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Permission From the Future: Science Fiction Fantasies and "Extrauterine Children" in Post-Dobbs Imaginaries

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Abstract: In February 2024, the Alabama Supreme Court ruled that frozen embryos created through the process of in-vitro fertilization (IVF) were definitionally children and entitled to the protections of the Wrongful Death Act. This article examines communication surrounding this case to consider the role of future-based permission structures in a post-Dobbs era. Understanding these speculative futures as permission structures allows us to understand how imagined futures that are taken as fact become the basis of these ethical and legal judgments, as well as how tropes of science fiction and speculative technologies can operate as unjust permission structures that impact present lives.

Keywords: reproduction, permission structures, law, feminist rhetoric, science

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In a February 2024 decision, the Alabama Supreme Court ruled 7-2 that frozen embryos created through in vitro fertilization (IVF) were definitionally "children" and thereby entitled to the protections of Alabama's Wrongful Death Act. Coining the phrase "extrauterine children," which the ruling defined as "unborn children who are located outside of a biological uterus" (*LePage v. Center for Reproductive Medicine*, 2024, p. 3), the Court's majority opinion upended IVF practices within Alabama and left patients and practitioners throughout the nation deeply concerned about the future of IVF practices, as well as the safety of their own frozen embryos. Describing the majority's decision and its understanding of the Wrongful Death Act, Justice Mitchell, writing for the majority, stated, "Unborn children are 'children' under the Act, without exception based on developmental stage, physical location, or any other ancillary characteristics" (*LePage v. Center for Reproductive Medicine*, 2024, p. 11).

While many scholars and activists had warned of the impact that the *Dobbs v. Jackson Women's Health Organization*[1] decision, which allowed states to ban abortion, would likely have on IVF and Assisted Reproduction Technologies (ART), the *LePage* decision still came as a shock to practitioners, patients, and advocates (Cohen et al., 2022; Hassan et al., 2023; Heidt-Forsythe et al., 2022; Lefevre, 2025; Schwartz-DuPre & Sowards, 2024). In the days and weeks following *LePage*, Alabama briefly paused all IVF services, and state legislators within and outside of Alabama debated protections for IVF. Meanwhile, reproductive justice advocates continued to lobby the public and politicians to understand the risks to IVF and infertility treatments as a larger piece of the post-*Dobbs* threat to reproduction, rather than an anomalous mistake. Though the Alabama legislature passed a law protecting providers and patients from liability in March 2024, the Court's ruling adds to the complicated navigation of laws related to reproduction post-*Dobbs*. The legal framing of the *LePage* decision intensifies and extends the logic of fetal personhood, extending it not just to embryos developing in the womb but to embryos that have never entered, and may in fact never enter, any uterine body. These embryos, created within a petri dish through in vitro fertilization methods, are frozen somewhere between day one and day five or six of their development — prior, in other words, to when implantation would generally occur in utero. That their developmental stage and location are rendered, as the ruling frames it, "ancillary characteristics" illustrates a radical rewriting of the understanding of much of the process of pregnancy, particularly the role of the pregnant person in the process of development. Pregnancy here becomes an add-on to birth and life, one potential process and location in a suite of many possibilities and influences; the uterine body becomes one possible location for the pre-existing embryo.

The majority's ruling further suggests that these "extrauterine children" must be protected for reasons beyond the immediate present. Justice Mitchell's majority opinion suggests that without such protections, hypothetically, even a full-term infant or toddler conceived through IVF and gestated to term in an in vitro environment would not qualify as a 'child' or 'person,' because such a child would both be (1) 'unborn' (having never been delivered from a biological womb) and (2) not 'in utero' (2024, p. 9).

[1] In June 2022, the *Dobbs v. Jackson Women's Health Organization* Supreme Court decision declared that there was no constitutional right to abortion in the United States. This ruling overturned *Roe v. Wade* (1973) and *Planned Parenthood v. Casey* (1992), which had both established that abortion was protected under the right to privacy guaranteed by the Fourteenth Amendment.

While stating that this hypothetical question does not necessarily need to be decided in this case, the decision footnotes a misleading set of studies that fallaciously suggest that birth without pregnancy is and soon will be possible.[2] But, as I will discuss within this article, full ectogenesis — a term coined by early twentieth century scientist J.S. Haldane and referring to the process of developing embryos outside of the body — remains science fictional in nature, representative not of science that is currently developing or even that will develop in the near future, but rather of a fictional future built on hypothetical possibility. However, through reference to different forms of scientific language combined with the logic of fetal personhood arguments, the *LePage* ruling suggests certainty in its understanding of future possibilities.

While the development of fetal personhood ideas is central within this case and its decision,[3] the conditions that make it possible — and the permission it structures — rely on the engagement between the pregnant-body-made-space and speculative past and futures turned to act upon the present. These structures rely on communication that uses language about time to recast the present possibilities, responsibilities, and failures of the pregnant person. Thus, through its rendering of speculative future technologies as certain inevitabilities, the *LePage* decision illustrates a particular kind of technical communication that structures permission for an inevitable future. This structure is removed from linear time, using an improbable future cast as inevitable as the foundation of its legal rulings and redefinitions of rights.

Future-Based Permission Structures

Such structures function as what I call future-based permission structures. In these structures, an unlikely future becomes the dominant framework through which the rights and needs of the present must be restructured. While the very language of the future is in this term, it is worth noting that future-based permission structures, in their erasure of the present, also may rely on a revision of the past. As I discuss later in this article, atemporal future-based permission structures can also use nostalgia for a past that never existed to structure permissions. In so doing, these structures exchange the realities of the present and past for a longing for a future that reflects a revised, fictional past. If that temporal swap sounds complicated, it is. Within these structures, the realities and the needs of the present are again and again avoided by either suggesting that the present be structured by a non-existent future or that it reflects movement away from a non-existent past. Through the structuring of permission, assumptions and ethics are built on a series of interlinked ideas; the fictional future, inevitably to come, must be served by the present. This atemporal, teleological link structures an understanding of the present only in relation to something outside of its own time, and in so doing, readily and rapidly creates unjust structures

[2] In footnotes within the decision, concurring opinions and its dissent, Justices argued about the use of this hypothetical, with the majority's opinion suggesting that the dissent admits such a case would not be covered; the dissent notes, again in a footnote, that they have made no such claim, and Justice Mendheim's concurring opinion with the majority points out that the selection of footnoted sources makes it seem like full ectogenesis is a foretold conclusion. As a space for argumentation and translation, legal footnotes operate as a particularly fraught zone, separated from the centrality of the legal ruling, but still a place where legal arguments are created and framed, often for a lay audience.

[3] Justice Parker's concurrence, in particular, provides a Christian nationalist reading of fetal personhood. It provides a long series of discussions about definitions of the ideas of sanctity of life as inherently Christian in nature, and therefore its use in Alabama's constitutional amendment suggests "that even before birth, all human beings bear the image of God, and their lives cannot be destroyed without effacing his glory" (2024, p. 38).

for the present, as the present realities and needs are replaced by the urgent needs of the fictional future to come.

This article considers the role of future-based permission structures in a post-*Dobbs* era in order to illustrate the ways that such futures function not just to inspire and guide technological innovation, but to influence legal and ethical decisions about the present. As a result, these futures both shape and judge the actions of the present through futures that do not yet, and may never, exist. To build this argument, I begin with a brief methodology section, then examine proposed legislation that relies on a rhetorical separation of the embryo from the uterine body through future-based permission structures and pseudo-scientific language. Considering the ways that logics of ectogenesis convey ideas about in vitro fertilization and embryo development, I then discuss recent changes to the 14-day limit on in vitro embryo growth in order to consider the shifting landscape of reproductive possibility, as well as its limits. I turn back to representations of ectogenesis in popular media, placing them in conversation with recent arguments in the *Moyle v. United States* Supreme Court case that challenged the limits of the requirement to provide emergency care to patients. Through the discussion of these various sites, I illustrate the ways that the permission structures underlying post-*Dobbs* legal rhetoric rely upon a careful development of a temporal logic in which the present body is never quite present, never quite enough. More broadly for scholars of technical communication and technology, this article illustrates the way that tropes of science fiction, speculative technologies, and atemporal ideas of health can operate as unjust permission structures that impact present lives.

Methodologies for Present-Futures

The stakes of naming the complicated work of future-based permission structures and their impact on reproductive justice are high. Maternal mortality rates (MMR) in the United States are disproportionately high. As Montalmant and Ettinger (2024) note, "over the past three decades, the MMR of the USA has continued to surge despite the enhancements in the diagnostic and acute critical care capacities of maternal healthcare providers (MHCP)" (p. 3658). These rates reflect deep racial disparities, with Black pregnant and birthing people somewhere around three times more likely to die from pregnancy-related causes (Montalmant & Ettinger, 2024). While COVID's impact on maternal mortality, particularly from 2020-2022, makes statistical analysis more challenging (Stevenson & Root, 2024), *Dobbs* has challenged access to reproductive health care and OB-GYNS (Sabbath et al., 2024), and prior studies have linked abortion restrictions with increased maternal mortality rates (Vilda et al., 2024). In short, the ways that we talk about and frame reproduction and health have real impacts on the lives of pregnant and birthing people, particularly members of marginalized communities.

In thinking about technical communication — here, legal and legislative communication — as a site upon which theoretical bodies come to replace real lived experiences and health risks, I follow the turn in technical communication to understand the ways that power (Jones et al., 2016) is enacted and evidenced within these interlocking pieces of discourse. As such, this article takes what Frost (2016) names *apparent feminism* as a central methodology. Apparent feminism "seeks to recognize and make apparent the urgent and sometimes hidden exigencies for feminist critique of contemporary technical rhetorics" (p. 5). By working to make explicit this piece's feminist concerns, I further follow Jones's (2016) call to examine the "design and dissemination

of communication critically with a focus on understanding how oppressive conditions can be rearticulated and reinforced" (p. 349). I am particularly interested here in that rearticulation and reinforcement, which often takes a circuitous path as it is inscribed and reinscribed. As a result, my work follows a somewhat fragmented path, examining legal rulings, proposed legislation, a viral YouTube video, and norms around embryo research. Its interest in fragments follows Jensen's (2016) reminder that "discursive fragments interact with one another to create meaning" (p. 11). Though the sources I examine do not necessarily interact explicitly with one another, I argue that examining them in turn can help us build an understanding of the larger rhetorical ecologies (Edbauer, 2005) in which they are situated and that they themselves contribute to. This amalgamation of sources is key, I would argue, to understanding the ways that technical communication does not function separately from the world in which it is written; moreover, the future-based permission structures I point to enact themselves across technical and cultural sites. In other words, technical information is communicated and structured across this array of sites; while legislative and legal framings communicate perceived legal and legislative interpretations and needs to both a lay and legal audience, other more popular forms of communication that are in conversation with science fiction also operate to take seemingly technical information and translate it for a lay reader. Naming these practices as they replicate across sometimes disparate sites can help us recognize their operating principles in order to counter them, as well as to consider how to imagine less oppressive forms of futurity.

Science Fiction and Future-Based Permission Structures

While scholarship on risk and anticipation (see, for instance, Adams et al., 2009) has illustrated how speculative futures shape contemporary decision-making, and work in technical communication has argued for science fiction as a way of shaping ethical thinking (Lee, 2022), understanding these speculative futures as a permission structure allows us to consider the ways this teleological thinking makes ethical and legal judgments based on imagined futures taken as fact; in our current moment, understanding these permission structures allows for a heightened understanding of the ways that the shifting terrain of post-*Dobbs* reproduction ignores the present for fictional futures. In thinking about the future here, I focus on the ways that the implicit and explicit use of science fiction as the structuring foundation of communication about present realities functions within the legal and legislative cases I think through. As Haraway (1991) writes, "…the boundary between science fiction and social reality is an optical illusion" (p. 149). The thinness of that optical illusion, even as it appears in structures that suggest more of a tethering to a nonfictional reality, provides a second methodological frame for this piece. I work from the understanding that technical communication cuts across and is informed by a vast array of genres and contexts. Moreover, as Toscano (2012) argues, science fiction is, in many ways, a form of technical communication, as it "incorporates science and technology as major themes, communicating ideas and values surrounding technology even if the technology is not real" (p. 22). Science fiction and speculation provide places to imagine, question, and grapple with the ethical questions of the technological; as Lee (2022) notes, "The futurities of science fiction are therefore variable — distant planets, alternative timelines, postapocalyptic wastelands — but what remains constant within the genre is a clear, technoscientific tether to our existing political conditions" (p. 79). This tethering is important for the relationship between the present and the future; the futures offered by science fiction thinking can be utopian and just imaginings,

or they can tether us to current injustices and build futures in which those injustices are compounded. Vint (2021) describes science fiction as

> … a Janus-faced discourse, equally available as a tool to critique injustices of the present and inspire better futures or deployed to reconcile us to the inevitability of the future as a continuation of our present consisting of technologized capitalism and social injustice. The social imagination and the stories we tell, the worlds we build with our stories, matter (p. 168).

The science fictional is, thus, a space of invention and imagination, as well as a potential space of conscription and limitation through an overinvestment in techno-scientific futurity. By tracing future-based permission structures across a variety of spaces, I suggest that the actual space of legal decision-making works in concert with discourse that is more clearly science fiction to structure permissions outside of time. This permission structuring, as this article illustrates, is not limited to a single legal decision; rather, it appears in a wide array of sites, which draw their structure from one another. Thus, the lived experience of the health of reproducing people finds itself in conversation with fictional futures and pasts. Legal rulings, often working in the hypothetical, engage a sense of time that shifts between possibility and present, interpreting the law through its engagement with the present of what is written and some form of past intentions and hypothetical futures. Throughout, the structure of science fiction, which takes ideas and inspiration from science while not necessarily limiting itself to the realities of present science and technologies, appears and reappears in the unexpected forms of permission structured in legal forms.

This form of interaction between science fiction, technology, and future rhetoric has a long history; in addition to ectogenesis itself, many technological innovations — cell phones, smart houses, robots, self-driving cars, space travel — root themselves in the history of science fiction. But in its contemporary appearance as inevitable fact in the *LePage* decision, I argue, the conceptual framework of ectogenesis provides an important lens through which we might conceptualize the interactions between imagined futurity and the present. Though scientists are close to developing artificial wombs that would function as incubators for premature infants delivered just prior to the finishing stages of their lung development (Horn, 2020), the permission structure here relies not on the reality of this scientific development, but rather on fictional depictions of ectogenesis; in so doing, it suggests that contemporary legal and ethical issues must take these imagined scientific futures into consideration in order to make decisions for the contemporary moment.

Bodily Location, Embodied Loss

In the years leading up to *Dobbs*, the logic of spatialization tied into the logic of the *LePage* decision appeared in a series of legal and political statements and proposals. In the fall of 2019, for instance, amid national discourse about late-term abortion that occupied the debate stages of the 2016 and 2020 presidential elections, among other places, legislators in the Ohio House of Representatives introduced H.B. 182 (2019). Designed to ban insurers from offering coverage for abortion services, this bill suggested that "[a] procedure for an ectopic pregnancy, that is intended to reimplant the fertilized ovum into the pregnant woman's uterus" would not be

considered a "non-therapeutic abortion"—and therefore could presumably be covered by insurance. Immediate critique and correction by doctors, along with media coverage about the impossibility of this kind of action, didn't stop legislators from again introducing a second bill — H.B. 413 (2019), seeking to ban abortion outright — that suggested that doctors performing an abortion would not be liable for prosecution if they attempted to preserve the life of the fetus, including "attempting to reimplant an ectopic pregnancy into the woman's uterus." Though neither bill passed, their very structures and assumptions again communicate a future-based permission structure, using scientific-sounding language in order to make a non-existent future possibility seem present. As Koerber (2018) has illustrated, scientifically fallacious political statements abound in the history of discourse about women's bodies. But these statements are not untethered from larger realities of scientific-seeming language's rhetorical impact. Through the mere suggestion that the act of reimplantation is urgent enough to require legal mention, these bills stipulate that such an act could and will be possible, encouraging a lingering confusion about what ectopic pregnancies are.

Definitionally, ectopic pregnancies — pregnancies in which an embryo implants outside of the uterus, most commonly within the fallopian tubes — are unviable. More than just unviable, ectopic pregnancies are incredibly dangerous: they are the cause of 2.7% of deaths related to pregnancy (Hendriks et al., 2020) and are the leading cause of death for pregnant people in their first trimester. In order to avoid the potential rupturing of the fallopian tube and life-threatening bleeding, they are managed through prompt medical or surgical abortion (Bollig et al., 2023). They are also, like most forms of pregnancy loss, more common than is widely known, occurring in approximately one in fifty pregnancies (Anderson et al., 2004; Hendriks et al., 2020). Moreover, like many pregnancy complications, they are a site of great racial disparity: Black pregnant people are 6.8 times more likely to die from ectopic pregnancies than white individuals (Creanga et al., 2011).

As medical professionals quickly pointed out in response to H.B. 182, an ectopic pregnancy outside of the uterus cannot grow, due to the lack of space and circulatory support for placental development. And, as in the Alabama case, the language of reimplantation within the bill, though presented with certainty, is the language of science fiction. Ectopic or extrauterine pregnancies cannot just be reimplanted in the right area, and, though there are extremely rare cases of successful live birth after undetected ectopic pregnancies, particularly those implanted on C-section scars rather than fallopian tubes, such pregnancies are generally not compatible with healthy development and life itself, either for the pregnant person or for the embryo. A number of states have, in the years since *Dobbs*, passed specific updates to their laws to allow abortions to end ectopic pregnancies or to remove a dead fetus; however, in practice, treatment for any number of pregnancy complications has been uneven at best. Even several years after the *Dobbs* decision, questions about where, when, and whether care for ectopic pregnancies is legal and available—though it is a medical emergency requiring immediate care—remain, leading to confusion and risk for pregnant people (American College of Obstetricians and Gynecologists, 2025; Weiner, 2024).

Reimplantation Fictions and the Space of Pregnancy

Though the aforementioned bills are far from the only examples of legislation around medical issues built around unscientific premises, it is worth examining how this rhetorical framing of ectopic pregnancy (mis)represents reproductive labor and processes. The lack of clear rules about what care may be given to pregnant people in states with changed abortion restrictions after *Dobbs*, including those states that have maternal health exceptions to abortion policies, suggests a generalized erasure of both the value of pregnant people's lives and how very common pregnancy "exceptions" and "complications" are. But here, I want to linger on the rhetorical construction of ectopic pregnancy through bills like H.B. 182, as its definition helps us understand the ways that the simplification of pregnancy as a process contributes to the future-based permission structures we see at play within these rulings.

Through the language of reimplantation, carving out an exception for a scientific impossibility, H.B. 182 and H.B. 413 misread and misunderstand the space of pregnancy itself. As in the Alabama ruling, these proposed bills imagine pregnancy as solely locational rather than relational, implying that a procedure might exist to "reimplant the fertilized ovum" into the correct space. The language is simple and, through its inclusion in the proposed bill, suggests the necessity of this provision. While allowing for the removal of the embryo from its location in order to reimplant it, the bill paradoxically ignores the details of such a removal; linguistically, the reader's focus lingers on the active verb "reimplant." As a piece of technical communication, this proposed legislation makes that act of reimplantation seem material and real; though in reality legislation reflects many different kinds of perceived threats and calls to action, in form, it gives substance to its inclusions—in this case, the possibility of reimplantation, represented here as a certainty rather than even a hypothetical. But to suggest one might remove an implanted embryo and reimplant it elsewhere ignores the complexity of embryo implantation and placentation.[4] It presents the uterus as the site of, rather than a participant in, a pregnancy —a location, rather than a biological participant in the development of the maternal-placental interface that makes development possible. This spatially based model understands pregnancy as the housing and, to a lesser extent, feeding of the embryo — as actions that are located wholly, and only, within the uterus, calling us back to the *LePage* decision's framing of embryo location.

However, the process of pregnancy is much more complex than simple housing. Cast as locational and fixable, though, an ectopic pregnancy becomes the biological equivalent of walking into the wrong room: an unfortunate event that can be remedied if we just usher the embryo back to its proper location. The misplaced pregnancy is framed as a bodily error that might be fixed or cured by removing the embryo from an unwelcoming bodily environment and returning it to a more hospitable one. If, as the *LePage* decision noted, location is an ancillary characteristic of embryos, then logically, here, the idea of the ectopic pregnancy represents only a misplacement of a whole. There's an innate innocence in the construction of this lost embryo, as well as a culpability and violence to the maternal body that cannot, in this construction, properly care for that embryo.

[4] It is worth highlighting, for instance, that IVF embryo transfer happens between days three and five of blastocyst development—before, in other words, the point of implantation, which usually occurs somewhere in the range of day six to twelve after ovulation. Studies have found that implantation on day five is more successful than implantation on day six (Poulsen et al., 2017). It is also worth noting the complex nature of implantation and placentation in pregnancy development (see Muter et al., 2023).

Structuring Permissions

The suggested possibility of embryo relocation that appears in the *LePage* decision and the ectopic pregnancy discourse I discuss above both rely on models of the embryo as a movable object. This model is made possible in part by the centrality of the ultrasound; as scholarship in rhetoric and feminist theory has made clear, the pregnant body is turned to space via ultrasound imagery (Frost, 2021; Palmer, 2009; Stormer, 2000). Contemporary anti-abortion legislation and rulings build their authority by rearticulating the pregnant body, already made space by ultrasound technology and public rhetorics, into a new articulation of its relation to time. But the moveable object model is made possible, or at least more persuasive, by the existence of IVF itself. Because it is now possible to form, develop, and implant an early-stage embryo into a uterus, mistaken generalizations about the generalizability of this form of embryo growth can be made. It is much easier to speak of an embryo as in need of a location; if, after all, embryos can be created through IVF cycles and in petri dishes, then it is tempting to imagine an easy relocation from one site to another. To understand, then, the ways that future-based permissions relate to rhetoric surrounding in vitro development of the embryo, this section turns to examine shifts surrounding discourse and practice around that development.

The logical fallacy of the Alabama decision, replacing actual reproductive possibilities and lived realities with the haunting specter of a hypothetical possibility yet to come, presents the uterine body as a problem to be solved, a problem that *will be* solved, in fact. The reproducing body, in its messiness, is a threat to the fetus, to reproduction itself. The fantasy of ectogenesis here moves quickly, suggesting that contemporary legal and ethical issues must take scientifically impossible technological futures to make decisions for the contemporary moment. In other words, rather than even consider what is currently possible, or even what scientists are currently working on,[5] a science fiction fantasy quickly becomes the scenario from which decisions are justified. Complete ectogenesis is rendered as an extension of IVF, rather than an extension of critical care for neonates as it is in scientific research. Through this process, the possibility of ectogenesis becomes positioned as a fantasy of embodied erasure, rather than one of additive care. That is, through this framing, what is replaced is the labor of pregnancy and birth, rather than the danger of pre-term birth. The body's processes are identified as wanting, replaceable.

The Fourteen-Day Rule and Shifting Understandings of Embryo Development

But it is worth thinking about how scientific and popular models of IVF are figured, too. In the last several years, guidelines surrounding the time-limit for acceptable in vitro embryo culturing have been changing, further fueling fictional future-based permission structures. Following the advent of in vitro fertilization in the late 70s, embryo research has been limited by a fourteen-day rule; legislative and funding organizations nationally and internationally hold that embryos

[5] Current developments in ectogenesis revolve around improvements to current incubation possibilities for what are called periviable infants, born between 20 weeks and 25 weeks 6 days gestation (Ecker et al., 2015). Within that subgroup, according to a longitudinal study published in 2022, only 24.1% of periviable infants born prior to 24 weeks survived, compared to 71.6% of infants born after 24 weeks (Qattea et al., 2022). The front line of actual scientific development at this moment centers on a biobag that would allow infants born at about 22 weeks, or just prior to the stage of lung development when life outside the womb might be possible, to potentially survive.

cannot be cultured beyond the two-week mark.[6] Embryos typically implant seven days after fertilization, so survival in vitro beyond this point was considered unlikely. As the primitive streak forms around day fifteen, and as this two week point marks the moment when an embryo splitting to become a twin or combining with another embryo to become a single embryo becomes no longer possible, this ethical guidance was, at least purportedly, based on specific developmental milestones (Appleby & Bredenoord, 2018; Xue & Shang, 2022). While steeped in scientific language and reasoning, the reality of the consensus building around this rule relied upon a much more complicated set of interactions to develop guidelines in an issue more malleable and unfixed than the rule might imply. As Franklin (2019) writes in her study of the sociological history of the Warnock Committee — one of the central decision-making bodies in the fourteen-day rule's deliberation — and the development of these guidelines, "The fourteen-day rule… is based on a highly technical translation into law and policy of specific biological "landmarks" in the development of human embryos…" (p. 750). Illustrating the ways that translational bioscience has been undertheorized, Franklin argues that IVF itself "was one of the last century's most significant translational technologies" (2019, p. 744); she notes, citing the Warnock Committee's deliberations, "that the art of translation does not simply reproduce the old entity, but creates a new one" (p. 773). In bringing together figurations of embryo development, itself a more malleable process than might be thought, into a clear set of legal guidelines, this translation suggests the ways that the seeming certainty of scientific language is leveraged in relation to the inherent uncertainty and malleability of scientific discovery, cultural conditions and beliefs, and the body itself in crafting technical communication about development.

Discussions around the fourteen-day rule shifted around 2016, when researchers reported being able to keep embryos alive in vitro until the thirteen-day mark (Deglincerti et al., 2016; Shahbazi et al., 2016). These findings have reopened conversations about the fourteen-day rule, with ethical limitations balanced with the hope of better understanding early embryonic growth. Since the implantation process is a common moment in which early pregnancy loss occurs, a better understanding of this process would likely allow for a heightened understanding of the reasons for and possible preventions of such miscarriages. In 2021, the International Society for Stem Cell Research (ISSCR) updated its Guidelines for Stem Cell Research and Clinical Translation; research with embryo models after fourteen days became no longer outright fully forbidden, but rather a site for review, oversight, and the development of new ethical guidelines (Lovell-Badge et al., 2021). Recent conversations about such embryo models have centered on terminology (such as "embryo model," "embryo-like structures," and "embryoids") and definitions, related to aspects of development such as the potential to develop into a fetus and the necessity of external physical support from a maternal structure (Denker, 2024; Rivron et al., 2023).

While Franklin has illustrated the ways that the appearance of scientific certainty was leveraged by scientists and stakeholders to make room for the actual uncertainty and unfixedness of biology at the advent of IVF, returning to the contemporary political moment in the United States invites us to think about the ways that popular framings of IVF leave behind that uncertainty. While on a global scale questions of the fourteen-day rule are being renegotiated, in the United States context, the hard certainties of anti-abortion logic also leverage the idea of scientific

[6] These developments, too, are mentioned within the *LePage* decision's footnotes.

certainty — though a certainty with less contact with reality and even more reliant on emotional connections. As a result, the seeming mobility of the embryo, as well as the existence and removal of the fourteen-day rule, suggests an ease in embryo development that leans into the possibility of complete ectogenesis. If the embryo can be grown outside of the womb early on, our slippery sense of pregnancy's linear time threatens a reading of the reproducing body as in the way.

Emergency Care and Technologies of the Future

Debates about ectogenesis have long been marked by an understanding of the uterine body as replaceable. As Squier (1994) explains,

> In both its early and late twentieth century incarnations, the ectogenesis debate illuminates the wishes and fears that motivate the scientific project of gaining control over reproduction and thus doing away with woman's asymmetrical reproductive role. In particular, it speaks to the desire to deny the subjectivity of the pregnant woman, and to end fetal dependency on her, generating instead the image of the cyborg (p. 99).

But as rhetoric around ectogenesis as a possibility mixes with the post-*Dobbs* political terrain, these questions of control and attention are only heightened. For example, we can see these questions arise in the marketing of a 2022 viral YouTube video — "EctoLife: The World's First Artificial Womb Facility," mistakenly believed to be true by some viewers — presented a convincing, if somewhat disconcerting model of what ectogenesis might look like (Womb with a View, 2022). A vast sea of incubators stretch as far as the eye can see, with no visible human life other than the developing embryos. A voiceover suggests that this process could allow for biological children for "women who had their uterus surgically removed due to cancer or other complications" (Womb with a View, 2022, 0:22–0:25). In her rhetorical history of the term *infertility*, Jensen (2016) refers to *rhetorical percolations* as a way of understanding how rhetorical frameworks and traces reemerge and reappear over time in a way that is neither linear nor simple. These futurist rhetorics, I would argue, similarly percolate within our readings of the current body. The video's imagery does not just remove maternal space, care and, as Lewis (2018) would point out, gestational labor from the equation. Rather, these images suggest that process, loss, and risk could also be removed from the reproductive equation. Seamlessness, bloodlessness, are the central elements here, the central features.

In suggesting that process, loss, and risk might be removed from the reproductive equation, I argue, they further perform that removal. That is, if we can imagine a future perfected pregnancy, with no loss, no risk, no blood, then we may also quickly move that imagining back to the present, reinscribing this imagined machine-like model back onto the body, and then judge the contemporary body for its inability to live up to these impossible future standards. Thus, rather than the past emerging in unsettling and unpredictable ways, what might be in the future refracts back onto the present as what should and must be, suggesting that, in an age of optimization, to not already be optimized to the point of the science fictional is to already fail. It is not just that the science fictional suggests or shapes the future here. Rather, the fictional future operates on the lived present, which it anticipates; the anticipation here isn't just a matter of anticipating what might come and controlling risk, but a central set of rules through which we

read and judge the body. The body becomes machine; the womb becomes excess. Rather than the future representing some imagined extension of the present, the present becomes a failed version of the future that should have already come. As in the cases and legislation I have discussed above, the logic of ectogenesis here suggests its inevitability, and that inevitability demands legislative and legal action, despite its implausibility.

Ectogenesis, Care, and EMTALA

To hear the language of uterine removal in EctoLife is also to hear the questioning from April 2024 Supreme Court oral arguments in *Moyle v. United States.* The case focused on whether Idaho's near-total abortion ban conflicted with the Emergency Medical Treatment and Labor Act (EMTALA), which requires hospitals to provide emergency stabilizing medical care — care that would theoretically include abortion when the health, though not the life, of a pregnant person was at risk. Among the many risks of such emergencies are issues like kidney failure and the rupture and subsequent need for removal of the uterus. The risks of reproduction are compounded for marginalized communities — for example, in 2023, maternal mortality for Black pregnant and birthing people was more than three times higher than that of white pregnant and birthing people (Hoyert, 2025). As argued orally in front of the Supreme Court, Idaho's position suggested that abortion would not count as appropriate legal management in a case where the reproductive organs might be lost but death less immediately likely (*Moyle v. United States*, 2024). In this way, what emerges is a logic reliant on the idea of the body as an amalgamation of parts rather than an interconnected system of processes. It is not surprising, then, that this logic of parts and wholes extends to both the uterine body and the embryo; in both models, an unfixedness and logic of the whole remains central. The connections between EMTALA and materials like EctoLife are certainly chilling — lose a uterus due to forced birth? We have a fix for that. The suggestion here is a suggestion of wholeness without connection or process, a mechanical slotting in of parts or elements that suggests that an optimized, Platonic ideal form of reproduction is possible, and possible for all.

Horn (2020) argues that the care work necessary for successful ectogenesis might, among others, allow for a feminist interaction with ectogenesis in which "care labor is collectivized, and the health of pregnant people is taken seriously as a worthy social goal" (p. 11). She argues that, in the interest of feminist attention to abortion rights, scholars have underestimated the possibilities of ectogenesis, possibilities that must be "disentangle[d]… from the limitations of the world as it is now, and redirect[ed]… toward the work to be done in seeking other worlds that could be" (p. 11). But Horn's argument importantly directs our attention to the fact that care work is always necessary; even the technologies of ectogenesis would require care labor, just as the labor of IVF, too, requires layers of embodied care work from scientists and patients alike. However, through the fantasy of complete ectogenesis rendered as an extension of IVF as illustrated by *LePage* — rather than an extension of critical care for neonates —t hat care work is erased; ectogenesis is a fantasy of embodied erasure, rather than one of additive care. That is, through this framing, what is replaced is the labor of pregnancy and birth, rather than the danger of pre-term birth. The body's processes are identified as wanting, replaceable. If the uterus is a container, then, it also is an object rather than a process. As such, the environmental womb cannot be affected by pregnancy, or so this logic goes. Risk to the pregnant person becomes

minimized through this logic; if there isn't relation, but only objects, there isn't a possibility of harm.

A key tenet of this development of the future is the erasure of the process it takes to get there, a technological utopianism that judges the present based on the presumed future. The technology, or the idea of the technology, exists; therefore, according to this future perfect concept, it already is. This enthymematic fashioning of the future brings backward a future always already to come, suggesting therefore that the present, which is not yet capable of that future, should still be measured by its comparison to that utopic nowhere. As Justice Cook's dissent to the Alabama Supreme Court's decision notes, the majority's argument about the implications for theoretical future people born via ectogenesis and conceived via IVF suggests that nothing could be done during this process; as he notes in a footnote, "the main opinion inserts a footnote that selectively quotes from a couple of journal articles to make it seem as if the time when artificial wombs for the earliest stages of human life are a reality just around the corner" (*LePage v. Center for Reproductive Medicine*, 2024, Cook, G. dissenting, p. 65). The future will unfold, suggests the original decision and its crafting; the present must be governed by a speculative future we anticipate that thereby already exists. This form of reproductive futurity suggests that decisions about the future not only shape present developments, but also shape the standards that the present is unjustly held to. In this way, an imagined future is pulled back onto the present, and the present cannot be reframed outside of this inevitable, unlikely future.

Shaping the Present

The shaping of present standards by future possibilities is readily evident in yet another reproductive discourse: epigenetics, or the study of changes to gene expression outside of actual changes to the DNA itself. In *Weighing the Future*, Valdez (2022) illustrates the ways that contemporary practices of epigenetic research and intervention unevenly place the burden of future health on reproducing people, especially people of color. Through these practices, "certain raced and gendered bodies are framed as risky in the present and are made responsible and subject to intervention in the name of future health" (Valdez, 2022, p. 11). As Valdez argues, "Such contexts and prioritization of future health have life and death consequences in the present" (pp. 9–10). The necessary care for communities and people in the present disappears, while an idealized version of the future child to come must be protected from harm—the harm of the very maternal body, which is left unprotected from present deleterious environmental and other health impacts. Environmental racism, structures of healthcare injustice, and other uneven sources of embodied stress on underserved communities are erased on a community level as the individual body becomes the site of risk and intervention. Mansfield (2017) further discusses the ways that epigenetics crafts the present solely as a moment for intervention in order to avoid or craft a future to come. She writes,

> Epigenetic temporality also extends the threshold of fetal life non-linearly by folding time to include in the present possible future fetuses, even generations hence… Multiple generations —some of which may never exist — are all folded into what I call the enduring present: the time when future outcomes are set in motion… In this folded temporality, the epigenetic fetus is the vulnerable and intervenable present moment of

> plasticity, always here and now regardless of its physical status at a given moment (2017, p. 374).

The "enduring present" of which Mansfield writes represents an always receding future that is yet to come and will always be yet to come. But in always being yet to come, that future always *is* — plastically solid, a plasticity that needs to be guarded and molded in order to protect a solid idea of the future person to come. This linear model, as Mansfield and others read it, provides a false sense of certainty —t here is always a plastic fetus inside the nesting dolls of pregnant bodies; fetal stages "are discontinuous from the relatively stable older child and adult, whose embodied existence is the outcome of earlier plasticity" (p. 374). The maternal here will come to pass, and will come to pass again, and will come to pass again, so that the future that we look at in the fetal is always just about to arrive. That is, in this folded temporality, the future will never come, because it must always be future—but because it is always our future, it always acts upon our present. If pregnancy is always about a linear unfolding of a future promise, then EctoLife, *Moyle v. United States*, *LePage v. The Center for Reproductive Medicine*, Ohio's proposed bills, and beyond all operate through the structuring permission of this future. The reproducing body here is a problem to be solved, a step in the way of seamless relations of development and birth.

Permitting the Future: Post-Dobbs Imaginaries

As I conclude this article, I want to turn to two brief examples of the ways that temporal logics of pregnancy function in a post-*Dobbs* nation. The first is again legal. In 2023, Kate Cox, a pregnant woman, sued the state of Texas, seeking permission for an abortion. Her pregnancy was not viable and, moreover, it risked both her health and her future fertility, and a needed abortion could not wait for the results of another case, *Zurawski v. Texas*, weaving its way through the Texas Supreme Court (Klibanoff, 2023). Cox's case came after a series of appeals in *Zurawski v. Texas* that centered on the idea of standing; the state argued that, in order to have standing to sue, one would have to be actively seeking an abortion—which the plaintiffs, who had already largely been forced to obtain abortion care out of state, were not. In the final Texas Supreme Court decision, none of the patients who sued were found to have standing; the court claimed that they should have sued their doctors for not having capacious enough understandings of the state's medical exceptions, rather than suing the state for the byzantine and threatening lack of clarity in the medical exceptions policy.[7] Cox, first granted an emergency injunction that was overturned on appeal, eventually left the state to seek abortion care. The twists and turns of these cases—questions of standing, retrospective claims about how doctors should interpret unclear and shifting regulations held together by the threat of large penalties and punishments—rely on a malleable temporal logic that never quite allows for the pregnant person to enter the exigent moment for legal standing.

The future-based permission structure of which I speak in this article is not just about legal machinations in a post-*Dobbs* landscape, nor is it even always about the future. The rudderless

[7] The chilling impact of the confusion surrounding this policy is clear in cases like that of Josseli Barnica, who died of sepsis in 2021, a few weeks after the implementation Texas's SB 8, which banned abortion after six weeks and was the strictest abortion law in the nation prior to the *Dobbs* ruling (Surana, 2024b), or in cases like that of Amber Nicole Thurman, who died of septic shock in June 2022 after doctors waited 20 hours to perform a D&C to expel the remnants of fetal tissue after a medical abortion (Surana, 2024a).

nostalgia apparent in phrases like "Make America Healthy Again," too, provides us with an atemporal sense of the body in time. Similar to the logic of the *LePage* decision, the permission structure available for this idea of public health — Robert F. Kennedy's declaration, for instance, that we should "give infectious disease a break for about eight years" — suggests an atemporal, unscientific logic that uses the idea of time to create its logic (Zadrozny, 2023). Through the tying together of a technological futurity and an oblique nostalgia apparent in trad-wife influencers[8] and natural wellness culture, the rhetorical landscape of the *LePage* decision simultaneously normalizes the possibility of birth without pregnancy and places it in the contemporary framework of tradition and nature. That is, given the unscientific nature of the permission structure that upholds the logic of the decision, living pregnant people find themselves always measured against that possibility; rhetorically placed in between past and future, and aligned with the logic of fetal personhood, the pregnant body that exists in the present finds itself never able to measure up, never enough.

One final example: I write this from a state with an abortion ban, where the reproductive situation for my students, my neighbors, and my children has immensely changed in the span of a few years. Still, I find myself having to reframe a discussion about medical testing technologies and advertisements when I realize my students — bright students, interested in healthcare, succeeding in their science classes, on their ways to being doctors and nurses and health advocates — have gaps in their knowledge about pregnancy testing and time that make it hard for them to understand the promises of certainty and early response in the ads we look at. So we do a quick review. They hypothesize that the counting of the forty weeks of pregnancy begin at the first day that you can get a positive pregnancy test; they look horrified when I inform them that, according to common ways of counting pregnancy weeks, a person is already four weeks pregnant at that point, and two weeks pregnant at conception. While this moment is a brief one in our study of medical testing technologies, I sit with it here for its demonstration of pregnancy's temporal dislocation. Given the tour of messy future-based permission structures I have provided in this article, the absence of a clear present moment even in the temporal clock of pregnancy—something we talk about over and over again in terms of weeks and months—speaks to the ways that communication about pregnancy fails to ground it in its present moment. How can one speak of or act on or think about the present of pregnancy when one is always to the side of that present—in fictional futures, fictional pasts, and measurements of time that fail to align with common interpretations?

Identifying and Countering Future-Based Permission Structures

The present in which I am writing this article is an exhausting one, and it is tempting to end this piece there, identifying the problems of the present via future-based permission structures and then collapsing into despair. But to imagine the hope and promise of our field is part of the work of thinking about communication and justice. Attending to the reality of the processes of the present is one way we might resist permission structures from a fictional future. Because risk communication as well as future-based permission structures are both based in complicated renegotiations of temporal relations, as technical communicators we can work to make legible

[8] Popularized as a term in 2020, tradwife influencers use social media to make a case for a return to "traditional" gender norms; as researchers have illustrated, the #tradwives movement is tightly tied to misogyny and white supremacy (Proctor, 2022)

the time scales embedded within discourse that engages scientific-sounding language. As researchers approaching legal and other discourse that seems to engage technologies of the future, we might ask several questions to help guide us in identifying the relationship between technical communication and time:

1. To what extent does a piece of technical communication engage with the present, past, and/or futures?
2. When engaging with multiple temporalities, is it clear to stakeholders what the relationship between each temporal period is? How and to what extent are the relationships between the actual past, present, and future made clear?
3. If potential future technologies or innovations are central to an issue, what evidence of current progress and focus is offered to an audience? Do audiences require an advanced knowledge of the subject at hand to understand the evidence's relationship to current developments and research foci, or is evidence selected and explained for a lay audience of stakeholders?
4. How are processes communicated in relation to the present? Are the outcomes of any processes assumed? How are outcomes, possibilities, and outliers measured and communicated?
5. Finally — and perhaps most importantly — to what extent are the real needs of people in the present, thinking in terms of justice, made central?

These are big questions, but they provide a heuristic for attending to the ways that time is negotiated within technical communication. While science and rhetoric that engages science is often about the hope of the future, we might ask whether the future being engaged is a near and likely future, a future hope, or a future disengaged from the scientific present either due to pseudo-science or due to the presentation of the future as an inevitability. By tying discourse reliant on scientific rhetoric to the realities of the scientific present and the aims of current research, we can begin to identify future-based permission structures that adapt their logic and ethics from a fictional future. Moreover, by working to identify the ways that future-based permission structures figure the present only in relation to something other than their own time, we can work to protect the present.

As I have argued in this article, compounding series of spatial and temporal communicative sites surrounding the process of pregnancy and birth provide a structure in which ethical, legal, and personal decision-making is unfixed from a clear sense of the body in time. In the current changing landscape of reproductive care and reproductive rhetoric, slippery teleological ideas of the future as ready to unfold abound. These images of the future readily slip into a future-based permission structure in which decisions and judgements are rendered through assumptions about technologies to come. While this logic is reliant on and demonstrative of fetal personhood rhetorics, it is in the revision of the present time that the permission structures seen here truly do their work. As scholars of technical communication, coming to see the ways that decisions like *LePage* not only represent fetal-personhood arguments but also rely on future-based permission structures untethered from the body's time can help us draw connections across different mobilizations of such permission structures. In doing so, we can continue to work to tether rhetoric of the body and health care practices in the present, rather than in some future to come.

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