Questions of Life and Death

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1. It is a truism that biology is relevant to medicine though, when you speak to some physicians you would not know it.

   - In practice, medicine must use a lot of presumed facts, both about our bodies and minds and about the external world.
   - However, many of these claims are not based on hard science. Some are based on folk wisdom.
   - Some are downright false. An example of this is that morning-after pill causes abortion. It could have medical consequences. A physician opposed to abortion on relgious grounds could refuse to prescribe a morning-after pill. At a place where it does not require a prescription, a similarly inclined store could refuse to stock it.
   - It is important, therefore, to have a good grasp of the relevant biology. To do this, we must remove the clutter of half-facts and pure falsehoods. This is what Gilbert and Pinto-Correia (2017) attempt to do in their book.

2. They emphasize how social ideology gets reified as scientific facts through the use of linguistic devices such as metaphors. (There is an interesting question that they do not address: when these are deliberate as opposed to inadvertent.) Two of these will be particularly germane to this course.

   - Metaphors about gene agency abound and encapsulate what philosophers call genetic reductionism. We are referring here to how the deification of DNA has become a pervasive metaphor in our society. The ideology that is being reified here is that of hereditarianism, a problem that has been pervasive in American society since the late nineteenth century. We now see a particularly bizarre version in how seriously we take the prospects of genomic medicine without an iota of evidence in its favor.
   - The second are the metaphors used to describe fertilization with the male active sperm successfully penetrating the passive female egg. We will deal with this in some detail in the on-line lecture on human embryonic development.
     - Note the role of culture here: in the Western intellectual tradition, the idea of active males and passive female is inherited from Aristotle and has a continous history. Contrast it to the Indian *Saṃkhya* tradition of passive male and active female.
     - What language of this sort does is to suggest that there is a biological basis for cultured gender roles.

3. Two topics dominate Gilbert and Pinto-Correia's (2017) book: what happens during human embryonic development (including its implications for social policy) and the promise and perils of assisted reproductive technologies (ARTs).

   - The on-line lectures for this week will focus on the first which will, therefore, be given short shrift here.
   - More time will be devoted to ARTs here.

4. Human embryonic development:

   - Poltical activists, particularly those from the anti-abortion rights movement, suffer from several misimpressions about human embryonic development and also make political use of these misimpressions to further their ends.
   - These impressions arise from a dishonest manipulation of images that goes back to the work of Swedish photographyer, Lennart Nilsson (1965).

  - Using aborted fetuses as his material, Nilsson misleadingly showed them as entities that are independent of the uterus (and thus unconnected to the mother) and without a placenta or umbilical cord.
  - Such entities do not exist!
- Even worse, images of fetuses are presented as those of embryos suggesting that blobs of embryonic cells from which, for instance, stem cells are extracted look like human babies.
- And remember the old adage: a picture is worth a thousand words. It explains why these sorts of images are part of the standard repertoire of activists at anti-abortion rights events. These images are false; using them is dishonest irrespective of the political purposes.
- An important goal of this course will be to familiarize ourselves with an *accurate* biological account of human embryonic development.
- That will be the task of the online lectures this week.

5. Two important conclusions will emerge from those biological lectures.

   (a) The first is not unexpected: the biology of human embryonic development provides no clear guidance on the ethics of abortion or euthanasia (or even assisted reproduction). This is the conclusion not only because of the usual claim that science deals with facts and not values. This claim is simplistic. When it comes to human biology, especially when we deal with race or gender, few of the proclaimed scientific facts that pass as biology are value-neutral. Be that as it may, there are deeper reasons why biology does not solve ethical conundrums about life and death.

   (b) That brings us to the second question. What is at stake in a lot of these questions is the issue of when during human embryonic development does an embryo acquire human personhood. Biology cannot answer this question partly because of the complexity of embryonic development from a bioloical perspective but mainly because "person" is not a biological concept. How these two problems amplify each other will be the topic of an entire lecture.

   - In other words, as Gilbert and Pinto-Correia like to put it, biologists are being asked to answer theological questions. A better formulation would be that they are being asked philosophical questions. (Of course, this is a better question if you are skeptical of theology as a discipline. Not everyone is.) But, perhaps what is more troubling is that theologians and political activists routinely claim that their positions are based on science. This type of misuse of science is called *scientism*. We should guard against it.

6. We will discuss assisted reproductive technologies (ARTs) in the context of the control of reproduction. The associated handout is a primer on some of the most common ARTs.

   - Let us begin by noting that you would think that your decisions whether or not to reproduce, and how and with whom, should be your own unfettered choice given that they involve some of the most intimate parts of your life.
   - Yet, multiple social institutions claim the right to control most of these decisions (and I am excluding control by families).
   - These institutions have traditionally tried to control the prevention of unwanted pregnancy which has been practiced in many human societies since antiquity. They have even more drastically tried to prevent the termination of unwanted pregnancies. But what is most striking is that they have simultaneously been very critical of using technology to enhance the occurrence of desired pregnancies.
   - We will begin with the question of *preventing pregnancy* with a focus on contraception. The we will turn to *promoting pregnancy* though ARTs.

   (a) Preventing pregnancy:

      - Take something as simple as contraception.

- It is easy to argue that the development of modern means of contraception from the pill for females, and now also for males, intra-uterine devices (IUDs), and so on, are one of the most worthwhile medical advances in the twentieth century.
- Several religious institutions, most notably the Catholic Church, bans "artificial" contraception and only reluctantly tolerates the rhythm method which is known to be ineffective.
- A personal story: while studying in a Catholic school (St. Joseph's College a.k.a North Point, Darjeeling) in India in the 1970s, I found out that the priests were handing out booklets promoting only the rhythm method to the poorest of families whom they were also tryin to convert to Catholicism. They were doing so in a country that was experiencing increasing poverty and environmental disaster due to uncontrolled population growth. Meanwhile the Government of India was promoting family planning and contraception on all fronts, providing almost free condoms, and, illegally, coercing poor men to get vasectomies during a brief period from 1975 to 1977. The question: were the priests were doing something fundamentally unethical?
- Why is there controversy over contraception? Why is that controversy typically generated by religious diktats?
  * One standard answer is that most religious traditions have been notoriously afraid of human sexuality, always devising rules to regulate sexual behavior including homosexuality and all sexual practices not directly associated with reproduction. In many Northern countries, including the United States, the medical profession has been complicit in this, for instance, by decreeing masturbation and homosexuality as diseases. Contraception allows sex to be separated from reproduction and stokes the fears of those who dominate these religious institutions.
  * But there is also another possible answer. The world's major religions, that is, those with the most adherents are male-dominated social institutions. Feminists have correctly pointed out that such institutions have routinely tried to control female bodies (and we should note the similarity to the control of others' bodies under institutionalized slavery). The control of female bodies includes the control of reproduction. From this perspective it comes as no surprise the the best way to control population growth is through increasing the years of education females have in a society.

- No doubt, these are interesting issues connected with the control of contraception but we should note that we have not encounterd any *ethical* objection to contraception. There are two problems with the argument that contraception, as widely practiced today, is artificial in the sense that it involves the use of a foreign substance (condom, pill, IUD, diaphragm, *etc*). The first is that, just because it is artificial, does not give an act an unethical status. I am writing this sentence on a computer. That is a very artificial way of writing (in fact, literally, I am not writing). What is so unethical about that? The second point is that the distinction between artificial and natural is murky: why is it permissible to take a pill to get rid of a headache but not to prevent pregnancy.

(b) Promoting pregnancy:

- The last fifty years have seen unprecedented technological progress in mitigating the problem of infertility in men and, especially, women, leading to a wide variety of ARTs. The associated handout[1] describes the most popular of these.
- The value of ARTs should be fully acknowledged, particularly for women. Infertility has been a psychologically debilitating problem for women throughout history. There is a lot of irony here. Innumerable wives have faced rejection because of their inability to provide sons. But producing sons requires males to produce sperm with Y chromosomes though their is some evidence that indicates that the pH inside the uterus may select differently "sexed" sperm.
- There is a serious unresolved problem here: why do so many people prefer biologically related children rather than adoptive ones.

[1] `https://sahotrasarkarorg.files.wordpress.com/2020/06/assisted-reproductive-technologies.pdf`

- Sociobiologists and Evolutionary Psychologists provide an answer based on genes and how they determine our behavior (that is, genetic reductionism). Contrary to popular belief, there is virtually no evidence in favor of these. One example should suffice: two sibling share half their genes. A parent and child share half their genes. Is it plausible to think that the attachments between siblings is on par with a parent's attachment to a child?
- At the other extreme: adoption has always been socially difficult. Now, it is heavily regulated and expensive. It is also restrictive in the sense that, depending on which country an adoptee would come from, older prospective adoptive parents are excluded. Yet, these are exactly the type of adoptive parent who would opt for adoption as other ways of having children disappear. So, perhaps, parents want biological children because it is easier.

- The value of ARTs fully admitted, here we will focus on problems associated with ARTs. They come with a cost mainly because people do not understand that: (i) rates of success are low; and (ii) in most socio-cultural contexts, they are expensive.

  i. Costs of ART:
  - Success rates are row, as emphasized by Gilbert and Pinto-Correia (2017). Yet, couples who begin attempting assisted reproduction come to feel that they need to continue these attempts so as to justify beginning the process.
  - In most contexts (and see below) ARTs are expensive. Gilbert and Pinto-Correia (2017) provide *anecdotal* evidence of economics ruin generated by ARTs (and, though statistically sound evidence is scarce, these anecdotes should not be discounted).
  - Hormonal therapies may lead to several side effects that include life-threatening respiratory disorders. In IVF, hormones used to hyperstimulate the ovaries to produce multiple mature oocytes cause nausea and vomiting in one-third of the women. For some, there can be persistent vomiting, sever abdominal pain, rapid weight gain, and lif-threatening respiratory distress. Risk is greater in younger women undergoing multiple iterations of hormone therapy.
  - These side effects have led to widespread use of surrogacy. By now it is acknowledged that surrogacy can be ethically problematic due to issues of economic exploitation akin to prostitution.

  ii. Fundamental questions raised by ARTs:
  - Gilbert and Pinto-Correia (2017, p. 219) ask: "Who do these technologies assist? ... Couples often pay [in the United States] betweeen $50,000 and $200,000 to achieve a single pregnancy. ... Is ART only for the wealthy? If a woman with infertility knows that she could possibly have a genetically related child if she were wealthy, does this frustrate more women than it helps?" They also point out that, if eliminating infertility to the extent possible is a goal, public health measures to elminate sexually transmitted diseases (which are a major cause of infertility) may be more important than these high tech solutions.
  - They also question whether there is a "right" to have a genetically related child.
  - Is the use of resources to allow a fifty-year old woman to have a child the most optimal—or ethical—use of limited resources?
  - "Is the use of surrogacy carriers "right" for any ana all reasons, if one can afford to pay for their services (Gilbert and Pinto-Correia 2017, p. 220)?"
  - Why do people have a "need" to have biologically-related children? We seem to think that it is obvious but, as often happens (and philosophers love to point out), what appears to be obvious is not supported by any good reason. In this case, the disciplines that supposedly provide a compelling biological basis for this need, *viz.*, sociobiology and Evolutionary Psychology, themselves have dubious intellectual credentials. We must take seriously that this desire is *manufactured*, created by advertisement campaigns of fertility clinics and other similar vested interests.
  - There are a host of legal—and ethical—questions about embryos created for IVF procedures. Is discarding some of them, as is routinely done, legally (or ethically) abortion?

In the United States, it is estimated that there may be up to a million frozen embryos. What is their legal status? Or ethical standing? If a couple divorces, who gets these embryos? Is a biological father obligated to provide child support if such an embryo gets implanted and comes to term?

- There are also a large number of unanswered questions about the safety of various IVF procedures for females and their offspring. The physical side effects of hormones and other procedures were mentioned earlier. But there are also psychological consequences that have not received sufficient attention.
- In the United States, there are more regulations on tattoo parlors than on fertility clinics. The same problem afflicts many other countries. In a few, such as the United Kingdom, there are clear and relatively strict regulations. The underlying question remains: how should fertility clinics be regulated?
- Finally, there are cases when ARTs (such as mitochondrial replacement therapy) include manipulation of genetic material that then becomes part of the human germ-line. When, if at all, should this be permitted? A significant part of this course will be devoted to this question, especially in the context of CRISPR.

References:

- Gilbert, S. F. and Pinto-Correia, C. 2017. Fear, Wonder, and Science in the New Age of Reproductive Biotechnology. New York: Columbia University Press.
- Nilsson, L. 1965. Drama and life before birth. Life (30 April): 54 -72A.