW ATLANTIS} 75, 79–80 (Fall 2004/Winter 2005). Although both Fox and Cohen suggest that such social inequality can be rectified by state subsidies, Cohen further contends that such subsidies should not necessarily be based on the merits of financial inability of parents to afford such enhancing treatment for their child, but perhaps instead on a ‘luck egalitarian’ concept. Namely, since their children’s short stature is a result of brute luck and not a consequence of conscious options, they merit a subsidized height-enhancement treatment. See Dov Fox, \textit{The Illiberality of ‘Liberal Eugenics’}, 20 \textit{RATIO} 1, 17 (2007) [hereinafter Fox, \textit{The Illiberality of ‘Liberal Eugenics’}]; Cohen, supra note 1, at 656–58.

\textsuperscript{38} Admittedly, we do not know for certain what the risks of genetic intervention are. These could entail, for example, the risk of mutation or some sort of ‘genetic reaction’.

\textsuperscript{39} According to David Heyd’s \textit{Genethics} account, potential persons are “people whose existence is dependent on human choice.” See Heyd, supra note 21, at 97.
rationality, and agency, as well as self-consciousness and the ability to communicate. These entail an undeniable moral status, that is, being subjects of rights and duties and bearing interests (e.g., wellbeing) as well as a specific identifiable set of preferences, tastes, opinions, volitions, potentialities, and limitations—all of which must be taken into account by the enhancer. Dealing with HGE in the postnatal phase allows us to explore the putative obligations of the state in such a setting with respect to such actual persons.

\textit{b. Having an identity.} We consider here an identity that is either formed to some extent or still in-formation, all depending on the child’s identity-developmental stage. This is a point of vulnerability, as well as a point of strength, that is unique to the postnatal phase (since the future child in the PGE setting has no identity, numerical, or narrative, to speak of). Arguably, some postnatal genetic modifications may be identity-altering and as such disruptive to the integrity of the enhanced child’s identity to the point of threatening her self-perception and authenticity. At the same time, identity serves as an important signpost for the enhancer, guiding her in fitting the enhancement plan to the child’s apparent identity. This is particularly relevant to the question of mental harm, discussed below, which might invite state intervention.

\textit{c. Having a voice.} In some cases, the candidate for postnatal enhancement will be eligible to consent to/reject the procedure, thereby furnishing us with an introspective look into her preferences, personality, state of mind, etc., which supplement another dimension in the evaluation of a particular enhancement. I shall term this the ‘presence benefit’, since it contributes to narrowing the epistemic gap that is inherent to the prenatal enhancement setting. Namely, in contrast to the postnatal setting, we do not know what the prenatally enhanced child, once born and becoming actual will be like in terms of her features, preferences, and inclinations. We therefore lack a subjective ‘baseline’ personality, in regard to which to evaluate the purported effects and, more importantly, harms of enhancement. Plausibly, the value of this benefit is variable, as it depends on the enhanced child’s developmental stage (the older and more articulate she is—the more we can benefit from her voice on the matter).

\textit{d. Transparent environment.} Since in PoGE the intervention is performed \textit{in vivo} rather than \textit{in vitro}, the personal, social, environmental, and political state-of-affairs at the time the enhancement is carried out, is transparent to us; namely, it is within our knowledge, and most probably closely identical to the enhanced person’s post-enhancement life circumstances. We could term this PoGE-specific benefit as: ‘enhancement in context’. Being privy to either or both the objective context (the general environment) and the subjective context (personal circumstances) of the candidate for enhancement

---

40 Rosamund Scott, RIGHTS, DUTIES AND THE BODY – LAW AND ETHICS OF THE MATERNAL-FETAL CONFLICT 31 (2002).
41 I partly draw here on Malmqvist’s description of what the future prenatally shaped child is not, or does not possess. See Erik Malmqvist, Reprogenetics and the “Parents Have Always Done It” Argument, HASTINGS CENT. REP., Jan.–Feb. 2011, at 43, 47.
42 For a comprehensive analysis of the potential influences of PoGE on the enhanced child’s identity, see Tamir, supra note 21, at 80–134.
43 One might say that the enhancement plan can be better orchestrated to ‘fit’ the actual life reality of the child candidate-for-enhancement by comparison with prenatal enhancement—where the procedure is performed in a certain reality but the enhancement is manifested, once the child is born and grows up, in a purportedly different reality.
provides the enhancer with valuable guidance and, appropriately, also with the responsibility attached to such awareness. Familiarity with the context is obviously lacking in prenatal enhancement, although concededly, its value is contingent on and relative to the occurrence of actual changes in the circumstantial state of affairs between the time PGE is carried out and the (coming into) existence of the enhanced person. At any rate, I rely here on the relative dynamicity of subjective and objective circumstances (e.g., changes in fashion and social tendencies) over time, to maintain the relevance of the context of enhancement.

e. Flexible timing. The most obvious and palpable difference between prenatal and postnatal enhancements, is their timing. It can be argued that the timing of PoGE is flexible since we are in no rush to bring a particular (potential) individual into existence. Conversely, the prenatal timeframe (or window of opportunity) is rather more constrained (unless we are talking about frozen embryos, which can plausibly be manipulated at any given time, before implantation in the womb). This feature plausibly makes PoGE, in contrast to its prenatal counterpart, more adaptable to its subject. The enhancement plan could thus be orchestrated to fit the enhanced child’s developmental stages, in order for it to be optimally assimilated into her personality and life in general.

f. Higher susceptibility to state intervention. Arguably, PoGE is far more susceptible to state intervention than PGE. This feature is closely relevant to the application of the parens patriae doctrine, and will be elaborated on in Part II.44

Having discussed PoGE in general, and conceptually distinguished postnatal from prenatal GE, we can now turn to examine the more particular issue of state intervention in PoGE of children.

II. THE STATE’S ROLE AS PARENS PATRIAE IN THE CONTEXT OF POGE

Generally speaking, the state’s stance on HGE in general, PoGE in particular, would be primarily reflected in its (non-) neutrality policy. That is, the state can permit the practice of PoGE, either passively (by ‘silent’ non-regulation) or by actively endorsing it, e.g., by supporting and encouraging PoGE through regulation of access thereto, through offering incentivizing subsidies and by setting consumer-favorable prices for selected, or all, GEs. The state can mandate the practice, or legally prohibit it. It may also limit the practice through regulation, for instance, as Cohen suggests, by levying differential taxation if PoGE produces externalized costs, or taxing it by a ‘vice tax’ considering GE as an immoral luxury (as in the case of tanning beds).45 The state could also put in place other, ‘softer’, more implicit hurdles, such as imposing strict licensing requirements, setting safety standards (for labs, devices, professional qualifications, etc.), or introducing reporting requirements, addressing, e.g., the number of GE requests per annum; the age of the genetically enhanced individuals; the various types of enhancements performed; the price set for each procedure, etc.—which Cohen collectively terms as ‘nudges and other choice architecture techniques’. That is, measures that influence behavior and respect freedom of choice, concurrently.

But could the state avoid taking account of PoGE altogether (although such a stance will resemble the ‘silent’ non-regulation option, implicitly allowing it), namely, adopt

---

44 See infra Part II, section on pre-vs. postnatal application of the parens patriae doctrine.
45 Cohen, supra note 1, at 652–55.
a policy of neutrality with respect to HGE? We shall briefly address the issue of state neutrality as a threshold condition for state intervention in PoGE of children.

A. PoGE and State Neutrality

My point of departure is that political neutrality, at least in the pure sense that implies nil state interference, is a fiction even in the most liberal democracies, for the fundamental values they uphold (concerning various liberties and civil rights) require active protection and assistance in their realization. This would seem to be particularly true for matters such as HGE and PoGE, especially where the genetic modification of minors is involved.

Nevertheless, it would seem that one cannot consider state neutrality in the context of PoGE, without addressing state neutrality as a constitutive element of ‘liberal eugenics’—a concept which is closely interlinked with HGE.

1. HGE, State Neutrality, and Liberal Eugenics

‘Liberal eugenics’, a term coined by Nicholas Agar in his 1998 paper by that name, is essentially about the non-prescribed, non-coercive, diverse, individualistic selection of traits (eugenic plans) of (future) children candidates-for-enhancement by their parents, rather than by the state. Agar asserts that what fundamentally distinguishes the new liberal eugenics from ‘old-fashioned authoritarian eugenics’—is the idea of state neutrality with respect to the genetic characteristics or design of its (future) citizens. Namely, leaving the prerogative (and responsibility) of determining these features to be autonomously directed and implemented by parents according to their views and desires.

Liberal eugenics is the seemingly natural ‘habitat’ for PoGE, although it was not originally tailored to postnatal GE, as it typically refers to the pre-determined genetic design of children in the making, rather than existing actual children. Nevertheless, the place of PoGE within this scheme can be reasonably deduced from the liberal view of parental freedom as allowing parents fairly extensive leeway in rearing, shaping, and enhancing their children as they deem right, including, it seems (prenatally) genetically enhancing one’s offspring. Arguably, in the future, PoGE will simply be one more acceptable

46 Nicholas Agar, supra note 8; NICHOLAS AGAR, supra note 8. Although the ideal of liberal eugenics has been around, supported and developed by other scholars, since the 1970s. See Fox, The Illiberality of ‘Liberal Eugenics’, supra note 37, at 2, 3.

47 AGAR, supra note 8, at 5. The plausibility of the notion of ‘liberal eugenics’ or rather its liberality, as well as its (in)consistency with state neutrality, have been criticized by various thinkers, such as Fox, Sparrow, and Sandel in somewhat similar, yet different accounts. These critics claim that although the ‘new’ liberal eugenics prizes autonomous individual choices and parental freedom in instilling parents’ personal views of the good life in one’s offspring, by its very nature, it is not exempt from state interference or coercive policies, and may therefore eventually relapse into ‘old’ eugenics notorious patterns. See eg Robert Sparrow, A Not-So-New Eugenics: Harris and Savulescu on Human Enhancement, HASTINGS CENT. REP., Jan.–Feb. 2011, at 32 [hereinafter Sparrow, A Not-So-New Eugenics]; Robert Sparrow, Liberalism and Eugenics, 89 AUSTRALAS. J. PHILOS. 499 (2011) [hereinafter Sparrow, Liberalism and Eugenics]; MICHAEL J. SANDEL, THE CASE AGAINST PERFECTION – ETHICS IN THE AGE OF GENETIC ENGINEERING 78–9 (2007).

48 See eg Sparrow, A Not-So-New Eugenics, supra note 47, at 32, 33; Sparrow, Liberalism and Eugenics, supra note 47, at 499, 502.

49 See JOHN A. ROBERTSON, CHILDREN OF CHOICE: FREEDOM AND THE NEW REPRODUCTIVE TECHNOLOGIES 167 (1994). Clearly, the same rationale would nonetheless apply to PoGE.
parental rearing and shaping tool exercised at parents’ discretion, or an extension of the already recognized PGE.

Now, although claiming liberal eugenics to be grounded in state neutrality, Agar’s account does seem to tolerate some minimal state intervention. Under his vision, the state’s neutrality policy on the matter would not preclude it from regulating the use of enhancement technologies, including by ‘refusing to assist reproductive choices that are morally defective in some significant way’.\(^{50}\) Agar therefore seems to implement a rather ‘soft’ and quasi-differential account of state neutrality. And indeed, as Joseph Raz importantly recognizes, complete neutrality is neither sacrosanct nor always defensible, and it will therefore occasionally be simply impossible to be or remain (strictly) neutral.\(^ {51}\)

Now, what about the state’s moral (non-)neutrality regarding PoGE?

**2. The State’s Moral Neutrality in the Context of PoGE**

State neutrality is not only a commitment to a certain political position. It is, perhaps primarily, about the state’s underlying stance on moral neutrality concerning conceptions of the good life, ie perfectionism. An ethically charged technology such as PoGE, possessing the ability to meddle with our core identities (as does education or any other method of deeply instilling values in persons), may, in fact, be ‘a legitimate matter for governmental action’, implying a ‘perfectionist’ approach by the state.\(^ {52}\) What is more, as some conceptions of the good are not self-sustainable—they require auxiliary means for their realization, in the form of state regulation and enforcement, and the like. Arguably, a stand-off approach by the state with respect to PoGE may threaten public order or result in discrimination, grave social inequality, etc.—all of which the state might then be expected to directly address or rectify (although it is unclear how, given its original anti-perfectionist stance).\(^ {53}\)

Therefore, HGE, PoGE in particular, will presumably not be able to do without any manifestation of state perfectionism or guidance), making it a crucial element here, for various reasons. For example, in a free market, implementers of this technology will require (and therefore probably seek) government action, in terms of regulation (and enforcement) of various aspects of HGE, as discussed above, for example, demarcating the boundaries of patently harmful GEs, and putting in place specific anti-discrimination laws, or appropriately amending existing ones,\(^ {54}\) to protect the genetically enhanced.

To conclude, it seems that strict, pure neutrality, employing principles of restraint or an anti-perfectionist approach that instruct the state’s neutral stance on value-laden matters—is virtually nonsensical, unattainable, and even undesirable, especially for some perceptions of the good that require active protection or execution. This is

\(^{50}\) Agar, supra note 8, at 15-16.

\(^{51}\) Joseph Raz, *The Morality of Freedom* 120–23 (1986).

\(^{52}\) Id. at 110.

\(^{53}\) Id. at 162.

\(^{54}\) For example, broadening the scope of protection currently provided by the Genetic Information Nondiscrimination Act 2008, H.R.493, P.L. 110–233 (2008)—presently protecting against ‘genetic discrimination in health insurance and employment based on the results of an individual’s genetic testing, a family member’s genetic testing, or upon manifestation of disease or disorder in family members of such any individual’—to include (protection against) discrimination based on an individual’s genetic modification for either medical or purely elective reasons. See Genetic Information Nondiscrimination Act 2008, H.R.493, P.L. 110–233 (2008); Sivan Tamir, *Direct-To-Consumer Genetic Testing: Ethical–Legal Perspectives and Practical Considerations*, 18 Med. L. Rev. 213, 227 (2010).
particularly so, where non-gratis GE services are offered to the public and readily used. Given some consideration, it would seem that the only way to realize any (political or moral) neutrality of the state, in general and as a criterion of liberal eugenics, in particular, is by paradoxically accepting an imperfect version of it that occasionally allows for differential implementation of restrained state perfectionism, such as that suggested by Joseph Raz. Namely, one that is compatible with respect for autonomy and restrained by the harm principle. Such recognition paves the way to state intervention as parens patriae in PoGE of minors.

But before we come to the core issue of the paper, let us look into the potential confines of state involvement in determining the contents of the GE package. This will serve us later, in our analysis of the state’s substitutive role as a genetic enhancer of SDC and its duties in this respect.

3. HGE, Natural Primary Goods, and State Intervention
Buchanan et al. make a general distinction between the type of GEs with respect to which the liberal state can retain the liberal commitment to neutrality between different conceptions of the good, and the type that justifies deviation from such a policy of neutrality. They suggest a consensus of ‘natural primary goods’, by analogy to John Rawls’s notion of ‘social primary goods’, namely ‘capabilities that are general-purpose means, useful in carrying out virtually any plan of life’.

These are broadly valuable, conventional goods that undeniably benefit children (eg the promotion of their health or education) ‘across a wide array of life plans’. According to Buchanan et al., GEs that are deemed such primary goods justify state intervention, by either encouragement or requirement, despite the potential conflicts it may incur with the basic principles of liberal democracy.

Drawing on Buchanan et al.’s conception of ‘natural primary goods’ (and, originally, on Rawls’s ‘social primary goods’), Dov Fox develops a more nuanced account of ‘natural primary goods’, within his critique of liberal eugenics. Fox distinguishes between ‘natural primary goods’, namely, ‘hereditable mental and physical capacities and dispositions that are valued across a range of projects and pursuits’ (such as ‘absence of disability, resistance against disease... short- and long-term memory... general cognitive capacity... ’ etc.) and natural ‘non-primary goods’—ie genetically influenced traits that are beneficial or crucial for selective (optional) life plans, though worthless for others (eg height or absolute pitch).

Fox argues that parents are morally obligated (he expressly refrains from suggesting equal legal obligations) to provide their existing children with genetic and other practices that ‘enhance near-universally beneficial general purpose traits’ (ie natural primary goods, such as general cognitive functioning), or to provide resistance against harmful traits (eg blindness) and refrain from actively enhancing children with ‘near-universally

55 See Raz, supra note 51, at 415, 419–23.
56 Allen Buchanan et al., From Chance to Choice 168, 174–5 (2000).
57 Fox essentially claims that since liberal eugenics is committed to the value of autonomy, it is ‘mildly perfectionist’ and therefore may not be as state neutral as one might appear to think. Fox, The Illiberality of ‘Liberal Eugenics’, supra note 37, at 7.
58 Id. at 11.
59 Id. at 12.
60 Id. at 14–15.
harmful general purpose traits’ (emphasis added—S.T.); whereas parents are morally permitted to provide such enhancements that fall under the category of natural non-primary goods (remaining within the realm of parental autonomy and discretion). This seems rather consistent with the assertion of Buchanan et al. that natural primary goods justify a non-neutral, active stance by the state.

More to the point, Fox’s following somewhat provocative assertion, made within the constructs of his criticism of liberal eugenics (with which I somewhat disagree; but this is not the place to wrestle with it), is somewhat suggestive of the role of the state acting as parens patriae to remedy the (in)voluntary failure of parents to enhance their offspring (to be later discussed in the section concerning the substitutive facet of the parens patriae doctrine):

It is morally incoherent for liberals to reserve decisions about education for the public sphere, but leave genetic enhancements like general cognitive functioning to parental fancy. Since liberals mandate basic schooling for children, what reason have they to worry about the government acting parens patriae to correct for parental unwillingness or inability to provide practices that enhance natural primary goods enhancements in embryos? A state-sponsored programme of genetic enhancement for natural primary goods would not, after all, express any particular conception of the good beyond that of offspring autonomy to which liberalism is already committed. (emphases added—S.T.)

To conclude, both Buchanan et al.’s and Fox’s definitions of natural primary goods are, for good reason, rather general. Arguably, since the ‘list’ of such goods is non-specific and non-exhaustive, it is consequently flexible in the sense of being sensitive to changes in perceptions of what is important or crucial to life. Yet, I find the theory of state-endorsed natural primary goods somewhat problematic, inter alia, in the pragmatic sense of defining its ‘inclusion and exclusion criteria’ for candidate natural primary goods, for purposes of compiling such a list.

Having concluded that some degree of state intervention is indeed warranted in our setting, I shall now proceed to examine the state’s obligated proactive action to protect children in the context of PoGE, namely, analyse the circumstances in which active intervention by the state is actually warranted, by virtue of its own rules.

B. PoGE and The State’s Role as Parens Patriae

Absent any evidence to the contrary, parents are considered to be the natural authority as well as ideal decision makers for their children and on their behalf. My point of departure is that parental autonomy and the privacy of the family unit are vital to social life and a crucial element of liberal societies. An indication to that effect is that ‘courts accord great deference to parental decisions’. This is particularly true where

61 Id. From a liberal eugenics perspective, the fact that GE is morally (and potentially, legally) obligated might put parents’ own views regarding what is best suited for their child in conflict with the state-dictated ‘moral compass’. (Admittedly, such a conflict would not be unique to GE, as it also applies to other domains, eg compulsory state education.) This may be coercive in a sense, for parents who deem some such natural primary goods unsuitable for their child or inauthentic, making them reluctant to thus enhance their offspring.
62 Fox, The Illiberalism of ‘Liberal Eugenics’, supra note 37, at 23–24.
63 The term is typically used in clinical trials and relates to criteria for participation in a study.
64 Susan D. Hawkins, Protecting the Rights and Interests of Competent Minors in Litigated Medical Treatment Disputes, 64 FORDHAM L. REV. 2075, 2081 (1996).
the child’s physical or mental health is not at stake, such being the case of our PoGE setting. Nevertheless, even in circumstances where parents are engaged in contentious medical decision-making on behalf of their children—specifically, where children’s life-threatening conditions or quality of life determinants are at issue—‘the state has a high burden of proof because of the great value placed on autonomous parental decision making.’

One might therefore reasonably assume that state intervention in parental and intrafamilial decision-making concerning PoGE—purely employed as a means of rearing and shaping one’s child—will require lifting an even greater burden of proof as well as more compelling justification.

1. The Parens Patriae Doctrine

The doctrine of parens patriae, literally meaning ‘parent of the country’, originates in the ancient prerogative of the British Crown in English common law. It is in fact a concept of standing, representing the inherent power and authority of the state to act as guardian for all those incapacitated to take care of themselves or their affairs—primarily minors, on whom we focus here, and otherwise incompetent (e.g., mentally disabled) individuals. The state exercises said power via its human service agencies and the jurisdiction of the courts to make decisions concerning such incapacitated individuals.

In this capacity, the state has a compelling interest, as well as high duty, towards minors (and helpless persons) to ensure their safety and wellbeing by reasonably interfering in the familial realm and autonomy in a host of issues, which typically reside under parental prerogatives—namely, when parental decisions and actions seem to violate the minor’s rights or endanger her welfare, and more specifically her physical or mental health. But some might more broadly interpret the doctrine so as to apply to less stringent circumstances.

Joel Feinberg, for one, asserts with respect to the child’s right to an open future that ‘[t]he existence of such a right... sets limits to the ways in which parents may raise their own children, and even imposes duties on the state, in its role as parens patriae, to enforce those limits’ (emphasis added—S.T.). However, as the state’s positive duty to protect minors typically trumps its general ‘routine’ negative duty towards parents, to refrain from interfering in parental rearing and shaping decisions and actions (and in our case, in PoGE parental discretion), such protective intervention by the state merits particular caution and restraint.

Therefore, as one who finds ‘the child’s right to an open future’, to be highly problematic for a host of reasons—inter alia, that it is overdemanding, unrealistic, and conceptually vague; that no one’s future is truly ‘open’; and that even refraining from affecting a child’s ‘unlimited’ future life course one way or another (namely, adhering to
The strictest standard of neutrality with respect to the child’s future) could detrimentally affect its ‘openness’—I consider Feinberg’s proclamation perilous for parental autonomy and an apt example of the limits that should rather be curbing the power of the state acting as *parenspatriae*. What is more, as Elizabeth S. Scott points out, keeping formal state supervision to a minimum not only guarantees protection for family privacy and expresses respect for parental authority in making rearing decisions—it is also cost-effective.

Naturally, in circumstances that require the exercise of the state’s *parenspatriae* authority, there is a strong tension between natural parental autonomy in rearing and shaping one’s child, and the authority of the state and its responsibility toward minors. In some instances, the state’s enthusiasm in acting as *parenspatriae* appears to conflict with minors’ constitutional rights, particularly with the Due Process Clause (of the Fourteenth Amendment). So, in a series of influential court rulings the usage of the *parenspatriae* authority to intervene was limited, as illustrated by Gregory Thomas, both procedurally and substantively.

An example of a procedural limitation can be found in the seminal case of *In re Gault*, where a juvenile delinquent was imprisoned for several years for a minor offense, without being granted the due process entitlement which adult juveniles hold. The court held that the government, when acting as *parenspatriae*, must respect children’s possession of nearly all constitutional rights possessed by adults. An example of a substantive limitation of the state acting as *parenspatriae* can be found in the court’s ruling in *Wisconsin v Yoder*:

---

69 For further criticism of ‘the child’s right to an open future’ see Richard J. Arneson & Ian Shapiro, *Democratic Autonomy and Religious Freedom: A Critique of Wisconsin v. Yoder*, in *POLITICAL ORDER: NOMOS XXXVIII* 365 (Ian Shapiro & Russel Hardin eds., 1996); Claudia Mills, *The Child’s Right to an Open Future?* 34 J.O.S.P. 499 (2003); Cohen, *supra* note 1, at 672–74; David William Archard, *Children’s Rights*, The *STANFORD ENCYCLOPEDIA OF PHILOSOPHY* (Edward N. Zalta ed., 2011), http://plato.stanford.edu/archives/sum2011/entries/rights-children/ (accessed Feb. 9, 2014); David B. Resnik & Daniel B. Vorhaus, *Commentary, Genetic Modification and Genetic Determinism*, 1 PHILOS. ETHICS HUMANIT. MED. 9, 6/11 (2006).

70 Elizabeth S. Scott, *Parental Autonomy and Children’s Welfare*, 11 WM. & MARY BILL RTS. J. 1071, 1079 (2003).

71 Thomas, *supra* note 67, at 55–56; See eg Meyer v. Nebraska, 262 U.S. 390, 400–402 (1923) (holding that Nebraska law restricting foreign-language education was unconstitutional, since it deprived parents and teachers of liberty without due process of law in violation of the Fourteenth Amendment to the US Constitution.). The court has stated that: ‘The established doctrine is that this liberty may not be interfered with, under the guise of protecting the public interest, by legislative action which is arbitrary or without reasonable relation to some purpose within the competency of the State to effect. Determination by the legislature of what constitutes proper exercise of police power is not final or conclusive but is subject to supervision by the courts’. Glenn Cohen also discusses this case, *inter alia*, in relation to ‘the Court’s attempt to set some limits’ on the power of the state (acting as *parenspatriae*). See I. Glenn Cohen, *Beyond Best Interests*, 96 MINN. L. REV. 1187, 1206–1207 (2012). See also, Pierce v. Society of Sisters, 268 U.S. 510, 534–35 (1925) (while the state’s right to regulate education was acknowledged, the court held that the Oregon Compulsory Education Act, requiring nearly every parent/guardian of a child between 8 and 16 years to send her to the public schools, is unconstitutional for unreasonably interfering with the liberty of parents and guardians to direct the education and upbringing of their children, in violation of the Fourteenth Amendment). The court has firmly stated that: ‘The fundamental theory of liberty upon which all governments in this Union repose excludes any general power of the State to standardize its children by forcing them to accept instruction from public teachers only. The child is not the mere creature of the State; those who nurture him and direct his destiny have the right, coupled with the high duty, to recognize and prepare him for additional obligations’ (emphases added—S.T.).

72 *In re Gault*, 387 U.S. 1, 17 (1967).
The State’s claim that it is empowered, as parens patriae, to extend the benefit of secondary education to children regardless of the wishes of their parents cannot be sustained against a free exercise claim of the nature revealed by this record, for the Amish have introduced convincing evidence that accommodating their religious objections by forgoing one or two additional years of compulsory education will not impair the physical or mental health of the child, or result in an inability to be self-supporting or to discharge the duties and responsibilities of citizenship, or in any other way materially detract from the welfare of society (emphases added—S.T.).

It follows that the application of the intervening power of the state, acting as parens patriae, needs to meet some terms of justification and reasonability. In the interest of brevity, however, I will not delve further into this matter.

Finally, it seems that we can distinguish between two different facets of the state’s role as parens patriae: ‘protective’ and ‘substitutive’. I shall separately address them both. The protective application of the doctrine will be discussed with respect to the potential harms ensuing from parental PoGE. I will then go on to examine the substitutive application of the doctrine, with respect to the state’s putative duty to postnaturally genetically enhance actual children, in lieu of their natural parents.

2. The Protective Facet of the Parens Patriae Doctrine
What would constitute a justifiable ground for state intervention?
Generally speaking, state intervention is justified (expected even) either when it is sparked by (threat of) harm to the child, largely following parental decisions and actions; or in exercising government’s police powers ‘when intervention is necessary to protect the health of the population or others’. Our business here is with the former. Traditionally, parental discretion is respected and trusted, and is not interfered with by the state unless there is evidence or firm suspicion that the way the discretion was exercised is likely to harm the child, thereby manifesting a compelling interest of the state to interfere.

In this part we consider state intervention that is aimed at protecting the welfare and interests of the child. Perspectives of egalitarian justice (equality of access and distributive justice) are beyond the scope of this paper, and will not be explored here. I shall therefore turn to examining actual or foreseeable ‘harm’ to the child as a ground, as well as a threshold, for state intervention.

a. Harm.
In general, the liberal state accepts government intervention in its society and in the lives of its citizens, in moderation. Harm to individual or societal interests is typically an occasion for some form of state intervention. A prominent promoter of state restraint is John Stuart Mill, whose famous harm principle bars unwarranted state intervention and promotes freedom—more precisely, negative freedom—from coercive interference in

73 Wisconsin v. Yoder 406 U.S. 205, 207 (1972).
74 Douglas S. Diekema, Parental Refusals of Medical Treatment: The Harm Principle as Threshold for State Intervention, 25 THEOR. MED. BIOETH. 243, 250 (2004).
75 Kay P. Kindred, God Bless the Child: Poor Children, Parens Patriae, and a State Obligation to Provide Assistance, 37 OHIO ST. L. J. 519, 526 (1996).
a person’s life.\textsuperscript{76,77} The principle essentially conditions the legitimacy of the coercive interference of ‘collective opinion’ in individual freedom, upon foreseeable events of harm to others.\textsuperscript{78} (Although it would appear that harm to others is a \textit{necessary but not sufficient} condition for the state to interfere with individual liberty.\textsuperscript{79})

We are concerned here with actual harm resulting from parental PoGE-related actions or omissions, or with related foreseeable harm. However, it is not only the occurrence (or imminent threat of) tangible, direct harm that triggers coercive state intervention in parental liberties. The non-triviality of harm, the \textit{gravity} of harm emanating from parents’ decisions and actions, and the (high) likelihood of its occurrence, are also crucial measures for determining whether state interference is sufficiently warranted under certain circumstances.\textsuperscript{80} Also, to constitute such harm that will legitimize state intervention, ‘an action must be injurious or set back important interests of particular people, interests in which they have rights’.\textsuperscript{81} Another interest- or right-associated feature of harm, central to our discussion, is that its causation requires the following pre-condition: one (including the state) needs to \textit{breach one’s duty} towards a person or a class of persons (by either act or omission), consequently harming the latter by either inflicting suffering, or by making them worse off than they would otherwise have been. Notably, Raz holds that harm may similarly emanate from a failure of one’s duty to \textit{improve} someone’s situation (ie failing to make them better off).\textsuperscript{82} Clearly, such an obligation extends beyond the threshold of necessity, thus on the face of it fitting the instance of pure GE.

Here, we may consider several potential duties, the failure of which might cause harm to the child in the context of PoGE and thereby invoke \textit{parens patriae} actions as follows.

\textsuperscript{76} Raz, supra note 51, at 410, 413.
\textsuperscript{77} Notably, in recent years the harm principle has been criticized by various academics, eg as being ‘profundely deficient’ as an expression of the limits that should restrict society’s resort to its most coercive instrument’ (Donald A. Dripps), and as one that has ‘collapsed’ after drifting from its originally progressive origins (due to being ‘corrupted’ by conservative liberalism), insofar that ‘[h]arm to others is no longer today a limiting principle. It no longer excludes categories of moral offenses from the scope of the law’ (Bernard E. Harcourt). Harcourt’s critique also engages with the harm principle’s failure to address issues concerning the types of harm, the amounts of harm, and our willingness, as a society, to bear the harms’, as well as to determine ‘whether a non-trivial harm justifies restrictions on liberty… [or] how to compare or weigh competing claims of harms’. Although by Harcourt’s own admission, the harm principle ‘was never intended to be a \textit{sufficient} condition’ in the sense of addressing the comparative importance of harms. See respectively Donald A. Dripps, \textit{The Liberal Critique of the Harm Principle}, 17 CRIM. JUSTICE ETHICS, no. 2, 1998, at 3, http://www.tandfonline.com/doi/abs/10.1080/0731129X.1998.9992054?journalCode=rcre20 (accessed May 8, 2016); Bernard E. Harcourt, \textit{The Collapse of the Harm Principle}, 90 J. CRIM. L. & CRIMINOLOGY 109, 182–3 (1999). I shall not wrestle with such critique here, as it would far exceed the scope of this paper.

\textsuperscript{78} John Stuart Mill, \textit{On Liberty} 21–22 (1859). Joseph Raz further expands the application of the harm principle, to include self-harm as well; see Raz, supra note 51, at 412–3.
\textsuperscript{79} David Brink, \textit{Mill’s Moral and Political Philosophy}, in \textit{The Stanford Encyclopedia of Philosophy} (Edward N. Zalta ed., 2014), http://plato.stanford.edu/archives/fall2014/entries/mill-moral-political/ (accessed May 11, 2016). For criticism regarding the erosion of the condition of necessity of harm, see Harcourt, supra note 77, at 114, 182.

\textsuperscript{80} For an elaborate analysis of the harm principle, its complexity, hidden normative dimensions and the supplementary criteria required for its application in various circumstances, see Joel Feinberg, \textit{The Moral Limits of the Criminal Law: Harm to Others}, Ch. V (1987).
\textsuperscript{81} Brink, supra note 79.
\textsuperscript{82} Raz, supra note 51, at 416.
(i) General universal parental duties to maintain the welfare of the child and promote her wellbeing according to present-time conventions (assumingly, such contemporary duties will incorporate PoGE-related wellbeing, in the future).

(a) A specific forward-looking parental duty to facilitate PoGE of one’s child. Although at least from a contemporary point of view and legal reality, it would seem quite unlikely that parents will be under a positive duty to provide any GE for their children, given the essential nature of present-day parental duties (eg to provide their children with elementary food, shelter, clothing, healthcare, and education), which seems rather inconsistent with the superfluous non-essentiality that features PoGE.\(^\text{83}\) Unless, that is, society in the future will deem certain types of GE a standard sine qua non necessity, in which case an appropriate proactive parental duty will be morally and legally acceptable.

(ii) The forward-looking duty of the state to genetically enhance its incapacitated citizens in lieu of their parents/guardians. I shall closely examine the state’s duty as a surrogate enhancer, in relation to the substitutive facet of the parens patriae doctrine, further below.

Now, according to Douglas S. Diekema, it is the harm principle, rather than ‘the best interest of the child principle’ that ought to be recognized as a fitting threshold for state intervention. His assertion refers to cases involving parental refusals of medical treatment. He defines the challenge as ‘identifying a harm threshold below which parental decisions will not be tolerated’, namely they will invite state intervention.\(^\text{84}\)

b. The Harm Principle applied to (postnatal) GE.

On its face, it is quite widely agreed that the role of the state acting as parens patriae as the protector of the child should be put into effect once actual severe harm to the child has already occurred, or there is a reasonably foreseeable risk of such harm to the child occurring, due to parental actions or omissions. Our inquiry shall therefore be two-tiered: we shall first attempt to envisage what would constitute harm to the child in the case of PoGE (both in applying it and in avoiding applying it), and then go on to ask what might be the general features of PoGE-specific harm that would prompt the application of the parens patriae doctrine.

To begin with, we assume that GE, despite best parental intentions, may on occasion prove harmful to the child. Now, although somewhat speculative and based upon our present moral values, we shall now make some educated guesses regarding the various manifestations of PoGE-specific harm to the enhanced child.

i. The nature of PoGE-specific harm to genetically enhanced children

PoGE-specific harm is likely to be classified into one or more of the following categories.

(i) Physical harm to the genetically enhanced child, ie as a direct result of mishaps occurring during or following the genetic alteration. Such harm would

\(^\text{83}\) See Tamir, supra note 21, at 191–203, where such parental duty was examined in depth and systematically rejected.

\(^\text{84}\) Diekema, supra note 74, at 244–45, 249.
typically be attributed to professional malpractice of third parties (ie not the parents, although parents’ overzealous GE initiatives that cause such harm, may be morally reprehensible), liable for actions or omissions in violation of the primum non nocere principle.

(ii) Mental harm to the genetically enhanced child, namely in the event that parents exhibit disappointment with the results of their child’s genetic modification, possibly emanating from their unrealistic expectations of the process (epigenetics-unawareness included) and misguided projection of their ideals onto their children. Such parental reaction may adversely affect the child psychologically, inter alia, by shaking her self-perception and self-esteem. Admittedly, such harm is not unique to the setting of PoGE, being quite common in child upbringing.

(a) Harm to the child’s identity may be caused by disrespect for the child’s pre-enhancement personal identity constitution. This may threaten the integrity or healthy development of her personal identity (eg conflicting with her partly formed identity or generating feelings of inauthenticity with regard to her present identity, resulting in personal alienation etc.). Another facet of such harm could result from irresponsible parental attempts to reverse an already performed (cognitive) GE, or from coercive parental enhancement that, arguably, violates a child’s (relative) right not to be genetically enhanced. The right may be invoked on grounds of the (mature) child’s (partial or limited) autonomy and human dignity.

(iii) HGE may also cause social harm in the broader sense (creating disparities within a given social group) and in the narrower, familial sense, by fracturing the integrity of the family due to discrepancies between parental expectations and the ‘result’ of PoGE, or due to varying (in nature, quality, or quantity) GE’s obtained by the parents for each child.

(a) HGE may harm the child’s human dignity by producing hideous or ludicrous results (for instance, by ignoring the child’s particular environment and social conventions), thereby leading to drastic social awkwardness (eg the above-mentioned example of genetically enhancing a child’s height beyond ‘normal’ range).

(b) Another facet of harmful social deviation as a result of HGE could be ‘over qualification’, namely, being so far superior in one’s skills or capacities as to make it difficult (nearly impossible) for the genetically enhanced person to form social interactions, or to be suitably employed in accordance with her (exceptional) qualifications.

Although due to our limited fortune-telling capacities this is by no means an exhaustive list, plausibly the harm most highly associated with PoGE will take the form of a threat to the child’s ‘core-identity’, which is often at risk of occurring as a by-product (or, perhaps, as an aim in itself?) of the parents’ enhancement program for the child. A prominent feature of such harm, making it difficult to compartmentalize, is that it will

Robertson, supra note 49, at 165–66. While Robertson refers to (speculative) harms associated with prenatal GE, I believe it can equally, not to say more forcefully, apply to the PoGE setting.
be a truly subjective child-specific harm, in the sense that the very same GE might, at the same time, benefit one child with a particular identity-structure while harming another (eg by causing her self-alienation). This feature calls for caution to avoid unwarranted state intervention with parental autonomy. An example of such contemporary cautionary measure is the ‘clear and convincing evidence standard’, relying on the good quality of evidence indicating empirical certitude (ie evidentiary certainty), that is essential for justifying state interference with the liberty of competent parents.\textsuperscript{86} Such a high threshold of proof needs to be met with respect to both the severity and probability of the threatened harm.\textsuperscript{87} Coercive state intervention that fails to meet this standard may be construed as an abuse of state power.

This may be particularly true in light of some ineluctable facts that have an undermining influence upon probability and causation in the context of PoGE:\textsuperscript{88} (i) the erratic effects of epigenetics and more generally, the somewhat undercutting effect of a non-deterministic epigenetic-sensitive approach with respect to probability and causation. Such approach challenges the justification of state intervention in parental PoGE decisions and actions, since given what we currently know (and only partially understand) about epigenetic influences on gene expression, the epigenetic effects upon the GE program are somewhat unpredictable; (ii) the genetically enhanced child’s personality is constantly evolving (commensurate with age and identity developments and changes in life circumstances); and (iii) the results of GE are highly subjective, namely person (or child) specific. At any rate, a mitigating factor that should be taken into account in the evaluation of PoGE-related harm is the previously mentioned option of (imperfect) reversibility that may be implemented in the event of parents’ or child’s regret, change of heart, or misconstruction of the desired modifications in the executed enhancement plan.

\textit{ii. Harm to the postnatally genetically enhanced child through the prism of contemporary law—in brief}

\textit{Hinging on the assumption that present-day legal reality will remain germane to our envisaged PoGE-future, it would seem, on its face, that the speculative (physical, mental, and social) harms cited above could, at most, invoke children’s civil negligence claims for ‘wrongful PoGE’ against enhancing parents—say, due to PoGE substance (eg contentious traits selected for genetic modification) or form (eg performed erratically over short periods of time, thus threatening to disrupt the child’s identity-formation process). However, even such a careful assumption calls for skepticism, given some doctrinal reservations regarding the child’s cause of action in tort against parents, such as the ‘parent–child immunity doctrine’ created and developed by American courts,}

\begin{footnotesize}
\textsuperscript{86} See Kenneth A. DeVille & Loretta M. Kopelman, \textit{Fetal Protection in Wisconsin’s Revised Child Abuse Law: Right Goal, Wrong Remedy}, 27 J. LAW MED. ETHICS 332 (1999).

\textsuperscript{87} Id. at 335–36.

\textsuperscript{88} For instance, it is not clear whether genetically enhancing some traits of one’s offspring in a particular way, while exposed to certain environmental effects, will cause (in)direc harm to the child, or more specifically—whether any such harm can be reasonably foreseeable under certain circumstances. What is more, it is not clear whether such harm should be attributed to the genetic manipulation, or to the environment.
\end{footnotesize}
according to which, parents and children are reciprocally prevented from suing one another in torts.\textsuperscript{89,90}

Such harms do not appear, on their face, to constitute compelling reasons for the state to act as \textit{parens patriae}. In order for this to happen, the negligent act would have to amount to criminal negligence, entailing gross deviation from the standard of a reasonable, prudent parent, thereby allowing the state to bring charges against the parents and involve its child-protective services.\textsuperscript{91} Child neglect is a type of maltreatment, the definition of which varies across jurisdictions. Nevertheless, the various statutes seem to have the following element in common: ‘willful or negligent failure of the parent or guardian to provide the child with adequate/necessary food, clothing, shelter, medical treatment, or supervision.’\textsuperscript{92} Admittedly, the wording of said definition, referring to children’s most elementary needs, makes it rather difficult to associate child neglect with either lacking or absent relatively privileged PoGE. The higher burden of proof required in criminal proceedings is another obstacle (besides said doctrinal reservations) to prosecuting parents for PoGE-specific harm with its uncertain causation pattern, via the route of criminal negligence.

\textit{iii. The general features of PoGE-specific harm that may give rise to the \textit{parens patriae} doctrine}

Now that we have some sense of the nature of harms that PoGE might embody, we turn to considering the second tier of our inquiry: what might be the general features of PoGE-specific harm that prompt the application of the \textit{parens patriae} doctrine?

As mentioned earlier, Diekema designates the harm principle as the proper basis, a threshold for state intervention, its justification depending on the actual \textit{level} of harm. Accordingly, trivial harms will be tolerated by the state so as not to completely stifle parental autonomy. Diekema offers a list of terms for justified state intervention in parental autonomy, including \textit{inter alia} that the (risk of) harm is serious and imminent, efficiently preventable and—importantly—that the benefit of state intervention stands to outweigh the ‘cost’ of harm to parental autonomy.\textsuperscript{93} Notably, though, Diekema makes his assertions with respect to highly necessary medical treatment, which is very much distinct from our setting of pure enhancement.
Interesting—and more applicable to our setting—is Diekema’s following contention regarding the justification of state intervention in parental (non-)immunization decisions. In the literature discussing GE, immunization is occasionally compared to the targeted enhancement of the body’s natural immune system’s response to diseases, thus rendering the PoGE-immunization analogy rather instructive to our case. Diekema contends that ‘[w]ith a few notable exceptions, the harm principle rarely provides sufficient justification for interference with parental decisions regarding immunization’. After all, proving that the child has a high probability of sustaining significant harm from non-immunization, while living in a community typically protected by ‘herd (or community) immunity’, is a difficult task. So, if this is the case with respect to health-related enhancement, imagine how unlikely it will be for pure enhancement to verge on the harm threshold in the case of parental PoGE, let alone cross it (thereby justifying state intervention).

Now, in considering PoGE-related harm to identity, it is quite difficult to envisage a threat to the postnatally enhanced child’s identity, which could be truly severe or visibly imminent enough to justify state intervention in parental GE discretion. For, plausibly, most instances of harm to the child’s identity could be classified as mere ‘disagreements’, as happens with other parental shaping decisions and actions resisted by (sufficiently mature) children. Such discord is trivial in family life and typical of it, and normally does not justify state interference. As per the ‘imminence’ factor of harm, I suppose it will rarely apply here as, typically, it takes time for one’s identity to process modifications and harmonically assimilate or utterly reject them. Namely, an injury to one’s identity (let alone a child’s) is not a distinct occurrence that one can accurately identify and attempt to remedy.

Having said that, we cannot sweepingly rule out the future advent of ‘highly disturbing’ genetic modifications (obviously, not perceived as such by enhancing parents), say, where the enhancement plan is offensive to the child and will likely trigger social rejection, or even ridicule. So, arguably, once such presumably rare genetic modifications of children surface, the state (through its health and welfare agencies) will have to assess the level of (foreseeable threat of) harm to those children and act appropriately to protect them, just as it would under other circumstances where parents’ rearing decisions seem to harm their children.

To conclude this section, since we are concerned here with GE rather than medical treatment, it would seem that the threshold for state intervention in parental GE discretion should be set much higher, i.e. any intervention should be minimal and reserved to the most extreme cases where severe tangible harm to the child has been caused already, or is reasonably foreseeable. Furthermore, as we have gathered here, the harm principle is both a threshold and a condition for state intervention. Using it to evaluate parental decision making and justify state interference in the PoGE setting may serve to dissuade overly intrusive or enthusiastic state intervention in parental autonomy and rearing discretion. However, it might also prove to be too crude and unsubtle

---

94 Although immunization can equally be construed as a preventive medical intervention that borders on enhancement.
a tool for this rather sensitive setting, which features mostly vague and highly subjective harms.\footnote{Perhaps, this is one more specific aspect with which the harm principle, under its original formulation, would be unequipped to deal. For a reference to some criticism of the harm principle’s shortcomings, see supra note 77.}

Considering the kind of PoGE-related harm that elicits state intervention, invites an interesting comparison to the circumstances in which PGE might evoke state interference. And so, after having the relevant differences between PGE and PoGE analysed in Part I, we can now proceed to examine the implications of such distinctions for the application of the \textit{parenspatriae} doctrine.

c. Justification for state intervention in pre-vs. postnatal GEs.

Typically, the liberal state treadscarefully in the field of personal liberties. It takes great pains not to intervene in its citizens’ lives for no valuable reason. For the most part, lives of \textit{specific future} citizens, naturally interconnected with the lives of their respective carrying mothers, are out of bounds for the liberal state (in contrast to legitimate state action for the benefit of future generations of its citizens, in general). Therefore, we may assume that PGE, which is closely intertwined with the reproductive process—thereby enjoying the protection of reproductive freedom (procreative liberty) as a negative right—will warrant minimal state intervention under its role as \textit{parenspatriae} (depending primarily on the state’s neutrality policy with regard to matters concerning HGE). Namely, there is very little justification for state interference in parental discretion regarding PGE of one’s future children.\footnote{For such intervention to be justified, it would require rather extreme circumstances, indicating threat to the welfare of the fetus.}

On the other hand, PoGE, where \textit{existing} (minor) individuals are involved, will be more susceptible to state scrutiny and elicit more-than-minimal state intervention, all according to the relevant laws at the time, despite being construed as a part of parental autonomy and prerogative to rear and shape one’s child.

But reproductive freedom and parental autonomy are not the only principles relevant to state intervention in relation to harm to children within the PoGE and PGE settings. Another potentially applicable notion, which gets to the core of the distinction between PoGE and PGE, and might have bearing on state intervention in this context—is Derek Parfit’s prominent nonidentity problem. In the following sections, I shall consider its relevance to our particular setting.

\textit{i. The Nonidentity Problem and its (ir)relevance to actual persons}

The nonidentity problem, as developed by Derek Parfit,\footnote{See DEREK PARFIT, REASONS AND PERSONS (1984); Melinda A. Roberts, \textit{The Nonidentity Problem}, in THE STANFORD ENCYCLOPEDIA OF PHILOSOPHY (Edward N. Zalta ed., 2009), \url{http://plato.stanford.edu/archives/fall2009/entries/nonidentity-problem/} (accessed Feb. 17, 2013).} examines “the moral status of acts whose effects are restricted to persons who, at the time the act is performed, do not yet but will exist” (emphasis added—S.T.). According to Parfit, one cannot have any grievance, even against the poorest quality of life one experiences, if living such a life is in fact a condition for one’s existence in the first place. Namely, if one’s alternative to a life that is barely worth living is \textit{non-existence}, it is strongly assumed that (even such)
existence is preferable (or, at the very least—neither better nor worse), for reasons which essentially disregard the wellbeing of particular individuals.

Now, since our setting is concerned with existence under a genetically enhanced identity description as being better than existence in its purely original form for the particular person, ie the child candidate-for-enhancement, we thus (elegantly?) evade this tricky comparison of existence, as such, with non-existence. I would now like to specifically determine the relevance (or lack thereof) of the nonidentity problem to the case of PoGE.98

\[ii. \text{The (ir)relevance of the Nonidentity Problem to PoGE}\]

It would seem, prima facie, that while the nonidentity problem could naturally be applied to the case of PGE (relating to metaphysically putative, future intended persons), its application to the case of PoGE—where existence is not pre-conditionally intertwined with genesis (procreative) decisions99—would be somewhat forced. As PoGE concerns existing actual persons, with a concrete identity and indisputable moral standing, its morality in the identity-influencing sense can more appropriately be evaluated with respect to its harm or benefit to the present enhanced minor, that is—in a person-affecting manner.

Furthermore, Parfit’s nonidentity problem deliberates on personal identity of persons strictly in the ‘numerical’ sense, whereas PoGE—the subjects of which have crossed the threshold of existence—seems to be exclusively associated with personal identity in the ‘narrative/biographical’ sense. However, Parfit’s restriction of the nonidentity problem to numerical identity does not automatically entail a failure to apply it to our case.

David Heyd suggests that we may extend the challenge of nonidentity beyond the numerical sense, to narrative identity. He does so by taking a first-person concept of identity and applying to it emotions such as envy and regret (about one’s personal course of identity formation). Heyd’s analysis demonstrates that one’s wish to be another person, biographically speaking, or regret at having reached her present biographical identity, is conceptually misleading. For one can only be, or exist, under her present identity constitution and therefore cannot logically resent her identity-fixing traits. Heyd otherwise terms it ‘the incoherence of wrongful identity claims’, since no valid interests of these individuals can be considered harmed.100

Nonetheless, while such notions prove to be incoherent, in retrospect, with regard to one’s defining identity-fixing traits (wishing for a different personal history of identity formation), they could make sense in the context of parental education. Parents typically choose for their child one of several available educational routes (say, by providing her with musical training rather than athletic training). Such a choice is well within their parental rights and autonomy and certainly within their role description. By so doing,

98 For a clear and interesting analysis of the nonidentity problem in relation to what seems to be a mirror case of PoGE—prenatal genetic intentional diminishments (‘as the antonymic concept to “enhancement”’), see I. Glenn Cohen, Intentional Diminishment, The Non-Identity Problem, and Legal Liability, 60 HASTINGS L. J. 347 (2008).

99 David Heyd terms procreative decisions to bring future persons into existence, inevitably bound together with decisions about their number and identity, as ‘genesis decisions’. See Heyd on ‘genesis problems’: Heyd, supra note 21, at 8–17, 23.

100 Id. at 171, 186–90; E-mails from David Heyd to the author (Jan. 30, 2013; Jan 31, 2013) (on file with author).
they instructively influence (from within) the identity formation of their child in a particular way.\textsuperscript{101} Such choices could hypothetically lead to two distinct, non-identical, substitutive children in terms of their biographical/narrative identity.

So, it would appear that under this particular description we may find that the non-identity conundrum can apply, albeit under some constraints, to PoGE. However, the effects of GE upon the existent child’s identity are different from those of education in certain respects,\textsuperscript{102} and therefore might yield different conclusions as to the kind of identity change they may in fact produce and their respective moral weight.

To conclude, since PoGE innately concerns indisputably and independently existing actual persons,\textsuperscript{103} rather than merely possible, potential, or future persons\textsuperscript{104} of pending, conditional existence—I commit myself here to a person-affecting approach, according to which, a choice cannot be valued as bad or as morally wrong or harmful, unless it detrimentally affects or wrongs some (actual) person—the genetically enhanced minor, in our case.\textsuperscript{105}

\textit{iii. Pre-vs. postnatal harm and the application of the parents patriae doctrine}

The harm principle, by nature, seems to be more readily applied to existing actual persons than future persons, since it appeals to harm to someone (ie a full-fledged person). In other words, it invites the question: whose, if anyone’s, rights will be infringed by a particular decision or action (to the extent warranting state coercive interference)?

Therefore, on its face, a charge of harm caused by PGE cannot be raised due to the principle underlying the nonidentity problem: the child is not harmed, by either action or omission,\textsuperscript{106} if s/he had no alternative way of being born unharmed while remaining numerically identical (ie her only alternative was annihilation in utero).\textsuperscript{107} What is more, from a practical perspective—given our the basic presuppositions made at the outset of this paper about the (future) availability of the technology of PoGE and its antecedence by PGE—presumably, most harm caused by PGE could be remedied postnatally through PoGE, thus rendering such a claim concerning the prenatal stage quite redundant.

\textsuperscript{101} Id. at 182.
\textsuperscript{102} For a comparison between education and PoGE, two forms of identity-shaping postnatal enhancements of children, see Tamir, supra note 21, at 126–31.
\textsuperscript{103} Broadly construed, however, postnatal existence could be deemed to encompass not only existing actual persons but also ‘possible persons’—defined by Heyd as ‘persons who have not yet, and may not ever, come into existence’—in the post-conceptive stage (eg frozen embryos, or fetuses). Such persons-in-the-making cannot be utterly denied having a certain (partly determined) genetic identity (as opposed to their moral standing, which is disputable), and being objects of person-affecting consideration, even if weaker than that of a child. See Heyd, supra note 21, at 97.
\textsuperscript{104} ‘Future persons’ are ‘persons who don’t yet but will exist’, who may be included under the category of actual persons. See Melinda A. Roberts & David T. Wasserman, Harming Future Persons: Introduction, in HARMING FUTURE PERSONS – ETHICS, GENETICS AND THE NONIDENTITY PROBLEM, xiii, xiii (Melinda A. Roberts & David T. Wasserman eds., Springer 2009).
\textsuperscript{105} Melinda A. Roberts, Is The Person-Affecting Intuition Paradoxical? 55 THEORY DECIS. 1, 1 (2003).
\textsuperscript{106} As per harm by omission, ie by failure to prenatally genetically enhance, I deem this to be an invalid claim of the child, as I find a claim of harm caused by not being genetically enhanced—indefensible. This is since, in my view, the child holds no such affirmative right and accordingly there is no ensuing parental duty to enhance, breach of which could cause harm to the child.
\textsuperscript{107} Robertson, supra note 1, at 474–75, 477–8, 479 & n.192 (2003).
Additionally, in the case of PoGE, the manner in which one was brought into the world and the later (consequences of) GE s/he undergoes are completely severed from one another. This, at least theoretically, allows the existent actual child to make a charge against her enhancers (parents, guardians, or the state) for significant harms caused by PoGE-related actions or omissions.\(^{108}\) However, it should be pointed out that the legitimacy of such potential charges depends on the extent and depth of GE performed on the child. That is, if PoGE creates a \textit{completely new identity}, the new person can hardly complain for having her new identity, simply because s/he is numerically the same person as the one who underwent the identity change. For instance, it is nonsensical for one to bring suit for damages against one’s enhancers for having been fully genetically modified to be a football player rather than a philosopher, since it is hard to ascribe any meaning to the argument that s/he would have been better off.\(^{109}\)

One significant implication of validating the notion of harm in the prenatal stage is that it may consequently (unjustifiably so, according to those faithful to the personhood view\(^{110}\)) invoke the \textit{parens patriae} doctrine at this rather early, ‘incomplete’ stage. This would entail meddling with prospective parents’ reproductive freedom and parental autonomy, but first and foremost—trespassing upon maternal bodily autonomy and privacy as an implication of the ‘maternal-fetal conflict’.\(^{111}\) Arguably, any such gross intervention with individuals’ fundamental liberties requires ‘good reason, grounded in widely shared and clearly understood ethical principles’.\(^{112}\) However, the state’s intervention as \textit{parens patriae} in PGE will primarily depend on its value stance on prenatal life, as manifested in its general policy and specific legislation.

The obvious example would be the highly charged pro-life policy in many US states,\(^{113}\) featuring fetal protection laws that scrutinize and restrict maternal conduct during pregnancy (eg alcohol or narcotics consumption). Such legislation expresses the state’s interest in \textit{potential} life (but without recognizing the fetus as a legal person),\(^{114}\) and effectively denies women’s right to be free from bodily restraint\(^{115}\) by granting the

\(^{108}\) Id. at 477–79 & n.192.
\(^{109}\) I thank David Heyd for this point; e-mail from David Heyd to the author (Feb. 1, 2015) (on file with author).
\(^{110}\) The personhood view holds that only existing persons—as opposed to non-existing ones—have moral standing. See Scott, supra note 40, at 30–33.
\(^{111}\) Rosamund Scott describes the ‘maternal–fetal conflict’ as applying to two senses in which prenatal harm may be caused by a pregnant woman’s (mis)conduct: (i) ‘she may refuse medical treatment, caesarean or other surgery... or a therapy that is intended to enhance fetal well-being or preserve fetal life...’ (emphasis added—S.T.); and (ii) ‘aspects of her daily life could be detrimental to the well-being of her unborn child’ (eg smoking). The question concerning our setting is whether the first sense can be broadly interpreted as encompassing ‘pure’ PGE (or rather, maternal refusal thereof). This, however, may raise a further query regarding the relevance of the performance of GE \textit{in vitro} or \textit{in utero}, for that matter. For, it could be argued that the performance of PGE \textit{in vitro} essentially nullifies any maternal–fetal conflict, unless, the PGE itself was the sole purpose for which the woman had to undergo IVF (\textit{in vitro} fertilization) with its respective risks and discomforts, in the first place. Another circumstance which could invoke a similar conflict is the woman being coerced into the GE procedure. \textit{Id.} at xxvi–xxvii.
\(^{112}\) COLIN GAVAGHAN, \textit{DEFENDING THE GENETIC SUPERMARKET: LAW AND ETHICS OF SELECTING THE NEXT GENERATION} 39, 41 (2007).
\(^{113}\) For example, presently, about 38 states have enacted fetal homicide laws. See \textit{Fetal Homicide Laws}, NCSL (Mar. 2015), \url{http://www.ncsl.org/research/health/fetal-homicide-state-laws.aspx} (accessed Dec. 30, 2014).
\(^{114}\) Scott, supra note 40, at xxxi, 214–16.
\(^{115}\) DeVille & Kopelman, supra note 86, at 332.
state the right to interfere with their autonomy, privacy and other personal liberties, under certain circumstances.

Furthermore, what is particularly disconcerting about the application of fetal protection laws is DeVille and Kopelman’s claim that ‘[t]he empirical evidence does not yet exist to justify state intrusion on an individual’s liberty interests in the ways that most proposed and enacted fetal protection legislation demands...’. ¹¹⁶ One can only assume that, similarly, such an evidential deficiency that consequently fails to meet the criteria of the ‘clear and convincing evidence standard’ will be inherent to PGE, at least at its inception, mainly because any prenatally caused harm is typically less transparent, as it occurs in utero and is fully manifested only postnatally. Consequently, the causal connection between PGE and the harm that only later (postnataally) displays itself seems ‘weaker’ or less obvious than that between PoGE and its ensuing harms. Therefore, state intrusions based upon inferred (PGE-associated) conjectural harm seem more problematic in this sense than ones based upon more evident harm. Having said that, let us not forget our earlier reservation with respect to the epigenetic approach, namely that it is qualitatively difficult to isolate PoGE-related harms from other (contributing) environmental effects.

Lastly, it should be noted that although an intractable conflict such as the ‘maternal-fetal conflict’ is not a feature of PoGE, the latter may nonetheless give rise to a parent–child conflict, making it even more susceptible to state scrutiny and intrusion upon parental discretion (given the fact that actual children are involved).

After having analysed the putative role of the state under the protective facet of the parens patriae doctrine, we shall now move on to examine the doctrine’s substitutive facet as it applies to PoGE.

### 3. The Substitutive Facet of the Parens Patriae Doctrine

#### a. The state as postnatal (genetic) enhancer.

Now, it is time to consider another facet of the putative role (and duty) of the state as parens patriae—that of a surrogate caretaker, replacing absent or underperforming (ie unenhancing?) natural parents, presumably in the child’s best interests. A parental nexus quality, if you like, as described by George Curtis.¹¹⁷ I realize that the distinction I made earlier between the protective and substitutive qualities of the state as a parent is not always clear-cut, as the two may be confounded on occasion. Yet, in this section, I would like to focus upon the less obvious putative role of the state, that of a surrogate genetic enhancer (of children in need).

For purposes of this paper, and as mentioned at the outset of this paper, I use the term ‘state-dependent children’ (SDC), for children in need of substitutive care by the state (such as neglected children, orphans, and children in foster care). This category intentionally leaves out ‘deserted’, parentless frozen embryos, which could be the potential objects of PGE. For, even if we broadly construe such potential persons as potential SDC, since ‘they’ have no claim right to be born into life, they cannot, a fortiori, have a right to be prenatally genetically enhanced by the state (nor by their genetic

---

¹¹⁶ Id. at 332, 340.
¹¹⁷ Curtis, supra note 66, at 902.
Postnatal human genetic enhancement and the parens patriae doctrine

Douglas S. Diekema defines the circumstances in which the state may act as surrogate parent by virtue of the parens patriae doctrine, as ‘such that are necessary to protect the life and health of those who cannot take care of themselves, including children’ (emphasis added—S.T.). Such interventions typically occur in cases of medical neglect of children. Diekema further adds that '[i]n general, courts . . . have typically given great discretion to parents in situations that are not imminently life-threatening.'

Presumably, PoGE—being superfluous in nature and purely elective—typically will not generate such radical endangering circumstances, thereby avoiding the requirement of necessity of safeguarding the child’s life and health that would justify state intervention under the capacity of parental substitution. However, I am focusing here on the non-protective designation of the parens patriae doctrine, with respect to which I shall now consider the obligations of the state within the context of PoGE.

i. A State’s Obligation (?) to Genetically Enhance SDC

In this section, I attempt to answer the following question: Could we accept a claim that the state is duty-bound, within its surrogate role, to genetically enhance SDC who have not (yet) been enhanced in this fashion by their natural parents? In other words, can it be construed as part of the state’s duties?

Intuitively, we may attempt to answer the question by drawing an analogy to natural parents’ duties in this respect. Namely, if we find that parents are under a legal duty to genetically enhance their offspring then we might infer that similar reasoning applies to the state as a substitute parent, that is, recognize a matching duty of the state. But, such an inference calls for caution, since state and parents’ duties do not necessarily overlap in scope, content, or nature of the commitment. The state’s obligations and interests are broader and more general, and its commitments to its citizens’ wellbeing—in impersonal, in two senses: they are political and societal in nature, as well as lacking sentiment. The parents’ obligations and interests, on the other hand, are much narrower, being individual and familial, and their commitments are ‘local’ and personal in nature, ie primarily applying to their children and the family unit, being the product of parental sentiments.

However, notwithstanding the shortcomings of said analogy, and although parental duties in this respect are beyond the scope of this paper, I would assume that parental childrearing duties, even broadly construed, would not encompass a parental positive duty to genetically enhance one’s children, postnatally. My assumption draws on present-day legal reality (admittedly, such reality is prone to some change with the advent of PoGE technology), where parents, despite the availability of less sophisticated, more affordable and accessible ways of enhancement are not legally obligated to ameliorate their children’s lives, but merely to provide those commonly consensual

---

118 While it is possible that Diekema was in fact referring here to the protective facet of the parens patriae authority rather than the substitutive facet, despite his choice of words (‘surrogate parent’), it is also possible that he simply does not distinguish between the protective and substitutive features of the doctrine.

119 Diekema, supra note 74, at 244–45 to 248–49.

120 As per a parental moral obligation to (genetically) enhance one’s children, there are a few scholars who find such parental duty, warranted and defensible. See eg John Harris, Enhancements Are a Moral Obligation, in HUMAN ENHANCEMENT 131 (Julian Savulescu & Nick Bostrom eds., 2009); Julian Savulescu, Proactive Beneficence: Why We Should Select the Best Children, 15 BIOETHICS 413 (2001); Julian Savulescu, New Breeds of
children’s necessities, such as elementary food, shelter, clothing, healthcare, and education; arguably, to the best of their ability. In other words, we cannot attribute a parental duty of PoGE to any existing framework of parental duties. (Theoretically, it could be the case that a specific novel duty is warranted here, but this merits a separate discussion.) This could imply that if natural parents cannot be held obligated to genetically enhance their children, then the state cannot a fortiori, given its broader obligations and ‘detached’ commitments, be obligated to (genetically) enhance SDC.

Another argument against deeming the state duty-bound to provide PoGE for SDC could be based on the correlativity thesis (holding that to every right there is a matching duty), in the sense that such state duty would correlate with a child’s right to be genetically enhanced. Now, although we do not necessarily commit ourselves to the correlativity thesis, we certainly deem this possibility one that ought to be taken into account when contemplating the recognition of a positive right, which might be a ground for a corresponding action-demanding duty. Again, the issue of children’s rights regarding their own GE, merits separate attention. I shall therefore only note that I similarly assume that a child’s positive claim right to be genetically enhanced, against either parents or the state, will not be recognized, for reasons of being excessive and overdemanding. The realization of such a right would undoubtedly entail considerable human and financial resources. These are typically limited and subject to state discretion and its authority to prioritize competing needs of its citizens, as well as those of the state as a whole, and to allocate its resources according to varying circumstances.

This would pull the rug from under any such purported correlative duty to be laid upon the state, and it will therefore be equally exempt (just as natural or adoptive parents are) from such a duty towards SDC.

Admittedly, though, duties are not always correlative to rights and this could be one such typical case of non-correlativity. However, this might generate an odd asymmetrical outcome, where the state is duty-bound to provide PoGE for SDC, whereas natural or adoptive parents would not be similarly duty-bound towards their own children. And while symmetry, just like correlativity, is not necessary, and as we have cautiously noted that parents’ and state’s duties do not necessarily overlap, since we are dealing here with non-essential goods, it is hard to accept that such would be the object of state obligations, where parents are exempted.

On their face, these conclusions narrow the duty of the state acting as parentes patriae under the description of a substitute enhancer for SDC. Such a duty may potentially be recognized, for instance, where future society deems certain types of GE a standard sine qua non necessity (notwithstanding its non-therapeutic, elective characterization), and hence the objects of children’s rights, in which case, as mentioned earlier, an appropriate proactive parental duty to genetically enhance will be morally and legally acceptable. Now, under such circumstances we might consider a parallel positive duty of the state to genetically enhance SDC with some basic GE package, in order for them not to be positively harmed or become worse off than their peers (non-SDC, postnatally genetically enhanced)...

---

*Humans: The Moral Obligation to Enhance*, 10 Reprod. Biomed. Online 36 (2005); Larry A. Herzberg, *Genetic Enhancement and Parental Obligation*, 14 Philos. Contemp. World 98 (Fall 2007).

121 For a comprehensive analysis of the child’s putative right to be genetically enhanced postnatally, see Tamir, supra note 21, at 166–92.
enhanced by their parents). In fact, in the case of such standard *sine qua non* necessity of specific PoGEs, we could quite easily forfeit the requirement for correlativity of rights and duties, and acknowledge such a state duty even where, despite their essentiality or extreme desirability, certain GEIs will not be recognized as part of children’s rights. From the state’s broader social perspective, such a duty—either correlative or non-correlative—could remedy to some extent the involuntary discrimination that is somewhat inherent to the status of SDC, thus putting them on a par with non-SDC and allowing them (near) equal opportunity.

### ii. Determining the contents of the GE package

The chief policy implication of holding the state duty-bound to genetically enhance SDC with an elementary GE package—as the reader may recall from our earlier analysis of ‘natural primary goods’, is that it requires an identification of such uncontroversial and widely agreed upon traits for enhancement, that are so basic (eg health and certain cognitive capacities) as to be pronounced essential for inclusion in an elementary ‘enhancement package’ provided (or heavily subsidized) by the state. Besides being a challenging task in various respects, determining a list of ‘natural primary goods’ for GE, which are deemed sufficiently justified to dismiss the (authoritarian-) eugenics-scare—will undoubtedly be a highly sensitive and charged task. Now, while this may be yet another hypothetical challenge—the details of which are somewhat unimportant for our present discussion—it would seem that keeping such a list to a minimum would be one of the main goals of its drafters, for the following reasons (this is possibly a non-exhaustive list): (i) Consistency with the typically limited obligations of the state acting as *parens patriae*, to provide for SDC beyond what is necessary; (ii) Neutrality policy. Assigning the state such a task implies the adoption of a perfectionist policy with respect to HGE. What is more, selecting any, or more than a few, specific natural primary goods to be genetically enhanced among the populace of a certain society can easily turn into a coercive, perfectionist eugenic policy—one that has no place in liberal societies. This concern, relating to the number of selected ‘natural primary goods’ for GE, is complementary to that concerning the eugenics-scare mentioned a few lines above, having to do with the nature of the selected ‘natural primary goods’ (as a justification for its dismissal); (iii) Autonomy. Earlier in this paper, I have supported Joseph Raz’s version of a restrained perfectionist policy, delineated and limited by respect for autonomy (and the harm principle). Obviously, the narrower the list of ‘natural primary goods’ the more personal and parental autonomy can be maintained. And this is a concern since, although we are dealing here with the state’s obligations as an enhancer, such a list, once determined, will primarily oblige parents, not only the state; which leads us to the last reason—(iv) Pragmatism. The list should be as narrow as possible in order to avoid overburdening parents or the state.

---

122 Notably, the recognition of PoGE as a *sine qua non* necessity, aside from invoking a parallel duty of the state to genetically enhance SDC with a basic GE package, may also consequently broaden the scope of the application of the *parens patriae* doctrine, under both the protective and substitutive descriptions, to other general benefitting children’s rights, such as the right to develop and thrive physically and mentally, etc. This is a ‘slippery-slope’ type of policy implication that is worthy of consideration in ascribing a value of essentiality to PoGE.
Finally, after this review of the state’s obligations in acting as *parens patriae*, in both its protective and (parent-) substitutive roles, it should be generally noted that in comparing the two, one may find that they are for good reason inconsistent with one another in certain respects. For instance, the state in its protective role is required to consider the interests of other stakeholders (eg other citizens, as well the state as a whole), primarily those of the (protected) child’s parents; whereas in its substitutive role, the interests of the (absent) parents are obviously disregarded. Furthermore, in the former setting where the state’s intervention is warranted to protect the child from harm caused to her by her parents, such interference is typically limited to the harmful parental decision/action, thereby leaving the parent as the principal caregiver\(^{123}\) for the child in all other respects. (Obviously, this all depends on the severity of the consequences, or the threat to the wellbeing of child and society.) In the latter substitutive setting, however, the state’s responsibility for the child is greater and so is the scope of its obligation to function as a surrogate parent via its human service agencies. It therefore intervenes, ie assumes control of the situation, in an overwhelming manner, in comparison to its more restricted intervention in the protective setting.

**CONCLUSION**

This paper has aimed to analyse the nature, scope and limits of the role of the state acting as *parens patriae*, with respect to the future-looking technology of PoGE, applied to children.

The fresh focus on PoGE distinctively from PGE, which seemingly dominates the HGE debate, has required a broad introduction in which PoGE, although featured mostly by analogy to PGE and other (non-genetic) postnatal enhancements, was given independent standing.

I then briefly addressed the issue of state neutrality as a threshold condition for state intervention in PoGE of children. I have concluded that strict, *pure* neutrality, is nonsensical, as well as unattainable and undesirable in the context of PoGE, and that the only way to realize any (political or moral) neutrality of the state, is by paradoxically accepting an *imperfect* version of it; such that occasionally allows for differential implementation of restrained state perfectionism.

Acknowledging the impracticality of nil state intervention, I turned to analysing on what terms the state can legitimately interfere with the practice of HGE and PoGE, in particular, via the *parens patriae* doctrine; distinguishing between its two facets: the protective and the substitutive facet.

As regards the protective facet, I have concluded that the threshold for state interference in parental GE discretion, in general, should be set high, namely that any intervention should be minimal and reserved to the most extreme cases where severe tangible harm to the child has been caused already, or is reasonably foreseeable. I have also determined that, in contrast to PGE—where there is very little justification for state interference in parental discretion—PoGE, where existing actual (minor) individuals are involved, will be more susceptible to state scrutiny and could potentially elicit more-than-minimal state intervention (although the resultant/foreseeable harm that is most

\(^{123}\) The term ‘principal caregiver’ should be read literally as within a social context and not necessarily construed as the legal term.
highly associated with PoGE—harm to the child’s identity—may prove difficult to establish).

As far as the substitutive facet of parens patriae is concerned, I have argued, while acknowledging the shortcomings of the analogy, that since we cannot readily (at this point in time, at least) find parents obligated to genetically enhance their offspring themselves, the state acting as parens patriae will be respectively exempt from such a duty towards SDC. Unless, that is, certain types of GE become a standard sine qua non necessity (typically thus determined by the state), in which case parents and state will be equally obligated to provide children with GE, all to a predetermined limited extent.

ACKNOWLEDGEMENTS
This paper is based on my doctoral research carried out in the Law Faculty at the Hebrew University of Jerusalem, under the supervision of David Heyd and Alon Harel. I am deeply grateful to them both for providing invaluable advice and insightful observations, which have (non-genetically) enhanced my work. I would also like to thank the two anonymous reviewers for their helpful suggestions and constructive comments.