

## PAPER

## Artificial gametes and the ethics of unwitting parenthood

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**ABSTRACT**

In this paper, we explore the ethical and legal implications of a hypothetical use of artificial gametes (AGs): that of taking a person's cells, converting them to AGs and using them in reproduction—without that person's knowledge or consent. We note the common reliance on genetic understandings of parenthood in the law and suggest that injustices may arise if unwitting genetic parents are sued for child support. We draw parallels between the hypothetical use of AGs to facilitate unwitting parenthood and real examples of unwitting parenthood following cases of sperm theft. We also look at the harm that might be caused by becoming a genetic parent, independently of financial obligations, and ask whether such harm should be understood in terms of theft of property. These examples help to highlight some of the current and prospective difficulties for the regulation of genetic and legal parenthood, and show how existing regulatory assumptions are likely to be further challenged by the development of AGs. We conclude by suggesting that the reliance on genetic connections to generate parental responsibility (financial or otherwise) for offspring is flawed and that alternative ways of establishing parental responsibility should be considered.

In 2003–2004, several research groups managed to generate gamete-type cells from mouse embryonic stem cells (ESCs).<sup>1–3</sup> In 2004–2005, similar results were reported with human cells.<sup>4–5</sup> Research on the derivation of human pluripotent stem cells from non-embryonic sources suggests that it may also be possible to derive gametes from adult stem cells.<sup>6–8</sup> Meanwhile, simultaneous work has been undertaken on the 'haploidisation' of ordinary body cells, whereby the cell loses half of its chromosomes and acquires some genetic and morphological similarity to a gamete.<sup>9–11</sup> Collectively, cells derived through these processes have come to be known as 'artificial gametes' (AGs) (though alternative terms such as synthetic gametes or in vitro created gametes have also been used). Some of the scientists working in this area hope that AGs may come to be used in human reproduction.<sup>12–14</sup> Others perceive AGs' primary value as facilitating research,<sup>15–17</sup> and some query whether their use in reproduction could ever be feasible, or wise.<sup>18</sup> For the purposes of this paper, we will look at what it would mean for conceptions of parenting and for parental responsibility attribution, if reproduction with AGs were to become possible.

Currently, our gametes are located inside our bodies and cannot be accessed except through

sexual or surgical intervention. The permissibility of undertaking sexual or surgical interventions on a person's body is governed by stringent ethical and legal constraints. In practice, this makes it very difficult to access or use someone's gametes without their knowledge or consent. But we continuously shed non-reproductive cells all around us. If it becomes possible to create AGs from these cells, anyone could in theory collect them, take them to a laboratory, convert them to gametes and use them to conceive a child. With these possibilities, our control over our reproductive genetic legacy would be dramatically reduced. Currently, there are clear financial incentives for having children who are genetically related to very rich and/or influential individuals. Political motivations might also be significant if it became possible to create gametes from stray skin cells. Enterprising women might be able to prove that the Pope or the President are the genetic fathers of their children. Should reproduction with AGs become a possibility, the ascription of parental responsibility solely on the grounds of genetic tests may become untenable.

While the development of new reproductive technologies challenges current ideas of parenting and attribution of parental rights and responsibilities, the law is not always quick to respond. As Edwards *et al*<sup>19</sup> have pointed out: "recent years have [...] seen a widespread tendency for policy and legislation to emphasize the importance of biological parenthood." This can also be evinced from some European countries' regulations in areas such as immigration, according to which family relations are 'demonstrable through genetic analysis'.<sup>20</sup> In some US states (such as Iowa, Texas or Illinois), unmarried men can demand DNA testing and have their genetic parentage acknowledged against the wishes of the husband.<sup>21</sup> According to Meyer,

The readiness of these jurisdictions to reassign parental status on receipt of a DNA match, even when that means extinguishing a substantial pre-existing parent-child bond, reveals a reflexive commitment to biology as the essential foundation of parenthood.<sup>22</sup>

In the 1980s, discussing US approaches to parenthood, KT Bartlett observed that

The law recognizes only one set of parents for a child at any one time[...]. A fundamental premise of the law of exclusive parenthood is that parents raise their own children in nuclear families.<sup>23</sup>

Some progress has been made in adapting legal and regulatory frameworks to respond to new technological developments. For example, in the

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UK, the HFE Act now allows for both partners in same-sex couples to be legally recognised as parents.<sup>24</sup> The development of AGs will demand further clarifications in the law. However, even within the UK, and certainly on a global level, the concept of the nuclear family, and its genetic ties, is still entrenched in the law and very resistant to change.<sup>25</sup> In the UK, if a man is proven to be the genetic father of a child, he is required by law to pay for his offspring's upkeep.<sup>1</sup> Conversely, if a man can prove that he has been unwittingly contributing to the upbringing of children genetically *unrelated* to him, he can sue for damages.<sup>26</sup> Genes are thus a central factor in establishing or demolishing claims of paternal responsibility.

Adherence to genetic links as being determinative of both parental rights and responsibilities can create an incentive for 'non-traditional' partners to seek to share a biological connection with offspring in order to ensure that they are not debarred from contact in the event of a break up.<sup>27</sup> This kind of consideration might well be a factor in encouraging prospective parents to use AGs rather than donated gametes when AGs become available. Yet it serves to reinforce the notion that genes are the single most important component of parenthood.

Even when people are absolved of any parental obligations when becoming gamete donors, often gamete donation brings them, symbolically, as parents, into the families formed with the help of their gametes. They may be referred to as the *real* parents by the children ("so does this mean you are not my real mother?"<sup>28</sup>); or by the parents themselves ("... what I am looking for is a way for him (*the child*) to be able to process the information without being told that I'm not his real father"<sup>28</sup>). A part of the work of parents of children conceived with the help of gamete donation is thus to represent themselves as the *real* parents—instead of the gamete donor.

Because legal systems largely regard genes as determinative of parenthood, the storage and use of genetic material is closely regulated.<sup>29 30</sup> As long as gametes can be obtained only via sexual acts or surgery, it is relatively easy to maintain this tight control. But with AGs, this may no longer be such an easy task. If an individual's discarded cells can be made to function as gametes, offspring created with one's own gametes without one's knowledge or intent might become a genuine possibility against which not even complete sexual abstinence could insure. There are two questions to ask in this context. First, if unwitting genetic parenthood is feasible, is it acceptable to impose financial parental responsibility on the basis of genetic evidence alone? Second, are people harmed if—without their consent—children are born who are genetically related to them?

AGs' potential to facilitate unwitting parenthood is theoretical. However, there are a number of cases relating to unwitting genetic parenthood following 'sperm theft', and these may help in shedding light on the issues involved. Sperm may be 'stolen' in a number of ways: through non-consensual sexual activities; through sexual activities to which the man consents, without anticipating or agreeing to a resulting pregnancy<sup>31</sup>; through people obtaining access to sperm without any sexual involvement, for example, locating used condoms in rubbish bins or accessing sperm stored in clinics.<sup>32</sup> Many of us might assume that men should hold differing degrees of moral and/or parental responsibility for offspring depending on which acts results in conception. If we are inclined to differentiate between these

cases, it suggests that we do not regard genetic paternity alone as being sufficient to generate paternal responsibility.

David Benatar discusses a case in which a woman offered to look after a man who had passed out at a party. She had sex with him while he was unconscious, became pregnant and successfully sued him for child support. Benatar regards this as highly unjust, especially given that if the genders were reversed, the woman would be regarded as the victim of a sexual assault.<sup>33</sup> He compares this with another case in which a woman offered to give a man oral sex—as long as he wore a condom. The woman impregnated herself with sperm from the condom and again sued the man successfully for child support. In this case, the man had consented to sex. But given that the sexual act involved is not one that could ordinarily lead to pregnancy, it would seem problematic to infer consent for the pregnancy from his willingness to participate in the act. The fact that these men were nevertheless required to contribute to their offspring's upkeep suggests that the courts place little weight on the question of consent or intent. All that is needed is evidence of the genetic link, and—however that link came about—the man will be held liable.

The use of AGs would circumvent any need for direct sexual or physical intervention on the part of someone who is determined to have another person's genetic offspring. The question is whether we would want to see the same inexorable link between genetic paternity and financial or other liability enforced in cases of unwitting AG parenthood. There are two broad possibilities here. First, we could attempt to maintain the primacy of genetic importance as a way of determining parental responsibility. Given the increased potential for unwitting genetic parenthood, it might be necessary to develop new legislation to protect people's genetic integrity. But financial responsibilities would still follow from genetic paternity regardless of the circumstances in which it had come about. With the advent of AGs, women too could become unwitting genetic parents and could presumably also therefore be liable for offspring conceived without their knowledge or consent.

The other possibility is that we might loosen the link between genes and parenthood so that proof of genetic parenthood would no longer be sufficient to generate financial responsibilities. If the latter course were chosen, it is interesting to consider whether the use of someone's discarded cells to produce AG offspring would *harm* that person even if they were not called upon to provide support for the child. In short, do we have a right to prevent the conception of children who are genetically related to us? The answer to this question will help in establishing the best approach to AGs and the novel reproductive possibilities that they facilitate.

In this context, it is worth considering the case of Natallie Evans.<sup>34</sup> She and her partner, Howard Johnston, created and froze embryos prior to medical treatment that would leave Evans infertile. Johnston subsequently withdrew his consent for the storage of the embryos and they were eventually destroyed.<sup>35</sup> The HFE Act's emphasis on consent is rooted in an assumption that it is wrong to make someone a genetic parent without their agreement. Yet as noted above, consent to become a parent is often overridden in the case of fertile men. The important factor here seems to be bodily self-determination. A man's interest in wishing to avoid genetic paternity may be the same regardless of whether the conception is natural or assisted. But where the embryo is already in the woman's body, respecting his wishes would have physical implications for the woman who is pregnant. In the latter case, before they are implanted the embryos are held in a clinic and can be destroyed without touching the body of either parent.

<sup>1</sup>See, for example, the UK Government's website outlining the process of DNA testing, followed by claims for child maintenance: <https://www.gov.uk/dna-testing-parentage-disagreements> (accessed 2 May 2014).

Biological parenthood can include both genetic and gestational parenthood: two very different things. Yet they are sometimes wrongly conflated. In the Evans case, it was argued by the judge that

If a man has testicular cancer and his sperm, preserved prior to radical surgery which renders him permanently infertile, is used to create embryos with his partner; and if the couple have separated before the embryos are transferred into the woman, nobody would suggest that she could not withdraw her consent to treatment and refuse to have the embryos transferred into her. The statutory provisions, like Convention Rights, apply to men and women equally.<sup>35</sup>

This implies that if Evans had forced her ex-partner to become a parent it would be directly analogous with *his* forcibly implanting embryos *in her body* against her will. Forced parenthood involving implantation of embryos into an unwilling woman's body involves an assault followed by a coerced pregnancy and childbirth. Forced genetic parenthood for Johnston involved no (new) contact with his body at all. Imposing gestational parenthood causes obvious and objective physical harm. Likewise, imposing financial responsibility carries objectively identifiable adverse consequences. For these reasons, we might agree that to enforce gestational or financial parenthood is indeed harmful. But psychological pain caused solely by the existence of genetically related children is a far more subjective concept. The fact that some people choose to donate sperm or eggs demonstrates that not everyone feels the same way about this. Any moral or psychological harm involved solely in becoming a genetic parent is contingent on the personal beliefs and preferences of the adult involved.

This does not imply that no wrong is done in making someone an unwitting genetic parent or that the wrong done is negligible. Let us suppose that a man—Peter—strongly believes the world is overpopulated and therefore chooses not to reproduce. Someone collects Peter's discarded skin cells in order to produce gametes and have a child, without his knowledge or consent. Has Peter been harmed? And if so, what if any action is he justified in taking? Can he destroy the gametes, embryos or offspring that have been created without his consent? Steiner suggests that ownership is the best way of understanding our relationship with our bodies: “[o]ur bodies are factories. They produce things like blood, skin, hair, etc. Self-ownership gives us the titles to these and protects our liberty to dispose of them (...)”<sup>36</sup> On this view, Peter would have been a victim of theft. Steiner's point makes intuitive sense on some levels. Surely what our bodies produce is *our own* and not anybody else's. Ingmar Persson suggests that this is contradictory: if two prospective parents own themselves, including their reproductive cells, they own whatever is created from these cells. Therefore, they own their offspring. Conversely, they themselves must be owned by their parents, and therefore *cannot* own themselves.<sup>37</sup>

Most legislation is carefully framed to avoid suggesting that our relationship with our cells or tissues is one of straightforward ownership. Furthermore, even if gametes may be said to belong to us, the same is not the case for embryos, which are obtained through the mixing of two people's gametes. And it is emphatically not the same for offspring, which receive moral and legal protection that is not necessarily afforded to embryos and foetuses. Thus whatever stake Johnston had in not becoming a genetic parent, it is not in terms of direct ownership: the embryos were not *his* in the way in which his gametes might be said to be.<sup>38</sup>

Perhaps it is more accurate to say that we own our *genes* rather than ourselves *per se*. But if it were the case that genes are determinative of ownership, identical twins would have claims of ownership towards own each other's genetic material, including each other's offspring. An identical twin would be *just as much* genetically related to embryos created with his twin's sperm as Johnston was to Evans' embryos. Therefore, if we believe Johnston owned his genetic material—and had a corresponding right to destroy the embryos that contained some of this material—we would also have to respect the twin's right to destroy embryos to which he bears exactly the same genetic relationship as Johnston did to *his*. If we cannot accept this, it demonstrates that we are not in fact as willing to rely on genetic accounts of parenthood as we may claim to be.

The purpose of this discussion is to show that common assumptions regarding genes and parenthood are unsatisfactory. However, our existing legislative frameworks privilege genetic relationships over other considerations, in ways that can have long-term consequences for those who are found 'guilty' of genetic parenthood. It is this that makes the prospect of AGs and unwitting genetic parenthood a problem. Coming back to the previous example, it might seem unjust to overrule Johnston's wishes with regards to the implantation of the embryos *and* to demand of him financial and legal responsibility for the offspring. However, if a man in these circumstances were able to revoke his legal responsibilities, in the way that a sperm donor can, his grounds for complaint over enforced genetic fatherhood would be far less obvious. Similarly, in the hypothetical case of Peter, although his cells have been used to create a child, if (a) there has been no physical violation and (b) no financial or legal obligations befall him, the harms (if any) caused to him would be far less compelling. Few people would argue that the woman in question had acted honourably. But this is hardly the issue. Johnston did not act honourably either in insisting that his ex-partner's embryos (the only ones she had) should be destroyed. The law does not—and cannot—enforce honourable behaviour.

We are still left with the question about who should be legally and financially liable for children if genetic testing is not an adequate way of allocating responsibility. John Robertson argues for what he terms 'collaborative reproduction', suggesting that the intention to procreate ought to have more legal significance than genetic links. “In forcing us to recognize the rearing interests of both partners, including the partner who may lack a biologic connection with offspring, collaborative reproduction may lead to a re-evaluation of the importance of biologic ties in other family arrangements.”<sup>39</sup> This is not likely to be a simple endeavour, but it may be preferable to a perpetuation of the biological essentialism that currently prevails.

Yet another layer to this story, which creates a further complication for the prospect of unwitting genetic parenthood, is the interest that offspring might have in knowing the identity of their genetic parents. Given the current emphasis on genetic parenthood, a person whose cells have been used to create gametes and conceive offspring against her will *has thereby been made a parent*. Even if no component of legal parenthood is imposed on her, in terms of current regulation and public perception, she *is* a parent of the resulting children. If we agree that unwitting genetic parents should not be forced into

<sup>38</sup>For example, developments in stem cell technology and in vitro creation of organs may obviate the necessity for a related organ or tissue donors.

financial obligations, there may nevertheless be questions about the rights of children to know their genetic parents. Some might regard this as an inalienable obligation that a genetic parent holds, regardless of the circumstances of conception. There are a number of considerations to address here. First, part of our argument is that genetic relationships are overvalued in current understandings of parenthood. If this were no longer the case, offspring might be less concerned to find their 'real' or genetic parent. Another issue is that we are speaking of future possibilities that assume significant advances in science. Part of the justification for thinking offspring 'need' to know their genetic parents is that it may be of medical importance. However, with the advent of whole genome sequencing and other medical advances<sup>11</sup>, the requirement to know one's genetic parent may become less compelling: the necessary genetic and medical information may be obtainable from the child herself.

AGs will bring a number of issues to the fore—but before they appear on the scene, we can use them as a means to test the assumptions and frameworks that currently exist. AGs could thus be a welcome catalyst for a reanalysis of genes, parenthood and legal obligations, leading ultimately to a long-overdue divorce between genetic and legal parenthood. The challenges that this would pose for family law are not insurmountable. Adjusting legal and financial demands on genetic parents might mean that some of the difficulties outlined above could be avoided. It would also enable some current injustices and inequalities to be remedied. Since AGs enable us to separate *any* element of intention from conception, we can ask ourselves what role, if any, consent and intent should play in allocating parental responsibility, independently of genetic relationships. If we insist on adhering to a purely genetic understanding, we all—women included—face the risk of becoming unwitting genetic parents when AGs become a possibility. Would we be happy about the prospect of paying for 'our' offspring in such circumstances? If not, perhaps the time has come to re-evaluate our expectations of a purely genetic basis for determining parental responsibility.

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