

Biomedical ethics: abortion - 28 March 2022

1. Framing the debate
2. The historical context
3. The complexity of the abortion debate
4. Appendix: arguments

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1.1 Framing the debate: preliminary points

1. The abortion debate centres on the **relationship between mother and developing human.**

It is not about spontaneous abortion (a natural process), but about the **deliberate termination** of a human pregnancy, **performed up to a certain developmental stage** because of a **good ethical reason**.

An asymmetry characterises this debate, given that it is the mother who might be allowed to choose whether to interrupt pregnancy, while the developing human, of course, cannot choose.

However, the putative rights of the developing human should also be considered in order to make sense of the debate.

1.2 Framing the debate: preliminary points

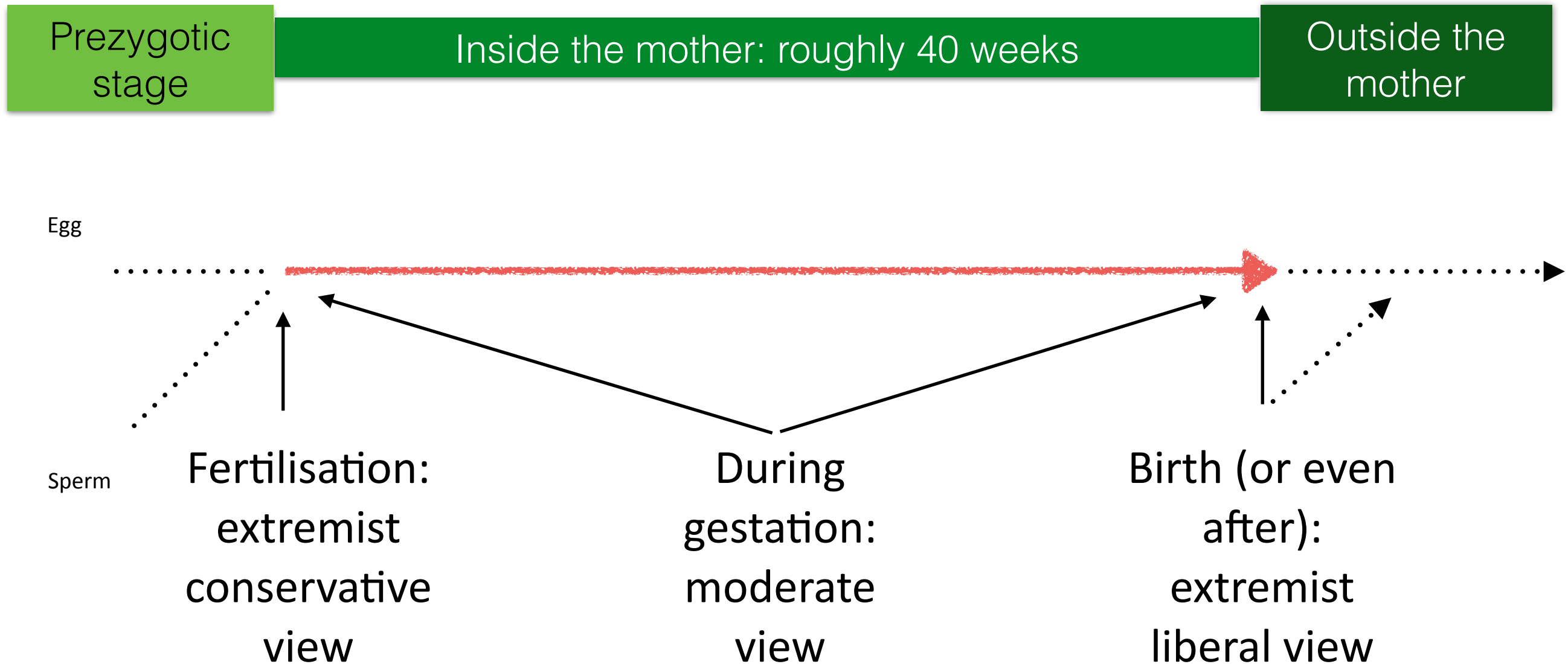
2. The perspectives of the developing human and that of the mother.

Many arguments in the abortion debate focus on the putative rights of the developing human and on the putative rights and duties of the mother.

I shall tackle the issue from the vantage point of the former perspective because it's the focus of medical bioethics.

On this basis, the pivotal question about abortion we shall consider - among the many interesting ones - concerns the **identification of the developmental stage at which it becomes meaningful to consider the developing human as a person with moral rights.**

1.3 Framing the debate: preliminary points



The morally significant break in the developmental process:
at which point during development does the developing human become a person with rights? Extremist and moderate views.

1.4 Framing the debate: Portugal's case

Df. abortion (slide 1.1): **Interruption of pregnancy**: the **deliberate** termination of a human pregnancy, performed **up to a certain developmental stage** because of a **good ethical reason**.

Portuguese legislation: Lei nº 16/2007, de 17 de Abril - Instance of a moderate view (slide 1.4).

- Deliberation of the woman but conscientious objection of medical staff is allowed.
- Developmental stage = up to 10 weeks.
- No reason needed to justify the woman's request up to 10 weeks, but a good ethical reason is relevant in exceptional cases:

Up to 16th week in case of rape.


Up to 24th week in case of malformation of the foetus.

Always in case of grave risk for the health of the mother.

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1.6 Framing the debate: Portugal's case

Rationale of Portuguese law: at **10 weeks** the developing human has a specific **property z** that makes it a **person** (see slide 3.2).

- 1. Ethical question:** what is the relevant property z that makes a developing human a person with moral rights?
- 2. Scientific question:** at which developmental stage does the developing human acquire property z?
- 3. Social policy question:** how should we behave in light of our answer to the ethical and scientific questions? (slides 3.4 ff)

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- 2. Scientific question: at which developmental stage does the developing human acquire property z?** 
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1.8 Framing the debate: Portugal's case

1. Ethical question: what is the relevant property z that makes a developing human a person with moral rights?

This is an ethical question: to justify that z is a property making a developing human a person with moral rights requires an ethical argument. There is no way in which biology by itself can answer this question.

2. Scientific question: at which developmental stage does the developing human acquire property z?

Developmental biology tries to identify the developmental stage at which the developing organism acquires z. The scientific question is also problematic because the empirical evidence might be controversial (slide 3.3).

1.9 Framing the debate: personhood

The concept of person generally refers to a **member of the moral community with moral (and legal) rights**. The concept can be characterised in many ways.

One straightforward characterisation is **person = member of *Homo sapiens***. A fertilised egg would thus be a person as it is a member of our species.

However, the concept is generally characterised in more complex ways. For Kantians, **person = rational, conscious and free agent** (see slides on deontology).

For utilitarians, **person = sentient human** (see slides on utilitarianism).

In these two latter cases, one can meaningfully ask **when** a developing human becomes a person during gestation.

1.10 Framing the debate: personhood

Mary Anne Warren (1984, pp. 110-113) argued that **a developing human becomes a person when certain phenotypic characteristics appear during the developmental process** (cf. slide 3.2), such as:

- (i) the ability to feel pain (i.e., sentience);
- (ii) reasoning abilities;
- (iii) the ability to communicate;
- (iv) the existence of a self-concept.

Note that ii, iii and iv are likely acquired by the developing human after birth, with the implication that abortion would be allowed throughout gestation.

This leaves i as the crucial phenotype, as a utilitarian would argue.

1.11 Framing the debate: personhood

Alternative: **person = possessor of quasi-rights.**

One might also argue that, even though the developing human is not at all stages of gestation a person with full-fledged rights, it has at least **quasi-rights** (cf. Korsgaard 1996).

For instance, many animals (from primates to octopi) are granted some form of protection under different legislations because they possess **quasi-human phenotypic features (e.g., cognitive capacities)**.

Thus, quasi-rights are granted to quasi-persons and a developing human might be considered a quasi-person

(However, it is difficult to justify the argument that a quasi-right can be more important than a full-fledged right, e.g., the right to self-determination and welfare of the mother).

1.12 Framing the debate: personhood

The concept of person can be characterised in many ways, **each way identifying specific phenotypes acquired at different times during development:**

Person = member of *Homo sapiens* = phenotype: possessing a human genome.

Person = rational, conscious and free agent = phenotype: rationality*.

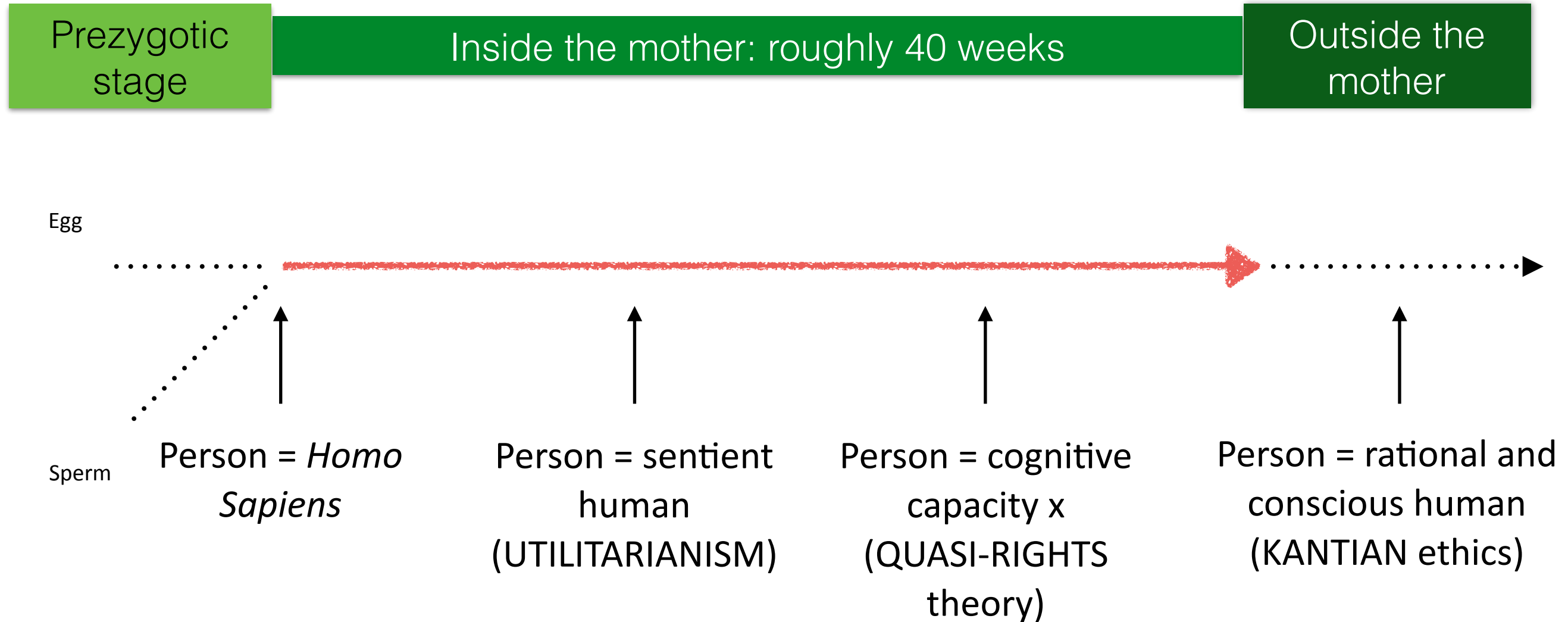
Person = sentient human = phenotype: sentience*.

Person = possessor of quasi-rights = phenotype: *unspecified* cognitive capacity.

Without agreement on the relevant phenotypic basis of personhood, the abortion debate cannot be adjudicated (see slide 3.1 + 3.2).

* When does a developing human acquire such phenotypes?

1.13 Framing the debate: personhood



Different criteria of personhood: each criterion identifies phenotypes that are acquired at different stages of development.

2.1 Historical context

The debate on abortion has been influenced by our growing knowledge of developmental biology.

One way to understand this historical influence is by considering the clash between two radically opposing views about development.

Preformationism: formation of new features during development is only apparent; development consists merely in the unfolding of phenotypes preformed in the germ (i.e., the sperm, the egg, or the zygote).

Epigenesis: no pre-existing form but emergence of genuinely new phenotypes from an unstructured, formless, or homogeneous germ (i.e., the sperm, the egg, or the zygote).

2.2 Historical context

Aristotle is sometimes seen as a preformationist and sometimes as an epigenesist (Goy 2018).

At times, Aristotle endorses an epigenetic view: the development of a human embryo requires the gradual acquisition of three souls, i.e., vegetative, sensitive and rational. Thus, “hominisation” [i.e., the process of becoming a human person] is **delayed** in the sense that it is a process that takes time during embryonic and foetal development, as it requires vegetative, sensitive and rational “ensoulment”.

However, Aristotle at other times endorses a preformationist view: the development of a human depends on the crucial causal role of the “developmental plan” present in the male semen. Thus, “hominisation” is **immediate** in the sense that it happens at fertilisation.

2.3 Historical context

Aristotle as a preformationist used an analogy:

“The male emits semen in some animals and where he does, it does not become part of the embryo; just as no part of the carpenter enters into the wood in which he works but the form is imparted by him to the material by means of the changes which he effects It is his information that controls the motion of his hands.” From Delbrück 1971, p. 54.

Thus, the male semen is, like a carpenter, an imposer of form on the embryo, while the female egg in turn is like the material, the wood, out of which the bed is constructed.

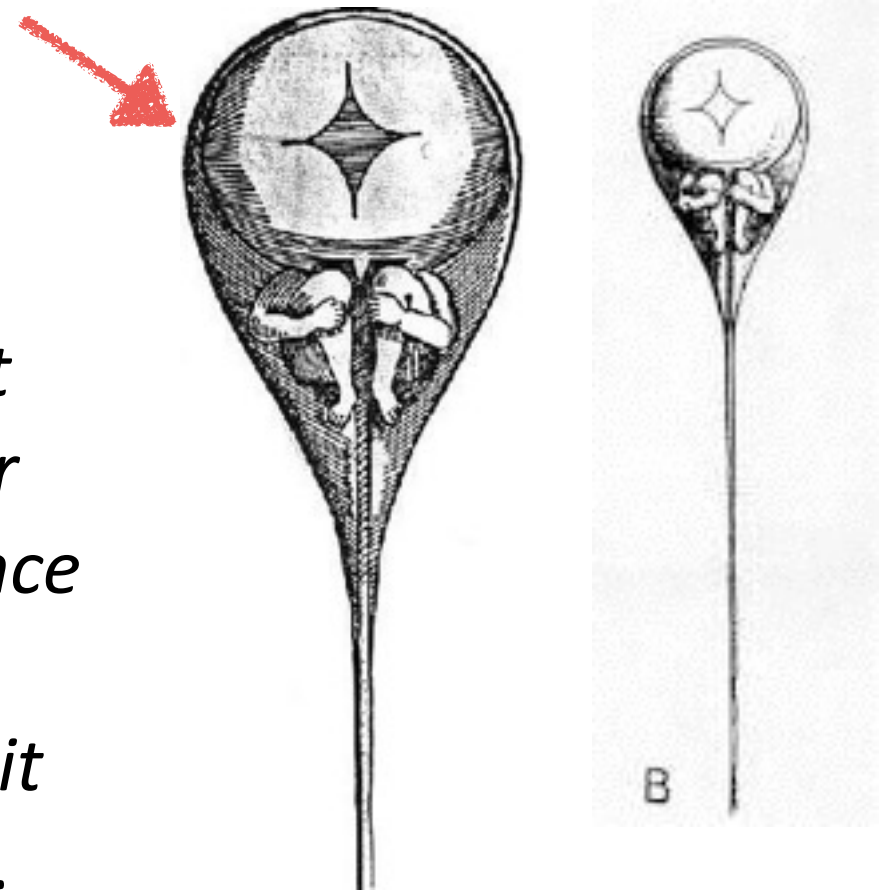
Aristotle was a “spermist”.

2.4 Historical context

Another spermist preformationist, Nicholaas Hartsoeker, was even able to “see” a “homunculus” in the human sperm with his microscope (1694).

While Albrecht von Haller was an ovist preformationist: *“It follows that the ovary of an ancestress will contain not only her daughter but also her granddaughter, her greatgranddaughter and her greatgreatgrand-daughter, and if it is once proved that an ovary can contain many generations, there is no absurdity in saying that it contains them all.”* (quoted in Needham 1959, p. 200).

Do spermism and ovism imply that a “person” already exists even before fertilisation?



2.5 Historical context

Contemporary developmental biology can positively inform the abortion debate and show that some conceptualisations of the developing organism are at odds with current knowledge.

The historian of biology Jane Maienschein distinguishes between “public” and “biological” embryos: *“The difference between the publicly imagined and biologically studied embryos is in the meaning assigned to fertilization and to the earliest developmental stages.”* Maienschein 2016, p. 133

2.6 Historical context

*“By public embryos, I mean those that exist in the public and political arenas This embryo ... starts as an egg cell that undergoes ‘conception’ as it is fertilized and becomes the very first stages of an individual’s life. we imagine that the embryo is alive, a ‘life’ that is essentially the same at all developmental stages **For some, the embryos in their earliest stages are already tiny persons** To kill them therefore seems morally wrong to the strongest proponents of this view.”*

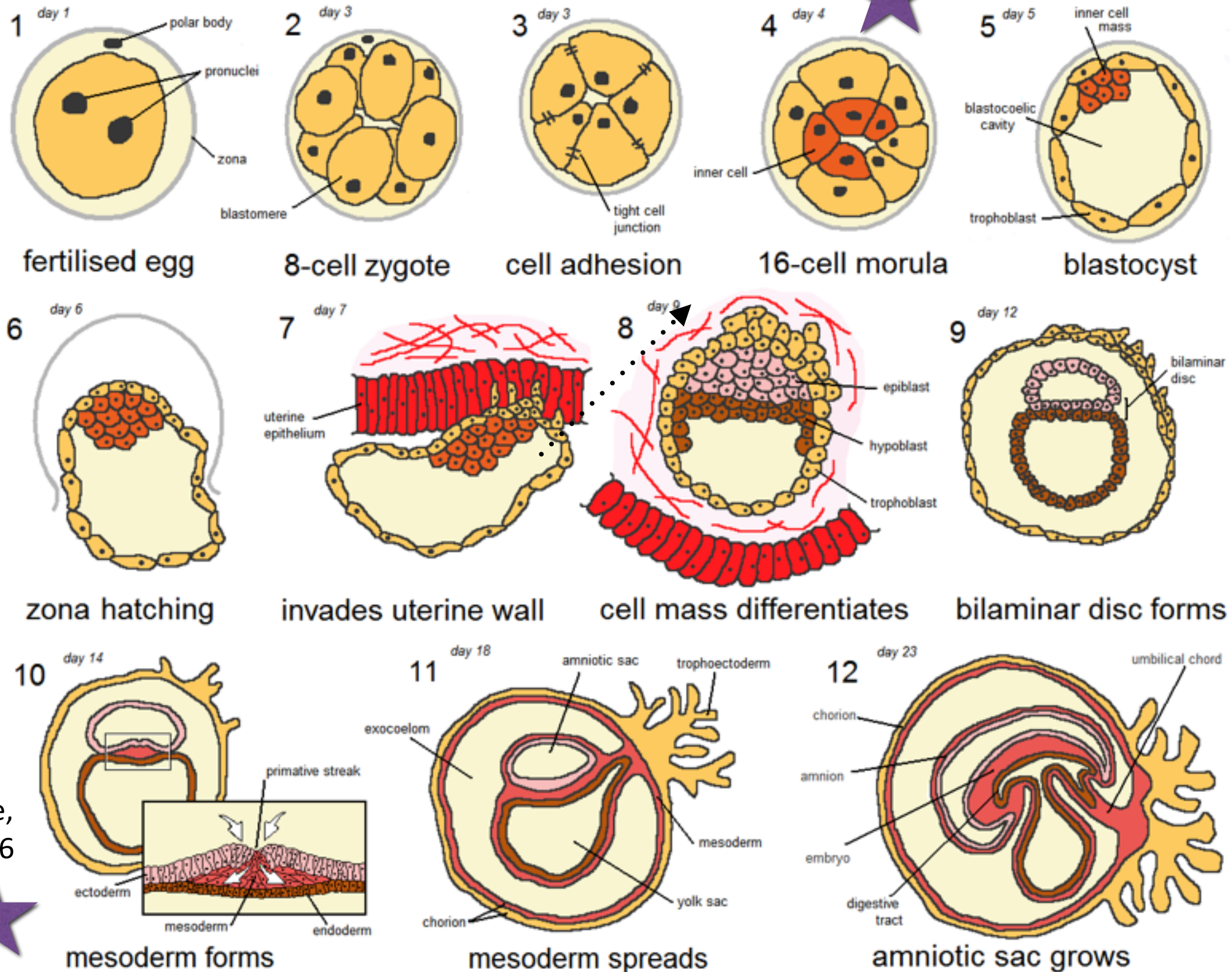
Maienschein 2016, pp. 129-130

2.7 Historical context

*“The primary difference between this biological embryo and the publicly imagined one is that this is ‘just’ biological material without structure and with very little function until later stages. There is very little differentiation at the early stages, and in humans the first eight cells each remain totipotent [or 16 cells?]. That is, each of them has the capacity to become a whole organism **In short, this biological embryo in its earliest stage is a bunch of cells** Its ‘meaning’ is quite different from the newly conceived public embryo with its imagined emerging personhood that has evoked calls for protection*” Maienschein 2016, pp. 131-132

Morula stage,
cf. slide 2.7

2.8 Historical context



Gastrula stage,
cf. slide 4.4-4.6



2.9 Historical context

Importantly, religious interpretations used to postulate a discontinuity of the developmental process (Maienschein 2016, p. 132), i.e., “quickenings” (i.e., first movement of the developing organism) or “ensoulment”:

*“.... for millennia the public understanding of embryos had placed an imagined **beginning for each individual organism at the time of ensoulment, or forty days.** By the middle of the nineteenth century, however, while biologists were observing many details about the series of developmental stages that brought very gradual emergence of form, for Catholics life suddenly was seen as starting at conception.”* Maienschein 2016, p. 133

2.10 Historical context

*“Pope Pius IX challenged the canonical tradition about the beginning of ensouled life set by Pope Gregory XIV in 1591. He believed that **while it may not be known when ensoulment occurs, there was the possibility that it happens at conception.** Believing it was morally safer to follow this conclusion, he thought all life should be protected from the start of conception. In 1869 he removed the labels of ‘aminated’ fetus and ‘unanimated’ fetus and concluded that abortions at any point of gestation were punishable by excommunication.”*

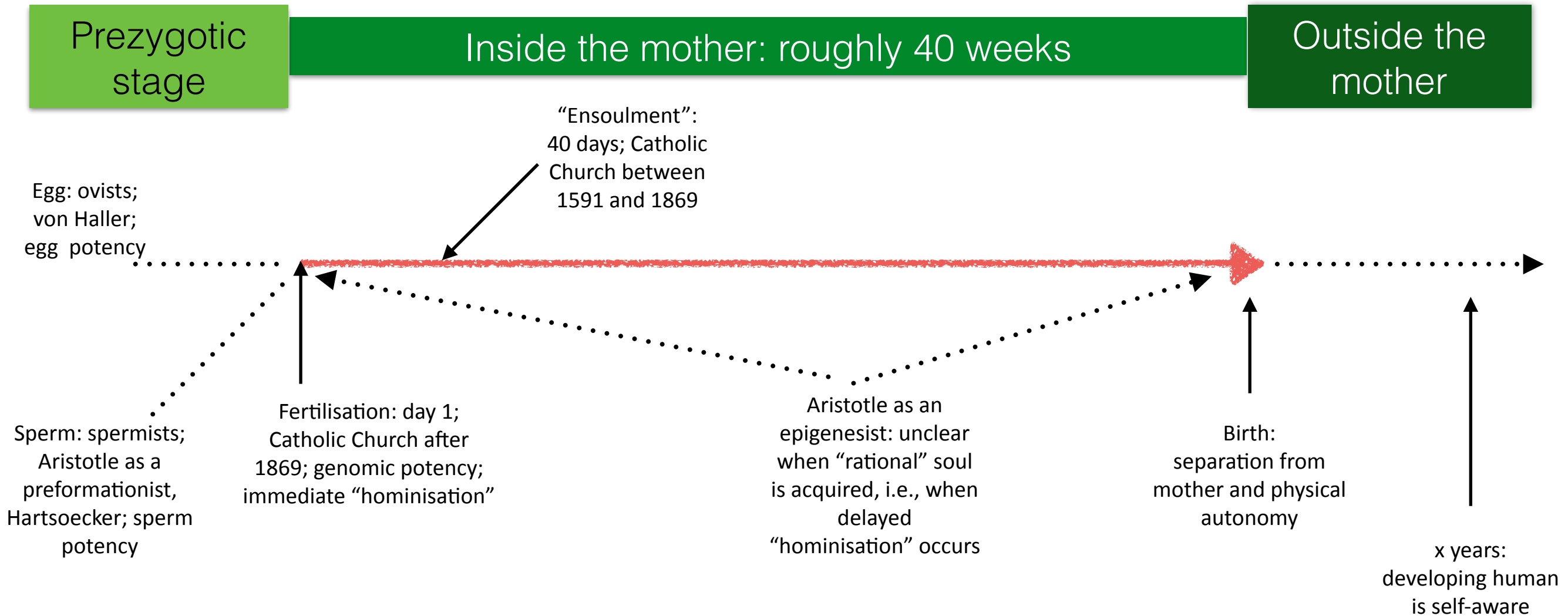
From <https://embryo.asu.edu/pages/pope-pius-ix-1792-1878>

2.11 Historical context

The new position of the Catholic Church can be interpreted - against Maienschein (cf. slide 2.9) - as based on the developmental biology of the times; note that preformationist views have not been rejected in developmental biology (contemporary preformationism = genomic preformationist, cf. Wolpert & Lewis 1975).

The position of the Catholic Church can be interpreted in terms of the **application of a precautionary principle** (cf. slide 1.5, class 2, Introduction to Moral Philosophy pdf): if science is unable to tell us when ensoulment occurs, then it is better to avoid irreversible damage to the developing human.

2.12 Historical context



The morally significant break in the developmental process from an historical point of view.

3.1 The complexity of the abortion debate

We started from the question (slides 1.2 + 1.3): at which point during development does the developing human become a person with rights?

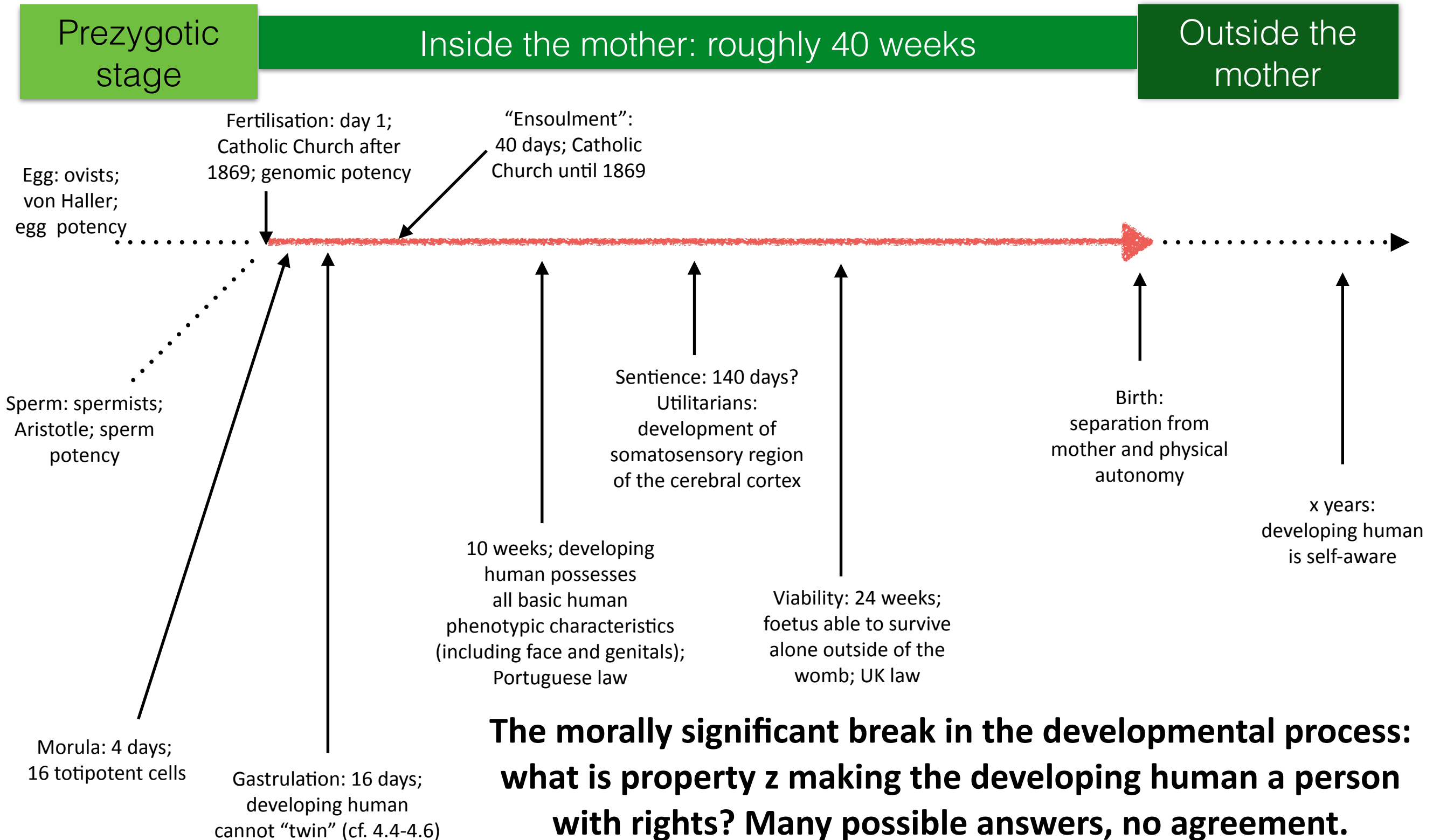
In order to answer this question, we said that we need to choose a property z (slides 1.7 + 1.8) that, generally, identifies a specific biological phenotype that, when acquired by the developing human, will make it a person with rights (slides 1.12 + 1.13).

We considered first the following question:

1. Ethical question: what is the relevant property z that makes a developing human a person with moral rights?

There is no agreement on what property z is. This is one aspect of the complexity of the abortion debate (see slide 3.4).

3.2 The complexity of the abortion debate



3.3 The complexity of the abortion debate

Another aspect of the complexity of the abortion debate is that it is sometimes difficult to answer the (cf. slides 1.7 + 1.8):

2. Scientific question: at which developmental stage does the developing human acquire property z?

For instance, if $z =$ sentience, then how do we ascertain whether a developing human is sentient?

The typical answer is that sentience requires the development of some specific neuronal structure, for instance the somatosensory region of the cerebral cortex; but why should this neuronal structure instead of another phenotype be associated with sentience?

First complex aspect:
ethical issue

3.4 The complexity of the abortion debate

Type of question	Status	Status	Status
Ethical question	Positive answer: z = phenotype x	Positive answer: z = phenotype x	Negative answer: z = phenotype p or p' or p''
Scientific question	Positive answer: p is acquired at x weeks	Negative answer: not known when p is acquired with precision	Irrelevant
Social policy question	Unproblematic case: abortion allowed up to x weeks	?	?

Second complex aspect:
scientific issue

Social policy question: how should we behave in light of our answer to the ethical and scientific questions?

Third complex aspect: social policy issue (still ethical).

3.5 The complexity of the abortion debate

3. SOCIAL POLICY QUESTION: How should we behave in light of our answer to the ethical and scientific questions?

(Note that this is still an eminently ethical question).

It could be argued that lack of a clear answer to ethical and scientific questions should not paralyse social policy.

For example, what are the societal effects of not having legislation (or even criminalising) abortion? What is the impact on women's prospects for equality? What is the mental health impact on unwanted children?

As you can see, the abortion debate encompasses issues that exceed the ethical (probably better to say metaphysical or ontological) and scientific questions treated before. Social policy issues are arguably even more important than those considered in this class.

3.6 The complexity of the abortion debate

For instance, it has been argued that there is a correlation between the introduction of abortion legislation and lowering crime rates (Donohue & Levitt 2001). Thus, from a utilitarian perspective, the benefit of abortion legislation might trump its negative effects.

Another example: are practices of clandestine or selective abortion (i.e., discrimination vs. certain social groups, e.g., females) actually taking place given the legislative vacuum?

If it is considered a duty of government to protect all citizens, then deontological considerations might ground arguments in favour of abortion legislation. While, again, from a utilitarian perspective, the benefit of abortion legislation might trump its negative effects.

So, beyond the ethical/metaphysical and scientific issues, practical issues concerning social policy are of the utmost importance.

4.1 Appendix - Argument 1*

ARGUMENT 1 (this argument is already implicit in Aristotle's preformationist view as immediate hominisation, cf. slide 2.2; it is a version of the current argument of the Catholic Church)

PREMISE 1 (ONTOLOGICAL) - To become a person, a developing human must acquire a property *z* that endows the organism with the developmental potential to thrive and flourish in unique ways.

PREMISE 2 (FACTUAL) - Possessing a genome is a necessary and sufficient condition for endowing the developing human with a unique developmental potential.

PREMISE 3 (FACTUAL) - The genome controls the developmental process because the developing human's phenotypic features are determined by it.

PREMISE 4 (FACTUAL) - A developing human possesses a unique genome at fertilisation.

PREMISE 5 (MORAL) - It is wrong to kill developing humans because it is wrong to deprive persons of their right to thrive and flourish in unique ways.

CONCLUSION - Hence, abortion after fertilisation is wrong.

(* CRITICALLY EVALUATE THIS ARGUMENT AT HOME)

4.2 Appendix - Argument 1

PREMISE 2 (FACTUAL) - Possessing a genome is a necessary and sufficient condition for endowing the developing human with a unique developmental potential.

Possessing a genome is not a sufficient condition for endowing a developing human with a developmental potential to thrive and flourish in unique ways.

For instance, up to the morula stage (16-cells embryos, cf. slide 2.8), all cells have same genome but are totipotent; so every totipotent cell can become a different human; hence, the genome is insufficient to determine the developmental potential of a person.

I can teach you because I studied, not only because I have my particular genome; hence, my genome is insufficient to make me an academic, as I need educational institutions to actualise my teaching potential.

4.3 Appendix - Argument 1

PREMISE 3 (FACTUAL) - The genome controls the developmental process because the developing human's phenotypic features are determined by it.

The genome does not control development and naïve preformationism is biologically untenable.

I have a genomic potential to reproduce, but without sexual partner I cannot reproduce. Thus, the environment (i.e., the existence and availability of sexual partners) is a necessary condition for actualising my reproductive potential.

I have a genomic potential to possess an IQ (i.e., intelligent quotient) of 150, but without an intellectually rich environment I cannot actualise this potential. I have a genomic potential to acquire a language, but if I am a feral child I cannot actualise it.

4.4 Appendix - Argument 2

ARGUMENT 2 (general argument for any moderate view, slide 1.4)

z = a certain kind of organismal organisation (e.g., being a gastrula, at around 16 days), sentience (i.e., around 140 days ?), viability (i.e., 24 weeks) etc. Hence, a person begins at around 16 days, or around 140 days, or around 24 weeks etc.

ARGUMENT 2 (16 days variant) - Smith & Brogaard 2003.

z = being a biological entity with a specific organisation unable to divide.

4.5 Appendix - Argument 2

*“It is with gastrulation (around day 16) that **the foster** [NB. THE AUTHORS USE THE DANISH TERM “FOSTER” TO DENOTE THE DEVELOPING HUMAN] ceases to be a cluster of homogenous cells and is transformed into a single heterogeneous entity Gastrulation brings a new type of integration of the foster, which is manifested in the fact that twinning is from this point no longer possible. If fission occurs just prior to gastrulation, this will in almost all cases give rise to progressively more serious malformations [sic!] (i.e., Siamese twins) while human life is present at earlier stages, it is gastrulation which constitutes the threshold event for the beginning to exist of the human individual.”*

Smith and Brogaard 2003, pp. 62-3

4.6 Appendix - Argument 2*

ARGUMENT 2: “16 days” variant

PREMISE 1 (ONTOLOGICAL) - To become a person, a developing human must acquire a property z that endows the organism with the developmental potential to thrive and flourish in unique ways.

PREMISE 2 (FACTUAL) - Only at gastrulation the developing human becomes abruptly a single and indivisible organism.

PREMISE 3 (FACTUAL) - Single and indivisible organisms possess a unique developmental potential to thrive and flourish in unique ways.

PREMISE 5 (MORAL) - It is wrong to kill developing humans when they become a single and indivisible organism possessing a unique developmental potential because it is wrong to deprive persons of their right to thrive and flourish in unique ways.

CONCLUSION - Hence, abortion after gastrulation is wrong.

(* CRITICALLY EVALUATE THIS ARGUMENT AT HOME)

Primary resources:

1. Maienschein, J. 2016. Embryos, microscopes, and society. *Studies in History and Philosophy of Biological and Biomedical Sciences* 57:129-136.

Additional resources cited:

1. Delbrück M. 1971. Aristotle-totle-totle. In: Monod J, Borek E (eds) *Of microbes and life*. Columbia University Press, New York.
2. Donohue, J.J. & Levitt, S.D. 2001. The impact of legalized abortion on crime. *The Quarterly Review of Economics* CXVI(2):379-420.
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Additional bibliographic resources:

1. On Pope Pius IX: <https://embryo.asu.edu/pages/pope-pius-ix-1792-1878>
2. Papal bull *Apostolicae Sedis moderationi*: https://web.archive.org/web/20110828025043/http://stjosef.at/dokumente/de_ecclesiasticis_censuris/seite6.tif

Any questions, send me an email to: dvecchi@fc.ul.pt