ARTIFICIAL RIGHTS: POTENTIAL IMPLICATIONS OF COMPELLED FETAL EXTRACTION AND ARTIFICIAL GESTATION FOR REPRODUCTIVE AUTONOMY IN THE WAKE OF *WHOLE WOMEN'S HEALTH V. HELLERSTEDT*

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I. INTRODUCTION

In April 2017, researchers at the Children's Hospital of Philadelphia ("CHOP") announced the successful gestation of lamb fetuses in an artificial womb to the equivalent of a 23- to 24-week-old human fetus.[1] Although researchers have been developing artificial wombs for many years,[2] this marked the first time that a mammal successfully gestated in an artificial womb to the point equivalent to human fetal viability.[3] The CHOP researchers aspire to transfer premature human fetuses into artificial wombs within three to five years from now so that these fetuses can avoid the severe and likely health complications that come with extremely premature birth.[4]

Ectogenesis, the process of raising a human fetus outside of the human body in an artificial womb, was first conceived of in the 1920s but has only

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[1] CHOP News, *A Unique Womb-Like Device Could Reduce Mortality and Disability for Extremely Premature Babies*, CHILD. HOSP. PHILA. (Apr. 25, 2017), http://www.chop.edu/news/unique-womb-device-could-reduce-mortality-and-disability-extremely-premature-babies.

[2] Rob Stein, *Scientists Create Artificial Womb That Could Help Prematurely Born Babies*, NPR (Apr. 25, 2017, 11:10 AM), http://www.npr.org/sections/health-shots/2017/04/25/525044286/scientists-create-artificial-womb-that-could-help-prematurely-born-babies.

[3] *See* Emily A. Partridge et al., *An Extra-Uterine System to Physiologically Support the Extreme Premature Lamb*, NATURE COMMS., Apr. 25, 2017, at 1, 2.

[4] CHOP News, *supra* note 1.

recently seen successful gestation of mammals.[5] Despite the noble goal of saving premature babies that human ectogenesis will serve, the emergence of the artificial womb poses serious questions on how it will influence the current state of reproductive rights. Although the right of a pregnant person[6] to end a pregnancy before the point of fetal viability is protected by the Due Process Clause of the Fourteenth Amendment,[7] the state's legitimate interest in protecting fetal life allows it to enact abortion restrictions that do not unduly burden the pregnant person's choice in the matter.[8] Between 2011 and 2015, 288 abortion restrictions became law across the United States,[9] and 63 more were enacted in 2017 alone.[10] Could the artificial womb be used as another abortion restriction by mandating its use? While researchers at CHOP claim to have no intention of developing artificial wombs for nonviable fetuses[11] (fetuses that have gestated 23 weeks or fewer),[12] there is nothing to suggest that their intentions will stop other researchers from trying to build upon their successes. Even if such attempts are unsuccessful, artificial gestation could still be used to undermine the reproductive rights of pregnant people in the second and third trimesters of their pregnancies, which are already heavily burdened by "late-term" and 20-week abortion bans in a significant number of states.[13]

This Note will discuss the implications of artificial gestation on the reproductive rights of procreation and abortion. This includes discussion on how a reading of the right to procreate as inclusive of the right to avoid genetic parenthood could render state-compelled fetal extraction and

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[5] *See* Zoltan Istvan, *Artificial Wombs are Coming, But the Controversy is Already Here*, MOTHERBOARD (Aug. 4, 2014, 1:26 PM), https://motherboard.vice.com/en_us/article/8qx8kk/artificial-wombs-are-coming-and-the-controversys-already-here.

[6] Although many frame abortion as a woman's right to choose, I have elected to use gender-neutral terminology rather than "women" to describe people who can get pregnant to recognize not all people who can get pregnant identify as women. Transgender men and gender non-conforming people with uteruses, as well as cisgender women, can all become pregnant and, thus, will all be affected by artificial gestation and any impact it has on their abortion rights.

[7] Planned Parenthood of Southeastern Pennsylvania v. Casey, 505 U.S. 833, 846 (1992).

[8] *Id.* at 878–79.

[9] *State Policies on Abortion*, GUTTMACHER INST., https://www.guttmacher.org/united-states/abortion/state-policies-abortion (last visited Apr. 17, 2019).

[10] Elizabeth Nash et al., *Policy Trends in the States, 2017*, GUTTMACHER INST. (Jan. 2, 2018), https://www.guttmacher.org/article/2018/01/policy-trends-states-2017.

[11] CHOP News, *supra* note 1.

[12] *Id.*

[13] *See generally State Policies on Later Abortions*, GUTTMACHER INST., https://www.guttmacher.org/state-policy/explore/state-policies-later-abortions (last updated Apr. 1, 2019) (providing a comprehensive list of abortion restrictions late in fetal viability and post-viability by state).

artificial gestation unconstitutional if the Supreme Court's most recent abortion rights decision in *Whole Women's Health v. Hellerstedt*[14] fails to do so. Throughout the Note, "compelled fetal extraction and artificial gestation" refers to a hypothetical scenario in which the federal or state government would require people seeking to end their pregnancies to have their fetuses surgically removed and placed in artificial wombs, whereupon fetal gestation would continue. While this scenario is indeed hypothetical, I argue that recent advances in artificial womb technology, evidenced by CHOP researchers' recent development in gestating lamb fetuses, demonstrates that eventual artificial gestation is inevitable, even if not right around the corner. Moreover, it is always worth knowing the structure of basic concepts, like procreational and reproductive autonomy, before they are pushed beyond our current understandings.

Part II will discuss the right to procreate, protected in the Fourteenth Amendment's Due Process Clause, and how that right inherently includes a right to avoid procreation, which subsequent state decisions have read into the protection. Then, Part III will examine the genesis of the undue burden framework in *Planned Parenthood v. Casey*[15] and discuss the implications of its emphasis on the unclear concept of viability. It will also review the application of *Casey*'s undue burden test in *Whole Women's Health*, examining its emphasis on comparative health benefits in its determination that the statute at issue was unduly burdensome on the right to an abortion. Part IV will then chronicle recent advances in ectogenetic technology and discuss the constitutional interests and questions raised by the possibility of compelled fetal extraction and artificial gestation, should such a procedure be mandated by the state as the only way for a pregnant person to end a pregnancy. This discussion will involve tracing the connection between abortion and procreation rights. Finally, Part V will explore the potential implications of compelled fetal extraction and partial artificial gestation, dependent on artificial gestation's effect on the definition of the ambiguous concept of fetal viability. It concludes that if fetal viability is dependent on the ability to survive apart from any sort of gestation—which is how viability should be defined—*Whole Women's Health*'s focus on comparative health benefits clearly proscribes any state efforts to compel fetal extraction and artificial gestation on non-consenting pregnant people.

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[14] Whole Women's Health v. Hellerstedt, 136 S. Ct. 2292 (2016).

[15] Planned Parenthood of Southeastern Pennsylvania v. Casey, 505 U.S. 833 (1992).

II. PROCREATIONAL AUTONOMY

A. THE CONSTITUTIONAL RIGHT TO PROCREATE

The Supreme Court first recognized the concept of procreational autonomy in *Skinner v. Oklahoma*, in which it invalidated a compulsory sterilization statute after recognizing procreation as "one of the basic civil rights of man."[16] This recognition established a right of procreation in the Fourteenth Amendment of the United States Constitution. The Court did not formally limit *Skinner*'s holding to cases in which the state involuntarily sterilizes an individual, but it has not revisited its procreation doctrine since.

Thirty years later, *Eisenstadt v. Baird* proclaimed, "if the right of privacy means anything, it is the right of the *individual*, married or single, to be free from unwarranted governmental intrusion into matters so fundamentally affecting a person as the decision whether to bear or beget a child,"[17] citing *Skinner* as supporting authority.[18] Read narrowly, *Eisenstadt* could be construed as pertaining only to the right of an unmarried person to access contraceptives; however, *Roe v. Wade* established that the right to make decisions pertaining to one's procreation was encompassed by the right to privacy, existing in the Fourteenth Amendment's concept of personal liberty.[19]

The right to procreate is the right to choose "against state interference . . . to procreate or to avoid procreation."[20] After pregnancy has occurred, procreation can be avoided only through termination of the pregnancy,[21] and procreation can no longer be avoided when a child is born.[22] Although avoiding procreation has not been explicitly read into the document of procreational autonomy by the Supreme Court, legal protections of the individual right to avoid procreation exist at both the federal and state level.[23] Such protections have not yet been expanded to include the right to

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[16] Skinner v. Oklahoma, 316 U.S. 535, 541 (1942).

[17] Eisenstadt v. Baird, 405 U.S. 438, 453 (1972) (emphasis included in original).

[18] *Id.* at 454.

[19] Roe v. Wade, 410 U.S. 113, 153 (1973).

[20] JOHN A. ROBERTSON, CHILDREN OF CHOICE: FREEDOM AND THE NEW REPRODUCTIVE TECHNOLOGIES 23 (1994).

[21] *Id.* at 26.

[22] *See id.* ("Once a child is born, procreation has occurred, and the procreators ordinarily have parenting obligations.").

[23] *See id.* at 28 ("It is clear [in *Griswold v. Connecticut*] that the Court was protecting the right of persons who engage in sexual intimacy to avoid unwanted reproduction . . . Both men and women are deemed owners of gametes within or outside of their bodies, so that they may prevent them from being used for reproduction without their permission. Men and women also have rights to

avoid genetic parenthood through state-mandated fetal extraction and artificial gestation, simply because the issue has not yet been raised before the Court. However, without more explicit and robust protections of the right to avoid procreation, the procreational autonomy of pregnant people seeking abortions can and will be deprived should lawmakers use artificial womb technology to restrict their rights.

B. RECOGNITION OF THE RIGHT NOT TO PROCREATE: *DAVIS V. DAVIS*

Is the right to avoid procreation of equal stature to the constitutional right to procreate? While neither *Roe* nor any subsequent Supreme Court decision has explicitly held that the right to procreate includes the right to avoid procreation, several state court decisions have "drawn on *Roe* and its progeny" to find that such a right does exist;[24] the Supreme Court of Tennessee is notable for doing so. In *Davis v. Davis*, a case involving a dispute between two genetic parents over the fate of embryos conceived through in vitro fertilization ("IVF"), the Supreme Court of Tennessee held that the right of procreation, which encompassed both the right to procreate and the right not to procreate, was a vital part of an individual's right to privacy.[25] The court there found that the genetic father's interest in avoiding biological parenthood outweighed the genetic mother's interest in donating the IVF embryos, and that donating the embryos would rob the genetic father of his procreational autonomy while the genetic mother's procreational autonomy would remain intact regardless of the outcome.[26]

Although the *Davis* court narrowly crafted its holding to "disputes involving the disposition of pre[-]embryos produced by in vitro fertilization,"[27] consideration of *Davis* as persuasive authority could produce case law that recognizes the right to avoid genetic parenthood as a procreational right protected by the Fourteenth Amendment of the United States Constitution. Such a holding could prevent the state from compelling fetal extraction and artificial gestation should the technology upend

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prevent extracorporeal embryos formed from their gametes from being placed in women and brought to term without their consent.").

[24] Mary Ziegler, *Abortion and the Constitutional Right (Not) To Procreate*, 48 U. RICH. L. REV. 1263, 1304 (2014).

[25] Davis v. Davis, 842 S.W.2d 588, 601 (Tenn. 1992).

[26] *Id. Contra* CFH 2401/95 Nahmani v. Nahmani 50(4) PD 661 (1996) (Isr.) (awarding the disposition of pre-embryos to the genetic parent who wished to use them to procreate, against the wishes of the genetic parent who wished to avoid procreation, based in part upon the Israeli legal system's recognition of parenthood as an important value and failure to recognize avoiding parenthood as a value at all).

[27] *Davis*, 842 S.W.2d at 604.

American abortion jurisprudence.[28] Since the pre-embryos at issue in *Davis* were not yet implanted into a womb, fetal development was not already underway, which may explain why the *Davis* court held so narrowly that the right not to procreate would be infringed upon by the implantation of pre-embryos. In cases involving fetal extraction and compelled artificial gestation, based on the goals and foresight of scientists developing artificial womb technology, fetal development will have progressed to a point at which a fetus has a small chance of survival outside of the womb.[29] However, this makes this procedure's infringement on procreational autonomy even more flagrant: more advanced fetal development demonstrates that procreation has already begun, and although the pregnancy could have been terminated earlier if the pregnant person had the choice to do so, the state elected to extend procreation unnecessarily. In *Davis*, Junior Davis's procreational autonomy would have been infringed upon by the implantation of his pre-embryos because he would have become a genetic parent against his will.[30] Thus, even if compelled fetal extraction and artificial gestation is held not to infringe upon a pregnant person's right to abortion, it would not withstand judicial scrutiny because of its infringement on procreational autonomy.

III. AMERICAN ABORTION JURISPRUDENCE

A. FROM *ROE* TO *CASEY*: NEW EMPHASIS ON FETAL VIABILITY AND THE SHIFT TO THE UNDUE BURDEN FRAMEWORK

Roe v. Wade established that the right of a pregnant person to have an elective abortion was a fundamental right, implicit in the Fourteenth Amendment of the Constitution.[31] As such, Texas's abortion restrictions received strict judicial scrutiny,[32] and the Texas government was tasked with demonstrating that its interests in the "protection of the health and safety of the pregnant [person], and protection of [the fetus]" were compelling.[33]

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[28] *See infra* Part V.

[29] *See supra* Part I.

[30] *Davis*, 842 S.W.2d at 604.

[31] Roe v. Wade, 410 U.S. 113, 152–54 (1973). *But see* Planned Parenthood of Southeastern Pennsylvania v. Casey, 505 U.S. 833, 869 (1992) (holding, in part, that the state's interest in the health of the pregnant person and potential fetal life did not have to be "compelling" to withstand judicial scrutiny).

[32] *See Roe*, 410 U.S. at 170 (establishing that the Texas abortion restrictions were required by the Fourteenth Amendment to satisfy "particularly careful scrutiny").

[33] *Id.*

In an effort to reconcile the legitimate state interests in the health of pregnant people and fetal life with the pregnant person's right to choose abortion, the Court established points in the gestational timeline in which the government's interests became compelling. The Court established that the state's interest in protecting the health of a pregnant person was not compelling until "approximately the end of the first trimester."[34] This meant that during the first trimester of pregnancy, the abortion decision was to be made by the pregnant person and the attending physician, free from regulation by the state.[35] After the first trimester, the state's legitimate interest in the health of the pregnant person became "compelling," leaving the state free to regulate abortion "to the extent that the regulation reasonably relates to the preservation and protection of [the health of the person seeking the abortion]."[36] Finally, the government's interest in potential life was not compelling until fetal viability, defined as when "the fetus . . . presumably has the capability of meaningful life outside the [pregnant person]'s womb."[37]

Abortion restrictions across the United States were established pursuant to this framework (and struck down by the Court when in violation thereof)[38] until *Planned Parenthood v. Casey* was decided nearly two decades later. In *Casey*, the Court held that abortion restrictions did not have to survive strict scrutiny to be deemed constitutional,[39] making abortion no longer a fundamental right but a liberty interest. The Court also departed from *Roe*'s use of trimesters to determine the legitimacy of the state's interest in fetal life, which the *Casey* Court considered as not part of *Roe*'s

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[34] *Id.* at 163.

[35] *Id. Contra* Connecticut v. Menillo, 423 U.S. 9, 11 (1975) ("But the insufficiency of the State's interest in [the health of the pregnant person] is predicated upon the first trimester abortion's being as safe . . . as normal childbirth at term, and that predicate holds true only if the abortion is performed by medically competent personnel under conditions insuring maximum safety for the [pregnant person.]").

[36] *Roe*, 410 U.S. at 163.

[37] *Id.*

[38] Planned Parenthood of Southeastern Pennsylvania v. Casey, 505 U.S. 833, 871 (1992). *See also* Planned Parenthood of Central Missouri v. Danforth, 428 U.S. 52, 85 (1976) (upholding a Missouri requirement that a pregnant person give informed consent, in writing, to an abortion procedure); City of Akron v. Akron Ctr. for Reprod. Health, 462 U.S. 416, 438–39 (1983) (holding that an Ohio state law requiring second-trimester abortions to be provided in a hospital was unconstitutional in the absence of evidence that these abortions could not be safely performed in an outpatient facility); Thornburgh v. Am. Coll. of Obstetricians and Gynecologists, 476 U.S. 747, 762–64 (1986) (striking down a Pennsylvania law requiring medically unnecessary information "under the guise of informed consent" to be given to a pregnant person by a physician prior to the abortion procedure, finding that the requirement did not advance a legitimate state interest because the information being disseminated was unnecessary to obtain informed consent).

[39] *Casey*, 505 U.S. at 871 (citing *City of Akron*, 462 U.S. at 427).

essential holding.[40] Instead, the Court held that the "viability" of the fetus determined when the state's interests in protecting the health of the pregnant person and the life of the fetus outweighed the pregnant person's right to choose abortion.[41] Similar to the *Roe* Court's definition of viability,[42] the *Casey* Court defined viability as "the time at which there is a realistic possibility of maintaining and nourishing a life outside the womb, so that the independent existence of the second life can in reason and all fairness be the object of state protection that now overrides the rights of the [person seeking an abortion]."[43] In other words, the state may restrict and even proscribe the abortion of a viable fetus,[44] since at viability, a pregnant person's interest in abortion is outweighed by the state's interest in protecting fetal life.[45]

Even so, under *Casey*, a pregnant person's right to choose abortion will still override the legitimate state interest in protecting fetal life so long as the fetus is not viable.[46] During that time, the state may restrict abortion only to ensure that a pregnant person's choice is informed—even through persuasion of choosing childbirth over abortion—and "to further the health or safety of a [person] seeking an abortion."[47] However, such abortion restrictions are unconstitutional if they impose an undue burden on pregnant people seeking to exercise their right to choose.[48] A state regulation is unduly burdensome if it has the "purpose or effect of placing a substantial obstacle in the path of a [person] seeking an abortion of a nonviable fetus."[49]

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[40] *Id.* at 873 ("We reject the trimester framework, which we do not consider to be part of the essential holding of *Roe* . . . in its formulation it misconceives the nature of the pregnant [person]'s interest; and in practice it undervalues the State's interest in potential life, as recognized in *Roe*.").

[41] *Id.* at 870–71.

[42] Roe v. Wade*,* 410 U.S. 113, 163 (1973) (defining viability as when the fetus "presumably has the capability of surviving outside the [pregnant person]'s womb.").

[43] *Casey*, 505 U.S. at 870.

[44] *Id.*

[45] *Cf id.* at 860 ("[V]iability marks the earliest point at which the State's interest in fetal life is constitutionally adequate to justify a ban on nontherapeutic abortions.").

[46] *Cf. id.* ("[T]he line should be drawn at viability, so that before that time the [pregnant person] has a right to choose to terminate . . .").

[47] *Id.* at 878. *But see* Gonzales v. Carhart, 550 U.S. 124, 158 (2007) (allowing the government to ban certain abortion methods that "devalue human life" regardless of fetal viability) ("[T]he State, from the inception of the pregnancy, maintains its own regulatory interest in protecting the life of the fetus that may become a child, [which] cannot be set at naught by interpreting Casey's requirement of a health exception so it becomes tantamount to allowing a doctor to choose the abortion method [that the doctor] might prefer.").

[48] *Casey*, 505 U.S. at 877.

[49] *Id.*

B. *WHOLE WOMEN'S HEALTH V. HELLERSTEDT* AND COMPARATIVE HEALTH BENEFITS

Whole Women's Health v. Hellerstedt[50] was decided in 2016, at a time when over a quarter of all abortion restrictions in the United States were enacted in the five years preceding the case.[51] In *Whole Women's Health*, the United States Supreme Court held that provisions of a Texas statute that required abortion-providing facilities to meet the licensing requirements of ambulatory surgical centers[52] and required individual abortion providers to obtain admitting privileges at a local hospital[53] presented an unconstitutional "undue burden" on those seeking an abortion in the state.[54] The Court concluded that the statute's negligible health benefits, contrasted with its effect of shutting down otherwise safe and functional abortion facilities, constituted an unconstitutional substantial obstacle to those seeking abortions:

> [I]n the face of no threat to [abortion-seekers'] health, Texas seeks to force [abortion-seekers] to travel long distances to get abortions in crammed-to-capacity superfacilities. Patients seeking these services are less likely to get the kind of individualized attention, serious conversation, and emotional support that doctors at less taxed facilities may have offered. . . . [S]urgical centers

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[50] Whole Women's Health v. Hellerstedt, 136 S. Ct. 2292 (2016).

[51] *See Last Five Years Account for More Than One-quarter of All Abortion Restrictions Enacted Since* Roe, GUTTMACHER INST. (Jan. 13, 2016), https://www.guttmacher.org/article/2016/01/last-five-years-account-more-one-quarter-all-abortion-restrictions-enacted-roe (providing data showing that 27% of all abortion restrictions currently in effect in the United States were enacted between 2010 and 2015, before *Whole Women's Health* was decided).

[52] TEX. HEALTH & SAFETY CODE ANN. § 245.010(a) (West through the end of the 2015 Regular Session of the 84th Legislature), *invalidated by* Whole Women's Health v. Hellerstedt, 136 S. Ct. 2292 (2016). The ambulatory surgical center requirement would have imposed "extensive new standards" on abortion providers, regardless of whether they provided medication or surgical abortion, by requiring "electrical, heating, ventilation, air conditioning, plumbing, and other physical plant requirements as well as staffing mandates, space utilization, minimum square footage, and parking design." Whole Woman's Health v. Lakey, 46 F. Supp 3d 673, 682 (W.D. Tex. 2014), *rev'd sub nom.* Whole Woman's Health v. Cole, 790 F.3d 563 (5th Cir. 2015), *rev'd sub nom.* Whole Women's Health v. Hellerstedt, 136 S. Ct. 2292 (2016).

[53] TEX. HEALTH & SAFETY CODE ANN. § 171.0031(a)(1)(A) (West through the end of the 2015 Regular Session of the 84th Legislature), *invalidated by* Whole Women's Health v. Hellerstedt, 136 S. Ct. 2292 (2016). According to president and CEO of Whole Women's Health, Amy Hagstrom Miller, hospitals have a financial incentive to deny admitting privileges to abortion providers because "hospitals grant privileges to doctors who can bring in business." Ben Philpott, *Issue in Texas Abortion Debate: What's an Ambulatory Surgical Center?*, KUT 90.5 (Jul. 5, 2013), https://www.kut.org/post/issue-texas-abortion-debate-whats-ambulatory-surgical-center.

[54] *Whole Women's Health*, 136 S. Ct. at 2300.

> attempting to accommodate sudden, vastly increased demand, may find that quality of care declines. . . . [T]hese effects would be harmful to, not supportive of, . . . health.[55]

In its decision, the Court reaffirmed that unnecessary health regulations that place a substantial obstacle on someone seeking an abortion impose an undue burden on that right.[56] This reaffirmation suggests that the safety of an abortion procedure and a restriction's effect on the accessibility of safe abortion matters in determining a restriction's constitutionality—a suggestion that must be considered when considering the process that a pregnant person would have to undergo should artificial gestation be compelled by the state.

Casey's emphases on viability and the undue burden framework remain the law of the land today. Although *Whole Women's Health* saw two major abortion restrictions in Texas struck down as unconstitutional under the undue burden framework, hundreds of pre-viability abortion restrictions are legal across the United States.[57] Since 2011, at least 401 abortion restrictions have been adopted by state legislatures,[58] and over half of all states are considered hostile to abortion rights for having at least four major abortion restrictions.[59]

If technology advances to the successful artificial gestation of human fetuses, states could attempt to restrict abortion by requiring that the fetus removed in an abortion procedure be transferred to an artificial womb in order to prevent the loss of fetal life. However, if such a procedure is found to pose serious health risks to the pregnant person or to eradicate otherwise

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[55] *See id.* at 2318 (internal citations omitted).

[56] *Id.*; Planned Parenthood of Southeastern Pennsylvania v. Casey, 505 U.S. 833, 878 (1992) ("Unnecessary health regulations that have the purpose or effect of presenting a substantial obstacle to a [person] seeking an abortion impose an undue burden on the right.").

[57] *Whole Women's Health*, 136 S. Ct. at 2300.

[58] Nash et al., *supra* note 10 (discussing state abortion restrictions from January 2011 through the end of 2017; more restrictions have been enacted since).

[59] *Id.* at n.1. The 10 major abortion restrictions are:

> Requiring parental involvement before a minor's abortion; mandating medically inaccurate or misleading proabortion counseling; requiring a waiting period after abortion counseling at a clinic, thus necessitating two trips to the facility; mandating a non-medically indicated ultrasound before an abortion; banning Medicaid funding of abortion except in cases of life endangerment, rape or incest; restricting abortion coverage in private health plans; imposing medically inappropriate restrictions on medication abortion; requiring onerous and unnecessary regulations on abortion facilities; imposing an unconstitutional ban on abortion before viability or limits on abortion after viability; and enacting a preemptive ban on abortion if *Roe v. Wade* is overturned.

Id.

safe abortion, *Whole Women's Health* could preclude compelled fetal extraction and artificial gestation.

IV. ARTIFICIAL GESTATION

A. SCIENTIFIC DEVELOPMENTS

The term "ectogenesis" was first coined in 1923 by British scientist J.B.S. Haldane in his essay *Daedalus, or Science and the Future*, in which he predicted that the first person born of ectogenesis would occur in 1951 and that all human beings would be gestated in artificial wombs by the year 2074.[60] While we now know that his first prediction is well off the mark, significant steps have been made towards achieving successful human ectogenesis through the artificial gestation of both humans and non-human animals.[61] Notably, Dr. Helen Hung-Ching Liu successfully gestated a human embryo conceived through in vitro fertilization (IVF) in an artificial womb at Cornell University in 2002.[62] She created the artificial womb with uterine cells grown on a biodegradable scaffold, placed the IVF embryos inside, and observed them as they began to attach to the lining of the artificial womb, just as an embryo would do in the early stages of pregnancy.[63] Dr. Liu removed the embryos from the artificial womb after 10 days to comply with American scientific guidelines that impose a 14-day limit on the artificial gestation of human embryos,[64] so it is unclear as to how much longer the embryos could have gestated in the artificial womb.

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[60] J.B.S. HALDANE, DAEDALUS, OR SCIENCE AND THE FUTURE (1923).

[61] *See* David Adam, *Faking Babies*, GUARDIAN (May 18, 2005, 8:48 PM), https://www.theguardian.com/science/2005/may/19/science.health (describing Dr. Liu's construction of artificial wombs for humans and mice and her progress in artificially gestating human and mouse embryos); *see also* William Saletan, *The Organ Factory*, SLATE (July 29, 2005, 5:19 PM), http://www.slate.com/articles/health_and_science/human_nature/features/2005/the_organ_factory/the_mouse_and_the_rat.html (describing Dr. Liu's experiments in artificially gestating mice and humans, with less emphasis on the processes she used to construct the womb and more on the legislation curtailing her progress).

[62] Adam, *supra* note 61.

[63] *Id.*

[64] Saletan, *supra* note 61. *See also* Insoo Hyun et al., *Embryology Policy: Revisit the 14-Day Rule*, NATURE (May 4, 2016), https://www.nature.com/news/embryology-policy-revisit-the-14-day-rule-1.19838 (establishing that guidelines prohibiting embryonic research for longer than 14 days were adopted in the United States in 1994 and are still in effect).

Researchers at Cambridge University replicated human womb conditions and gestated embryos for a full 13 days in 2016.[65] This allowed them to study what happened to the embryos after implantation to an extent they had never seen before.[66] The scientists manufactured human womb conditions by creating "a special thick soup of nutrients which mimics the conditions in the womb, allowing the embryo to attach, and begin dividing into groups of cells which will eventually form the [fetus], placenta and yolk sac"; the embryos gestated in these conditions were subsequently donated by couples undergoing fertility treatment.[67] Prior to this research, scientists had been unable to see embryonic development in an artificial womb past seven days post-implantation, and in the short time they had to observe the embryos, they discovered that embryos create distinct cavities for the fetus and placenta to grow in.[68] Similar to scientific guidelines in the United States, the United Kingdom has laws prohibiting the growth of human embryos after 14 days.[69] A change of these regulations and subsequent further research would have to occur to explore the possibility of gestating human embryos to the point of viability, as well as the possibility of human fetal extraction and transfer to an artificial womb.

The most recent development in artificial gestation—the successful gestation of lamb fetuses to the point of viability—marks a significant turning point in ectogenetic science. With premature human babies' most common health complication being respiratory failure,[70] researchers at the Children's Hospital of Philadelphia ("CHOP") sought to develop an artificial womb that could be used to further develop the lungs of premature babies.[71] The development of the artificial womb spanned over three years using four different prototypes, with the final womb prototype "[mimicking] life in the uterus as closely as possible"; the lamb fetus's heart pumps blood via the umbilical cord into the prototype's low-resistance external oxygenator, which substitutes the mother's placenta in exchanging oxygen and carbon dioxide.[72] This prototype successfully gestated eight

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[65] Sarah Knapton, *Human Embryos Kept Alive in Lab for Unprecedented 13 Days So Scientists Can Watch Development*, TELEGRAPH (May 4, 2016, 6:00 PM), http://www.telegraph.co.uk/science/2016/05/04/human-embryos-kept-alive-in-lab-for-unprecedented-13-days-so-sci/.

[66] *Id.*

[67] *Id.*

[68] *Id.*

[69] *Id.*; Hyun et al., *supra* note 64.

[70] Partridge et al., *supra* note 3, at 2.

[71] CHOP News, *supra* note 1.

[72] *Id.*

extremely premature lamb fetuses for four weeks with no physiological derangements or organ failure, making this development "superior to all previous attempts at [artificial gestation] of the extreme premature fetus in both duration and physiologic well-being."[73]

B. CONSTITUTIONAL RIGHTS AND INTERESTS INVOLVED

Successful transfer of a human fetus from a person's uterus to an artificial womb would mean that a pregnant person could end the pregnancy without killing the fetus. Legal scholarship has hypothesized a future in which a fetus could be transferred from a human uterus to an artificial womb at any point in the pregnancy, with the state requiring this transfer for pregnant people who wish to end their pregnancies.[74] Legislation requiring such would have serious impacts on current American abortion jurisprudence and would require a deeper look at what viability means in a world with advanced reproductive technology, as well as what right to procreation truly encompasses.

1. Potential New Definitions of Fetal Viability

Under *Casey*'s holding, the state could not require this transfer until the fetus is viable.[75] The *Casey* Court defined viability as "the time at which there is a realistic possibility of maintaining and nourishing a life outside of the womb, so that the independent existence of the second life can in reason and all fairness be the object of state protection that now overrides the rights of the [person seeking an abortion]."[76] This leaves the possibility that

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[73] Partridge et al., *supra* note 3, at 2.

[74] *See, e.g.*, Hyun Jee Son, Student Scholarship, *Artificial Wombs, Frozen Embryos, and Abortion: Reconciling Viability's Doctrinal Ambiguity*, UCLA WOMEN'S L.J. 213, 219 (2005) (hypothesizing "embryonic extraction legislation" as the process by which a pregnant person may have to end the pregnancy in order to "illustrate the need to resolve the ambiguities in [*Casey*'s] viability doctrine."); Stephen G. Gilles, *Does the Right to Elective Abortion Include the Right to Ensure the Death of the Fetus?*, 49 U. RICH. L. REV. 1009, 1014–15 (2015) (building upon Son's hypothetical legislation to compare the pregnant person's interest in ensuring the death of the fetus to the state's interest in keeping the fetus alive through artificial gestation); Jessica H. Schultz, *Development of Ectogenesis: How Will Artificial Wombs Affect the Legal Status of a Fetus or Embryo?*, 84 CHI.-KENT L. REV. 877, 883 (2010) (discussing the possibility of the state or the fetus's second parent prohibiting a pregnant person from having an elective abortion if fetal extraction and artificial womb use is available).

[75] *See* Planned Parenthood of Southeastern Pennsylvania v. Casey, 505 U.S. 833, 878 (1992) (holding that a law with the "purpose or effect [of placing] a substantial obstacle in the path of a [person] seeking an abortion *before the fetus attains viability*" (emphasis added) unconstitutionally infringes on the right to abortion).

[76] *Id.* at 870.

artificial gestation could push that "realistic possibility" earlier into a pregnancy than possible at the time *Casey* was adopted.[77] Indeed, if the definition of viability renders it a function of current technology—with viability being defined solely as independence from a human womb—that is exactly the required result. *Casey* foresaw and went so far as to embrace that possibility, noting that the medical imprecision the viability doctrine may cause in the wake of technological developments was "within tolerable limits."[78] Whether the limits the *Casey* court found tolerable are the same limits that ectogenesis places on viability is a mystery. Although *Casey* predicted that medical advancements would affect the meaning of viability,[79] nothing in the opinion speaks to the extent of the *Casey* court's prediction. The lack of a limit placed on medical advancement's effect on fetal viability suggests that the Court never considered the possibility of advanced artificial gestation; if it did, it would have to foundationally change the concept of viability to refer to either developmental nearness to personhood or to independence from gestation of any sort. Thus, without such a foundational revision of American abortion jurisprudence in the wake of successful fetal extraction and transfer to an artificial womb, pregnant people seeking abortions could be subject to an incredibly invasive and painful[80] medical procedure if they chose to exercise their constitutional right to end their pregnancies. Thus, reading *Casey*'s viability definition literally—as representing fetal independence from a person—a fetus that can be successfully transferred to an artificial womb is viable, no matter how long it has gestated in a person's womb.[81] However, if viability is defined as either advanced fetal development or ability to survive without *any* gestation—not fetal independence—the viability doctrine will not be upset by artificial gestation.[82] Although the term "independent existence"[83] in *Casey*'s definition of viability suggests that the former interpretation would govern, a reasonable court could find that artificial gestation's effect on viability was so beyond what the *Casey* court could fathom at the time

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[77] *See* Son, *supra* note 74, at 221.

[78] *Casey*, 505 U.S. at 870.

[79] *Id.*

[80] *See* Schultz, *supra* note 74, at 886 ("Fetal extraction would likely be a more intrusive surgery than an early abortion, with fetal extraction most likely resembling a caesarean section in order to transfer the fetus without injury.").

[81] *Cf.* Son, *supra* note 74, at 221 ("Under ectogenesis, the embryo is capable of independence from the mother's womb at or near conception and may warrant state protection.").

[82] *Id.* at 222.

[83] *Casey*, 505 U.S. at 870.

of the opinion that taking their words at face value would misconstrue the Court's intent.

2. Different Outcomes for Different Interpretations of "Abortion Rights"

The possibility of transferring a human fetus to an artificial womb would also force us to consider what exactly the right to abortion entails. One resulting question is whether the right to have an abortion encompasses the right to ensure the death of the fetus.[84] While traditional abortion procedures ensure that the fetus will die upon termination of the pregnancy, the ability to successfully remove a fetus from a pregnant person's womb and transfer it to an artificial one would make it so that fetal death is no longer part-and-parcel of pregnancy termination. However, if the right to terminate a pregnancy before fetal viability includes the right not to become a genetic parent, it could encompass the right to ensure the death of the fetus since fetal death is the only way to stop a pregnant person from becoming the genetic parent of a child.[85]

Another interest encompassed in the right to abortion is the interest in loss avoidance: "an interest in avoiding the emotional trauma of giving birth to a baby, only to have to be separated from that baby."[86] Law professor Sherry F. Colb articulates three separate interests legitimized and honored in the right to abortion: (1) a bodily integrity interest in not having one's body occupied by an unwanted fetus; (2) an offspring selection interest in not becoming a parent to a child that one does not desire to have; and (3) a loss avoidance interest in protecting oneself from becoming attached and bonded to a baby from which one will be separated.[87] While the bodily integrity interest would at least still be partially satisfied[88] if the right to terminate a pregnancy becomes the right to have one's fetus transferred to

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[84] *See* Gilles, *supra* note 74, at 1013.

[85] *Cf.* Son, *supra* note 74, at 230 (arguing that the right not to become a parent should factor into the liberty interest protected by *Casey*).

[86] Sherry F. Colb, "*Never Having Loved at All": An Overlooked Interest That Grounds the Abortion Right*, 48 CONN. L. REV. 933, 936 (2016).

[87] *Id.* at 948–49.

[88] Colb does not include the decision to undergo an abortion procedure in her description of the bodily integrity interest, but this Note argues that this choice must necessarily be included in the abortion right in the advent of successful human artificial gestation. Compelled fetal extraction and artificial gestation would violate the bodily integrity interest by removing a pregnant person of the choice to have a minimally invasive abortion procedure to terminate a pregnancy and imposing a more invasive, more painful surgical procedure.

an artificial womb, the offspring selection interest[89] and the loss avoidance interest would be nullified. Colb's article points to current adoption law and studies done on the effect of forced separation of birth mothers from babies that were placed for adoption against the will of their mothers to support the very real trauma that parents experience when they bond with a baby they are then forced to give up.[90] Although studies have shown that the attachment a gestational parent feels to the baby after giving birth is at least partially caused by hormones produced during labor,[91] feelings of attachment could grow further into the pregnancy, and it is very likely that they could exist with the knowledge that one's genetic child is out in the world and being raised by a different family.

While the latter scenario will not be known with certainty unless and until compelled fetal extraction and artificial gestation becomes the only option for a pregnant person seeking to end pregnancy, there is evidence to suggest that the loss avoidance interest would still be implicated even if the pregnant person does not give birth but is still subjected to genetic parenthood. Colb points to language in *Davis v. Davis*[92] to suggest that loss avoidance was considered by the Tennessee Supreme Court when it held that one genetic parent's interest in avoiding genetic parenthood outweighed the other genetic parent's wish to donate pre-embryos left over from an IVF procedure.[93] The court in *Davis*, in determining that there was a right not to become a genetic parent enveloped in the right to procreation, considered the emotional pain that the genetic father would endure knowing that he had children in the world with whom he had no contact or relationship.[94] This suggests that a loss avoidance interest would still exist even if a fetus were removed from a person's womb through a process other than childbirth.

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[89] This interest is referred to as the right to avoid genetic parenthood. *See infra* note 95.

[90] Colb, *supra* note 86, at 941–42 (citing Ann Fessler, *The Girls Who Went Away: The Hidden History of Women Who Surrendered Children for Adoption in the Decades Before* Roe v. Wade (2006)), 946–48 ("The law of adoption implicitly acknowledges the power of these feelings by giving a woman (who has agreed to surrender her child for adoption) some period of time after she gives birth during which she has the right to change her mind and to decide to keep her baby after all. This waiting period tacitly recognizes that even if a woman has felt relatively disconnected from her pregnancy and from the developing baby she would be delivering at the end, the birthing process itself could change her perspective dramatically to make the prospect of giving up her baby legitimately unthinkable to her.").

[91] Colb, *supra* note 86, at 945.

[92] *See supra* Part II(B).

[93] Colb, *supra* note 86, at 960–61.

[94] *See* Davis v. Davis, 842 S.W.2d 588, 603–604 (Tenn. 1992).

V. THE CONSTITUTIONALITY OF STATE-COMPELLED FETAL EXTRACTION AND ARTIFICIAL GESTATION POST-*WHOLE WOMEN'S HEALTH V. HELLERSTEDT*

Considering the constitutional questions raised by the possibility of artificial gestation of human fetuses, as well as the limits on its compulsion imposed by the constitutional rights of procreation and abortion, three possible outcomes exist if the question of whether the state can compel such a procedure reaches the United States Supreme Court. These possible constitutional implications posed by artificial gestation turn on whether the fetus in question is considered viable under *Casey*'s definition of viability, unless the right to procreate is held to also encompass the right to avoid procreation via genetic parenthood as it was in *Davis*.[95]

If *Casey*'s definition of viability is read to mean the literal "independent existence"[96] of a fetus from the human womb—thus encompassing the fetus' ability to exist in an artificial womb—viability could be pushed to the earliest point that a fetus can be artificially gestated. This could include just after fertilization of an egg if artificial gestation technology advances that far, and the state would be nearly unlimited in the abortion restrictions it is permitted to enact.[97] This is artificial gestation's first possible constitutional implication, and it is the most dangerous to the rights of reproductive and procreational autonomy. With this outcome, the undue burden test would become moot if technology advances to the point at which artificial gestation could occur from the moment of conception.[98]

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[95] *Cf.* Son, *supra* note 74, at 222 ("In order to resolve the ambiguity of [*Casey*'s viability standard], the Supreme Court should adopt the reasoning of *Davis v. Davis* and include the right not to become a parent in the calculus of a [pregnant person]'s liberty interest."). This Note argues in part that the Court must be even more specific than Son suggests, and include the right not to become a *genetic* parent in one's liberty interest; without explicitly reading genetic parenthood into procreational autonomy, the Court could find a lack of legal parenthood as a sufficient means of avoiding procreation. In other words, the Court should strike down the hypothetical compelled fetal extraction and artificial gestation laws as violative of procreational autonomy—deemed a fundamental right in *Skinner v. Oklahoma*—because such autonomy includes the right to avoid genetic parenthood compelled by the state.

[96] Planned Parenthood v. Casey, 505 U.S. 833, 870 (1992).

[97] *Id.* at 879 ("Subsequent to viability, the State in promoting its interest in the potentiality of human life may, if it chooses, regulate, and even proscribe, abortion except where it is necessary, in appropriate medical judgment, for the preservation of the life or health of the [pregnant person.]") (quoting Roe v. Wade, 410 U.S. 113, 164–65 (1973)).

[98] *See Casey*, 505 U.S. at 878 ("To protect the central right recognized by *Roe v. Wade* while at the same time accommodating the State's profound interest in potential life, we will employ the undue burden analysis as explained in this opinion. An undue burden exists, and therefore a provision of law is invalid, if its purpose or effect is to place a substantial obstacle in the path of a woman seeking an abortion before the fetus attains viability.") If the fetus were viable from the beginning of gestation, the undue burden analysis would never be utilized.

But even if fetal viability is not reconstructed, state-mandated fetal extraction and artificial gestation would still be unconstitutional if the right to procreate—which this Note argues includes the right to avoid procreation—is explicitly read by the Supreme Court to encompass a right to avoid genetic parenthood. This is the second possible constitutional implication that artificial gestation could provoke, and this Note argues that it would protect reproductive autonomy if viability is reconstructed to mean fetal independence from just the human womb. Finally, this Note takes the position that viability should be interpreted either to mean fetal independence from *any* gestation, advanced fetal development, or nearness to personhood if the viability doctrine is to remain intact after sufficient advancement of artificial gestation technology, and that there is ample authority in *Casey* and *Whole Women's Health* to support this interpretation.[99] This is the third possible constitutional implication that artificial gestation could provoke. If such an interpretation occurs, the viability doctrine as articulated in *Casey* will remain undisturbed, as there are several ways that compelled fetal extraction and mandated artificial gestation pose an undue burden, including the invasiveness of the fetal extraction procedure and the costliness of maintaining artificial gestation.

A. POTENTIAL DESTRUCTION OF THE UNDUE BURDEN FRAMEWORK BY ARTIFICIAL GESTATION

If fetal viability is construed to mean the point at which the fetus is able to survive outside of the pregnant person's womb, artificial gestation could upend *Casey*'s viability doctrine. Should fetal extraction and artificial gestation become possible from the moment of conception, fetal viability would be reached at that same point, thus permitting the state to go so far as to proscribe abortion at any point in the pregnancy[100] (if abortion rights formed the only theory against this). Thus, *Casey* could not protect a pregnant person who chooses to end the pregnancy from compelled fetal extraction and transfer to an artificial womb because the state's interest in fetal life would outweigh the pregnant person's right to choose abortion.

Theoretically, under *Casey*, the state then could require that if a person chooses to terminate pregnancy, that termination must be done through extraction and transfer of the living fetus from the pregnant person's womb to an artificial womb, in which it would complete gestation, and then either be placed for adoption or become a ward of the state. This would essentially

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[99] *See infra* section A.

[100] Son, *supra* note 74, at 221.

destroy the constitutional right to abortion because there would be no such thing as a non-viable fetus. Given the recent trend of enacting abortion restrictions—and sometimes even outright bans[101]—on pregnancies far before the currently accepted viability point of 23 weeks,[102] this would likely trigger a wave of total abortion bans from states capitalizing on the fact that its interest in protecting fetal life outweighs the abortion interest.[103]

B. THE RIGHT TO PROCREATE COULD PROTECT ABORTION RIGHTS IF THE UNDUE BURDEN FRAMEWORK IS DESTROYED BY ARTIFICIAL GESTATION

As discussed in the prior section, if the Court departs from the understanding of viability as the ability of a fetus to survive apart from any gestation, an era of compelled fetal extraction and artificial gestation would result in potentially millions of people subjected to genetic parenthood against their will, which was the state of affairs before *Roe v. Wade* established a right to abortion. To protect the procreational autonomy of pregnant people who wish to end their pregnancies under the last scenario, (1) a right to avoid procreation must be explicitly read into the procreation right first legitimized by *Skinner v. Oklahoma* and reaffirmed in *Eisenstadt v. Baird*, and (2) that explicit right to avoid procreation must encompass the right to avoid genetic parenthood.

The holding in *Davis v. Davis* represents a modern reading of procreational autonomy in light of advances in reproductive technology that now make compelled genetic parenthood a possibility. The *Davis* court legitimized a person's interest in avoiding genetic parenthood, articulating the loss and suffering that compelled genetic parenthood would impose on a person, when it held that one genetic parent's interest in the destruction of pre-embryos conceived via IVF outweighed the other genetic parent's interest in donating them to a third party who could not conceive genetic

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[101] *See, e.g.*, Elizabeth Nash, *A Surge in Bans on Abortion as Early as Six Weeks, Before Most People Know They Are Pregnant*, GUTTMACHER INST. (Mar. 22, 2019), https://www.guttmacher.org/article/2019/03/surge-bans-abortion-early-six-weeks-most-people-know-they-are-pregnant (last updated Apr. 11, 2019) (identifying fourteen states that have introduced legislation in 2019 that bans abortion after the sixth week of pregnancy, with three of those states signing such legislation into law).

[102] Nash et al., *supra* note 10 (detailing legislation introduced between 2011 and 2017 to impose counseling and waiting period requirements; impose ultrasound requirements; impose regulations specifically targeting abortion facilities and providers; restrict minors' access to abortion; restrict medication abortion; grant "personhood" to fetuses; and allow medical providers to withhold pregnancy information from patients so as to prevent them from seeking abortion).

[103] *See Casey*, 505 U.S. at 860 ("[V]iability marks the earliest point at which the State's interest in fetal life is constitutionally adequate to justify a ban on nontherapeutic abortions.").

children.[104] It held that the genetic father who opposed pre-embryo donation "would face a lifetime of either wondering about his parental status or knowing about his parental status but having no control over it," and thus would "rob" him of his procreational autonomy.[105]

The right to not become a genetic parent is distinct from the rights to avoid legal or gestational parenthood,[106] with different interests affirmed than those affirmed by avoiding gestational or legal parenthood.[107] Law professor I. Glenn Cohen argues that attributional parenthood—the phenomenon of people attributing parenthood "writ large" to an individual because of that individual's genetic parenthood of the child—is a harm that would be inflicted on those that become genetic parents without their consent.[108] This harm exists even when the right to avoid genetic parenthood is separated from other procreation avoidance rights.[109] In other words, although the law fails to treat some genetic parents as legal parents, "the imposition of social- and self-attributions of parenthood is [sufficient] to constitute a harm to which the law should pay attention."[110] The concept of attributional parenthood as a cognizable harm stemming from nonconsensual genetic parenthood is not novel to Cohen's scholarship; in fact, the *Davis* court deliberately considered this harm when it held that Junior Davis's right not to procreate meant that he could not be compelled to become a genetic parent,[111] even if the law did not recognize him as the legal father of any babies resulting from the pre-embryos.

The United States Supreme Court has not yet explicitly articulated a right to avoid genetic parenthood as one protected by the right to procreate, but the advent of human artificial gestation will likely force the Court to have to address that issue. If *Casey*'s viability doctrine is interpreted so narrowly as to represent fetal independence solely from human gestation, the United States' current abortion jurisprudence could allow for compelled fetal extraction and artificial gestation as the only option for pregnant people

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[104] Davis v. Davis, 842 S.W.2d 588, 604 (Tenn. 1992).

[105] *Id.*

[106] I. Glenn Cohen, *The Right Not to Become a Genetic Parent?*, 81 S. CAL. L. REV. 1115, 1118–19 (2008).

[107] *Id.* at 1134.

[108] *Id.* at 1135–36.

[109] *Id.* at 1134–36.

[110] *Id.* at 1145.

[111] Davis v. Davis, 842 S.W.2d 588, 604 (1992) (in awarding disposition of pre-embryos conceived through *in vitro* fertilization to a genetic father who sought to avoid procreation, reasoning that "if [the genetic mother was] allowed to donate the pre-embryos, [the genetic father] would face a lifetime of either wondering about his parental status or knowing about his parental status but having no control over it.").

who choose to end their pregnancies. Without procreational autonomy also protecting one's right not to become a genetic parent, reproductive rights as we know them be upended by the artificial womb.

Separate from the concept of fetal viability, the state's compulsion of a fetal extraction and artificial gestation procedure would likely be unconstitutional if the constitutional right to procreate includes the right not to become a genetic parent, for the state's nurturing of the fetus through artificial gestation would impose genetic parenthood on a non-consenting party. Thus, if the right to procreate encompasses the right *not* to procreate as it was articulated in *Davis*, such a compelled procedure's unconstitutionality would be more apparent.[112] In *Davis*, a genetic parent who wished to avoid procreation prevailed over a genetic parent who wanted to donate the pair's IVF embryos to an infertile couple.[113] The court considered the interest of the state in the disposition of the embryos, but it eventually held that the state's interest in the IVF embryos was "insufficient to justify an infringement on the gamete-providers' procreational autonomy" given the embryos' early stage of development.[114] Such a reading of procreational autonomy by the Supreme Court could prevent the state from compelling fetal extraction and artificial gestation in the case of fetal independence marking the point of fetal viability.

However, it is important to note that the *Davis* court premised its framing of the state's interest in fetal life on a trimester framework,[115] and the use of such a framework to determine the state's interests in fetal life was explicitly rejected in *Casey*,[116] which was decided four weeks after *Davis*. This suggests that the state's interest, as it contributed to the holding in *Davis*, may be considerably weightier after *Casey* legitimized the state interest in fetal life prior to viability as it was understood at the time, and may be completely compelling if viability is pushed to the point of fertilization in the wake of advanced artificial gestation. Such a reading of *Davis* in a society where artificial womb technology is widespread could thus threaten both abortion and procreation rights as we know them.

Furthermore, *Davis* dealt with the disposition of artificially-conceived and cryopreserved pre-embryos, which were never before gestated in a human womb and existed at an incredibly early point in gestational development. Thus, the extent of *Davis*'s affirmation of the right to avoid

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[112] Son, *supra* note 74, at 231.
[113] *Davis*, 842 S.W.2d at 604.
[114] Son, *supra* note 74, at 229.
[115] *Davis*, 842 S.W.2d at 602.
[116] Planned Parenthood of Southeastern Pennsylvania v. Casey, 505 U.S. 833, 873 (1992).

genetic parenthood has not been extended beyond the cryopreservation stage. In *Davis*, the state's interest in the preservation of the "life" of cryopreserved, non-implanted embryos was not enough to justify the infringement on Junior Davis's procreational autonomy,[117] but the state's interest in the preservation of fetal life *is* enough to proscribe abortion in most circumstances starting at the "point" of fetal viability.[118] This suggests that the relative strength of the state's interest in fetal life could outweigh a pregnant person's right to avoid compelled genetic parenthood. However, the fact that abortion restrictions no longer have to survive strict scrutiny to be constitutional demonstrates that the right to abortion is no longer considered "fundamental,"[119] whereas the right to procreate has never been held as anything other than "fundamental."[120] In sum, although the state's interest in fetal life would undoubtedly be stronger in a case involving compelled fetal extraction and artificial gestation, the state would face a higher burden in justifying infringements on the right to procreate than it would face in justifying abortion restrictions.

Thus, in an era in which reproductive technology has advanced to the point where a fetus is viable at the moment of conception due to its ability to survive outside of a pregnant person's womb through artificial gestation, and where the invasiveness of a fetal extraction procedure is minimal, there must be a right *not* to become a genetic parent within the constitutional right of procreation in order to protect pregnant people from mandated artificial gestation as the only means by which they can legally end their pregnancies. Without such an explicit right articulated by the United States Supreme Court, and without the Court radically restructuring its approach to the viability doctrine, the right to an abortion could be eradicated by the use of artificial womb technology to continue gestation of a fetus.

C. *WHOLE WOMEN'S HEALTH V. HELLERSTEDT* WILL PREVENT COMPELLED EXTRACTION AND ARTIFICIAL GESTATION OF NONVIABLE FETUSES

Assuming *Casey*'s viability doctrine is reconstructed to rest on advanced fetal development or the ability to survive without gestation, and that fetal death is expected in the right to abortion,[121] artificial gestation raises the question of whether the procedure to extract a fetus to an artificial

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[117] Son, *supra* note 74, at 229.
[118] *Casey*, 505 U.S. at 879.
[119] *See supra* note 39 and accompanying text.
[120] *See supra* note 16 and accompanying text.
[121] *See supra* note 84 and accompanying text.

womb would in and of itself unduly burden the right to abortion. First, fetal extraction would likely be a more intrusive surgery than elective abortion, even those performed in later stages of a person's pregnancy: to transfer the fetus to the artificial womb without injury, a caesarean section ("C-section") or a comparable procedure would most likely be required.[122] The state compelling a pregnant person to undergo a seriously invasive procedure before the fetus is viable would undoubtedly impose an undue burden on the pregnant person's abortion rights. Additionally, an undue burden would likely exist if the state refused to pay for the artificial gestation and instead placed that responsibility on the pregnant person. Federal and state governments are not obligated to fund abortions—by contrast, they are expressly permitted to withhold funding[123]—but the costs of gestating a fetus to term in an artificial womb will likely be exponentially higher than the approximately $500 it costs to have a first-trimester abortion.[124] While the state may be more inclined to fund artificial gestation, considering that the procedure would give effect to its legitimate interest in preserving fetal life,[125] whether the state would feasibly and financially be able to do so for all abortion-seekers is a different question: who will pay for the procedure? The fact that the government is not required to assist in funding abortion procedures, even for extremely impoverished pregnant people,[126] makes unclear whether the government will be required to fund fetal extraction and artificial gestation if it requires abortion-seekers to use that procedure to terminate their pregnancies. Since the Court held in *Harris v. McRae* that it was not unconstitutional for the federal government to refuse to fund abortions,[127] abortion procedures will likely cost significantly less than the cost of extracting a fetus from a pregnant person and gestating it in an

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[122] Schultz, *supra* note 74, at 886.

[123] Harris v. McRae, 448 U.S. 297, 318 (1980) (upholding the constitutionality of the Hyde Amendment); *see also* Alina Salganicoff et al., *The Hyde Amendment and Coverage for Abortion Services*, HENRY J. KAISER FAMILY FOUND. (Oct. 16, 2017), https://www.kff.org/womens-health-policy/perspective/the-hyde-amendment-and-coverage-for-abortion-services/ ("[T]he Hyde Amendment . . . blocks federal funds from being used to pay for abortion outside of the exceptions for rape, incest, or if the pregnancy is determined to endanger the [pregnant person]'s life.").

[124] Rajaa Elidrissi, *The Financial Costs of an Uninsured Abortion*, DAILY DOT (Feb. 5, 2017, 10:30 PM), https://www.dailydot.com/irl/how-much-does-an-abortion-cost/.

[125] Planned Parenthood of Southeastern Pennsylvania v. Casey, 505 U.S. 833, 860 (1992).

[126] *See McRae*, 448 U.S. at 317–18 ("Although the liberty protected by the Due Process Clause affords protection against unwarranted government interference with freedom of choice in the context of certain personal decisions, it does not confer an entitlement to such funds as may be necessary to realize all the advantages of that freedom.").

[127] *Id.*

artificial womb.[128] So, although requiring a pregnant person to fund a $500–$2,000 abortion procedure[129] would not be unconstitutional, it would almost certainly be unduly burdensome to require that same person to pay tens of thousands of dollars[130] for a compelled fetal extraction and artificial gestation procedure, especially when the alternative (a traditional abortion procedure) is significantly less expensive.

If *Casey*'s definition of viability is interpreted broadly to mean the "point" of advanced fetal development, such that the resulting infant could survive without womb gestation of any sort—or if the "independent existence" of the fetus that *Casey*'s viability definition is predicated on[131] is interpreted to mean independence from *any* womb or womb-like gestation—a pregnant person would have a considerable amount of time during the early stages of pregnancy to choose whether to have an abortion without undue state interference.[132] Any attempt by the state to restrict the pregnant person's right to choose must not have the purpose or effect of placing a substantial obstacle in the way of that choice,[133] and this would include an attempt by the state to compel the extraction and artificial gestation of a pre-viable fetus from a pregnant person who wishes to end the pregnancy. Though this situation would not alter abortion rights and restrictions as they stand today, the extension of what constitutes an undue burden would go to new territory. It would, however, require the judicial interpretation of viability to mean either fetal independence from gestation

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[128] *Compare* Elidrissi, *supra* note 124 (stating that the national average cost for a first-trimester surgical abortion in the United States is $500, and the cost of surgical abortion could raise to up to $2,000 in the second trimester of pregnancy), *with* Dan Mangan, *Costs of Delivering Babies Vary Widely in U.S., California Cities Most Expensive*, CNBC (Jun. 30, 2016, 1:51 PM), https://www.cnbc.com/2016/06/30/costs-of-delivering-babies-vary-widely-in-us-california-cities-most-expensive.html ("The national average [cost] for c-sections is $11,525 . . . [which includes] what an employer-sponsored health plan paid for the delivery plus what the covered person paid out-of-pocket."). Because artificial gestation of human fetuses does not exist yet, the costs of that procedure are unknown, but the cost disparity between a first- or second-trimester abortion and extraction of a fetus through a cesarean section is large enough to suggest that it would be extremely costly for the government to fund compelled fetal extraction and artificial gestation procedures.

[129] Elidrissi, *supra* note 124.

[130] Mangan, *supra* note 128.

[131] Planned Parenthood of Southeastern Pennsylvania v. Casey, 505 U.S. 833, 870 (1992).

[132] Son, *supra* note 74, at 222 ("Viability should represent a stage of advanced fetal development and embody the point in time when a [pregnant person] has had sufficient time to act upon the choice to abort. Under this new conception of viability, advancing medical technology will not collapse the fundamental [person]'s interest in aborting [the] pregnancy.").

[133] *Casey*, 505 U.S. at 877.

of any kind, advanced fetal development, or nearness to personhood, going beyond simply the "realistic possibility of . . . life outside the womb."[134]

Assuming viability is understood as such a near-personhood developmental "point," it is difficult to imagine a way in which the state could compel such a procedure without unduly burdening a pregnant person's right to choose abortion. Even if, in the wake of artificial gestation, the right to terminate one's pregnancy no longer necessitated the death of the fetus,[135] the state's interest in pre-viable fetal life is not outweighed by the pregnant person's interest in avoiding what will most likely be a seriously invasive extraction procedure. Although abortion restrictions which "do no more than create a structural mechanism by which the State . . . may express profound respect for the unborn" are not unduly burdensome, so long as they present no substantial obstacle to the pregnant person's exercise of the right to choose,[136] a law requiring fetal extraction and implantation in an artificial womb as the mechanism by which a pregnant person must terminate the pregnancy goes far beyond simply expressing profound respect for fetal life. Even if medical advances would make fetal extraction less invasive than the C-section procedure that fetal extraction is expected to resemble,[137] *Whole Women's Health* suggests that unless the extraction procedure is medically safer for the pregnant person than abortion, state compulsion of fetal extraction and transfer to an artificial womb would be highly unlikely to survive *Casey*'s undue burden test.[138]

To emphasize this point, the *Whole Women's Health* Court struck down two abortion restrictions that the state of Texas claimed made abortion safer for pregnant people, for Texas could not prove that its restrictions actually advanced its legitimate interest in protecting the health of pregnant people.[139] In a concurring opinion, Justice Ginsburg noted that childbirth procedures are far more dangerous to patients than abortion, yet childbirth procedures were neither subject to the ambulatory surgical center nor the

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[134] *Id.* at 870.

[135] *See* Gilles, *supra* note 74, at 1015 (predicting that, in the wake of artificial gestation, the right to an abortion does not include the right to ensure the death of the fetus, provided that the fetus is not yet viable and is also "rescuable" by the state through its transfer into an artificial womb).

[136] *Casey*, 505 U.S. at 877.

[137] Schultz, *supra* note 74, at 886.

[138] *See* Whole Women's Health v. Hellerstedt, 136 S. Ct. 2292, 2318 (2016) (citing the ambulatory surgical center requirement of the Texas law as providing "few, if any" health benefits for pregnant people as one of the reasons why the law posed an unconstitutional undue burden on the right to abortion).

[139] *Id.* at 2311.

admitting privileges requirement at issue.[140] This suggests that the comparative safety and health benefits of the alternative to abortion—childbirth—matters in determining whether a pre-viability abortion restriction presents an undue burden to those seeking abortion. If fetal extraction resembles a C-section childbirth, which in and of itself is more dangerous than abortion,[141] requiring it would also constitute an undue burden for failing to advance the legitimate state interest of protecting the health of pregnant people. Thus, *Whole Women's Health*'s reasoning would strengthen the case for the right to abortion should artificial gestation threaten its existence.

VI. CONCLUSION

The questions which the Court would have to grapple with in order to preserve abortion rights in the wake of human artificial gestation suggests that *Casey*'s viability framework is incompatible with modern reproductive technological advances. Although the *Casey* court attempted to account for advances in medicine that could change the point of fetal viability,[142] successful human artificial gestation would not merely change the point of viability, understood as a function of technology, but instead could remove the viability distinction altogether.[143] Should artificial womb technology achieve widespread use in the United States and anti-abortion legislatures compel the technology's use as a way of restricting abortion, the Court will undoubtedly need to address the question of whether compelling the technology's use is a constitutional alternative to abortion and does not violate the Due Process Clause of the Fourteenth Amendment. Artificial gestation, along with other potential advances in reproductive technology that allow fetal life to be sustained outside of a human womb earlier and earlier in gestational time, may soon prove that the United States' present abortion jurisprudence should be revised to cohere with modern reproductive technology.

The ability to artificially gestate a human fetus at around the second trimester of pregnancy is still years away from fruition,[144] and the

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[140] *Id.* at 2320 (Ginsburg, J., concurring).

[141] *See id.* (Ginsburg, J., concurring) ("Many medical procedures, including childbirth, are far more dangerous to patients [than abortion] . . .").

[142] *Id.* at 870.

[143] *See* Son, *supra* note 74, at 215 ("Upon [artificial gestation's] fruition, viability in its current form is divorced from the current twenty-three to twenty-four week norm and can occur immediately upon conception.").

[144] CHOP News, *supra* note 1.

researchers behind the highly successful artificial gestation of lamb fetuses say they do not intend at all for ectogenetic technology to push the threshold of fetal viability further back than where it currently stands today.[145] While this strongly suggests that the constitutional questions posed by this Note may never arise the technological advancements and possibilities that come with artificial gestation highlight several ambiguities inherent in today's abortion jurisprudence. It is always worth knowing the structure of our basic concepts even well before they are pushed beyond our current understandings. Moreover, eventual artificial gestation seems inevitable, although not around the corner.[146]

Even if artificial gestation does not progress to the point of artificial wombs being able to sustain a fetus from the moment it is conceived in a human, medical advances could still push the threshold of fetal viability earlier into the second trimester of pregnancy. This is why this Note focuses on fetal extraction and transfer, as well as procreational autonomy, as a constitutionally material issue throughout gestation. The advances in technology have the potential to completely upend the viability doctrine, an extent that the *Casey* court could not have fathomed at the time it conceptualized the viability doctrine.

Furthermore, the right to procreate has not been built upon by the Court since it was first recognized in the mid-twentieth century.[147] With state decisions like *Davis* expanding upon the right to procreate in the wake of relatively recent reproductive technology, the lack of federal guidance on the procreational right could produce jurisdictional splits as reproductive technology continues to separate genetic parenthood from gestational parenthood.

A reading of *Casey*'s viability conception as the point at which fetal independence from any sort of gestation is possible, combined with *Whole Women's Health*'s emphasis on comparative health benefits, strengthens the case for legal abortion in a society where artificial wombs could continue the gestation of first-trimester fetuses. However, a petition for certiorari with the United States Supreme Court was filed by the Center for Reproductive Rights on April 17, 2019, challenging a Louisiana law which requires abortion providers to obtain admitting privileges "at a hospital

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[145] Stein, *supra* note 2.

[146] *Compare* Stein, *supra* note 2 (establishing that researchers have been attempting to develop the artificial womb for many years), *with* Partridge et al., *supra* note 3, at 2 (establishing that successful artificial gestation of lambs to the equivalent of human fetal viability in 2016 was the first time artificial gestation succeeded to that extent).

[147] *See supra* Part II(A).

within 30 miles of the procedure"; a provision "identical" to the Texas law held unconstitutional in *Whole Women's Health*.[148] The Fifth Circuit Court of Appeals held that the law was constitutional seven months prior, despite *Whole Women's Health*'s clear preclusion of such a holding.[149] This suggests that anti-abortion activists feel "emboldened" in their quest to restrict abortion by the addition of Republican-appointed Justices Neil Gorsuch and Brett Kavanaugh to the Court post-*Whole Women's Health*.[150] Whether the Court will find a way to distinguish *Whole Women's Health*'s holding from the Louisiana law is unclear, and the prospect that the Court will make such a distinction is frightening to say the least.

While a justiciable case or controversy will be required before the Court can offer any elaboration on reproductive rights in the wake of rapidly advancing reproductive technology,[151] illustrating these ambiguities will, one hopes, also raise awareness to the fragility of reproductive rights as they currently stand today. Hundreds of state-level abortion restrictions have been enacted in this decade alone,[152] and this trend suggests that without stronger judicial protections of abortion rights, states will continue to chip away at said rights and use whatever possible, including advanced reproductive technology like artificial gestation, to do so. The gaps in federal law created by advances in reproductive technology—in spite of the noble goals such technology serves and families it helps—must be filled with stronger abortion protections before reproductive technology is used against those its proponents aspire to help.

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[148] Press Release, Ctr. for Reproductive Rights, Abortion Battle Goes to U.S. Supreme Court: Center for Reproductive Rights Asks Supreme Court to Strike Down Louisiana's "Clinic Shutdown" Law (Apr. 17, 2019), https://www.reproductiverights.org/press-room/abortion-battle-goes-to-us-supreme-court.

[149] *Id.*

[150] Ariane de Vogue, *Supreme Court Asked to Take Up Louisiana Abortion Access Law*, CNN (Apr. 17, 2019, 1:03 PM), https://www.cnn.com/2019/04/07/politics/abortion-louisiana-supreme-court-appeal/index.html.

[151] U.S. CONST. art. III, § 2, cl. 1.

[152] Nash et al., *supra* note 10.