



Bioethics and New Epoch

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Bioethical Issues and Sorites Paradox

Abstract

The main purpose of this article is an analysis of the Continuity Argument, one of the most influential arguments upon which the moral condemnation of scientific and medical practices such as embryo research and experimentation, assisted reproduction, abortion, therapeutic cloning, etc. are based. I have firstly given a very brief account of the approach that attributes the status of marker event to fertilization, identifying the Continuity Argument between other argumentation. Further, I have tried to distinguish the three possible interpretations of the notion of continuity assumed in the Continuity Argument, and to isolate the most persuasive formulation of Continuity Argument. Finally, I argue that even from the most convincing philosophical and scientific interpretation of the post-fertilization continuity, it does not follow: (1) that fertilization is a necessary determinant of moral status; (2) that fertilization is the most reasonable determinant of moral status. In short, this article has two goals: (i) to show that this very argument does not entail the stance that the above mentioned practices are morally impermissible; (ii) to suggest that some pragmatic strategies which treat sorites-infected paradoxes could insure a philosophically and scientifically appropriate framework for an alternative approach.

Key words

Continuity Argument, marker event, sorites paradox, sorites sequence, fertilization, malign and benign arbitrariness

There are certain fundamental questions that are to some extent familiar to the many bioethical issues such as embryo experimentation and research, assisted reproduction (including the practice of embryo freezing), abortion, therapeutic cloning, etc.: when does a person begin to exist? Is there, at some time during prenatal development, a crucial *marker event* before which there is no being to whom we have a moral obligation, and after which, there is? Is there any determinant of the moral status of person – prenatal or postnatal – and is it attainable by our cognitive capacities? I hope that it could be possible to contribute to this important issue by discussing one rather specific question: should we nominate fertilization as a marker event on the basis of the Continuity Argument.

In the first part, I will give a very brief account of the approach that attributes the status of marker event to fertilization, isolating the three possible interpretations of the Continuity Argument. In the second part, I will try to show that from the most persuasive interpretation of notion of continuity assumed in the Continuity Argument, it does not follow: (1) that fertilization is a *neces-*

sary determinant of moral status; (2) that fertilization is the *most reasonable* determinant of moral status. Finally, I will conclude that *this very argument* does not entail the stance that the above mentioned practices are morally impermissible.

Continuity Argument and fertilization as a marker event

A debate about the permissibility of embryo research and experimentation, assisted reproduction, abortion, therapeutic cloning, etc. is primarily focused on the search for the marker event or the event that determines the moral status of an embryo or a fetus.¹ Various landmarks in prenatal and postnatal development are nominated as this marker event: fertilization, segmentation, viability, capacity to have an experience, the sentiments of adults, social visibility, the constitution of large multiple connected cerebral cortex, the ability for rational reasoning, consciousness, self-motivated activity, etc. (Noonan, 1970; Warren, 1973; Tooley 1983; Morowitz & Trefil, 1992). However, only the advocates of the stance that fertilization is a crucial moment in prenatal development are principally opposed to all scientific practices from embryo research to abortion (Noonan, 1970; Finnis, 1977; John Paul II, 1995).

According to the viewpoint that a person with the rights to life begins to exist at the moment of fertilization, all these practices are tantamount to murder and, therefore, absolutely impermissible. Fertilization is a complex process (lasting about 24 hours) initiated by the incorporation of the sperm in the egg, after which the egg completes maturation, the genetic material of each condenses into chromosomes, and finally the male and the female contributions come together *to form the new genotype*. It marks the beginning of a genetically unique human life and therefore the beginning of a new individual, a *person* with the right to life of an adult and that it is wrong to destroy such an individual life because of what it currently is.² However, in more recent discussions this general argument is divided into three arguments: (i) *Genetical Argument* – at the “moment” of fertilization a genetically human being/person is created; (ii) *Continuity Argument* – in the post-fertilization period a continuum of developmental changes is such that it is impossible to isolate any stage to which we could attribute the attainment of moral status; (iii) *Individuality Argument* – it is the same individual right through from the moment of fertilization until the end (Dawson, 1993). We will focus in this paper exclusively on the Continuity Argument, and try to show that from the fact of post-fertilization continuity does not follow that fertilization has to be seen as an essential discontinuity or “transformation” in development (Grisez, 1970; Quinn, 1970; Noonan, 1970; Iglesias, 1984).

Concerning the definition of this argument, it has to be noticed that three interpretations of various strengths can be detected: (i) the strongest interpretation implies that continuity means the denial of any genetic and numerical developmental changes in the post-fertilization process; (ii) the moderate interpretation does not exclude some developmental changes, but it is argued that the continuity entails that there are no *crucial* changes in the sense of discontinuity or *relevant* “transformation” in development; (iii) the weakest interpretation allows even crucial developmental changes but it is claimed that, due to gradual nature of continuous developmental process, it is not possible to isolate one single moment as a marker event. Regardless of these different versions of the Continuity Argument, the conclusion is always the

same: the continuity of post-fertilization development is the reason why we have to ascribe to fertilization a status of marker event. We will focus here exclusively on the third, less demanding but the scientifically and philosophically most convincing one.³ More precisely, we would like to show even the weakest interpretation of Continuity Argument failed to support the fertilization approach.

Sorites series and the problem of the arbitrary precisification

For the sake of our argument, we will register very briefly the reasons why from gradual continuity follow that isolation one single moment as marker event is impossible. It can be useful to recall here the ancient notions of continuum. For instance, according to Aristotle, continuum is a kind of coherence where coherence is defined as that which touches when it is in sequence. Continuum is a species of coherence, such as that both terms by which it is contained are one and the same, and, as its name signifies, they are contained; but this cannot be when there are two terms. Commenting on this passage of Aristotle, Thomas Aquinas says:

“For when the ends of two things which touch are made one the same, that is said to be a continuum. Continuum is derived from contained (*continendum*). When therefore many parts are contained in one, that is, hold together as it were at the same time, then there is continuum. (...) From this it follows further that there cannot be continuation except in those things, from which a unity is made naturally by contact.”⁴

According to them, the requirement for the identification of one single moment as a certain borderline even *contradicts* the notion of continuous process as unity or wholeness. However, there is also a certain weaker and recently most accepted position that in continuous processes any demarcation is arbitrary. Namely, in various areas where we deal with the continuous or gradual processes or scales – in biology as well as in any other domain – we deal with the sorites series. The requirement to identify a single moment in sorites sequence leads to the sorites paradoxes or to “the problem of arbitrary precisification” (Sorensen, 1988; Williamson, 1993; Kerckhove & Waller, 1998; Ludvig & Ray, 2002).

In antiquity sorites paradoxes were usually formulated as series of questions. Let us see the Heap (i.e. originally *Sorites*): Does one grain of wheat make a

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In spite of tendencies to disclaim the discussion about marker events or the status of embryo (or fetus) as irrelevant for the moral judgment of these practices, we will limit our present debate exclusively on to the still predominant issue about the marker event. See, for instance, Thomson, 1971; Dworkin, 1993; Marquis, 1994; Kerckhove & Waller, 1998.

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A number of philosophers, on both sides, think that it is wrong to destroy such an individual life – not (or not only) because of what it currently is, but because of what it has a potential to become. However, this interesting, relevant and extremely important discussion

about the potentiality argument is beyond our present interest.

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See, for instance, Quinn, 1970. Also see Federal Republic of Germany, 1975 (IPPF Report, Appendix 2); Warnock, 1998. Even Aristotle and Aquinas assume a certain gradualist position because they held that the early embryo that comes into existence is less valuable than the later fetus. See Aristotle, *History of Animals*, 583b, in: McKeon (ed.), 1930.

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See McKeon (ed.), 1930: 439–440.

heap? Do two grains of wheat make a heap? Do three grains of wheat make a heap? Etc. Do ten thousand grains of wheat make a heap? If someone admits that one grain does not make a heap, and if she is unwilling to make a fuss about the addition of any single grain, she will be forced to admit that ten thousand grains do not make a heap. Namely, when someone at first denies that one grain makes a heap – which is the only reasonable answer – she should later decide between two equally unacceptable answers: that one grain makes a heap from a non-heap at some arbitrary point, or to deny that ten thousand grains make a heap. As well as in the case of the heap, the non-arbitrary identification of one single point as a marker event is not possible also in other cases of continuous or gradual processes: for instance, in the cases of tallness, baldness, strong wind, a mountain, a city, the open sea, when an orange colour in a spectrum becomes red, etc. The non-arbitrary isolation of the centimetre at which someone becomes tall or the hair when someone becomes bald seems to be hopeless. Similarly, if post-fertilization development is a continuous and gradual process, that is, a certain sorites sequence, the isolation of any moment as a marker event would be arbitrary and it would lead us to the sorites paradox. Since we are not principally able to make a non-arbitrary precisification of a crucial moment, we cannot isolate a single moment both in prenatal and postnatal development as a marker event as well as we cannot find out the moment that determines when childhood finishes and puberty begins, when adolescence or maturity begins, etc.⁵

It could be objected here that such an analogy between the cases of baldness or heap and the issues about the beginning of the life of a person is ungrounded for two reasons: (1) the paradox is restricted only to quantitative processes like baldness, tallness or the like, but not qualitative like post-fertilization development; (2) there is a great difference between baldness and personhood in terms of moral importance. Regarding the first objection, it seems to us that any continuous process, “including those that referee to qualities such as loudness or to stages of temporal development, are susceptible to the sorites paradox” (Kerckhove & Waller, 1998: 179–180). For instance, let us see how L. F. Kerckhove and S. Waller illustrate the applicability of the sorites paradox to one qualitative process:

- “1. An egg cooked for one second is not a hard boiled egg.
2. Cooking the egg one second longer will not affect its doneness.
3. Therefore, an egg cooked for two seconds will not be hard boiled.
4. Repeat steps (2)–(3).” (Kerckhove & Waller, 1998: 180)

Consequently, any continuous or gradual biological process presents sorites series like baldness, tallness but also loudness, red-orange continuum of colour patches, temporal development, etc.

Secondly, we are deeply aware of the difference in moral importance between the debate about baldness and post-fertilization development, but we are here limited to no other analogy except in the aspect of continuity. While the applicability of possible solutions of sorites paradox in the case of personhood could be an object of moral concern, it seems that the mere identification of the analogy between the different cases of continuous processes cannot.

Accordingly, we accept following reasoning assumed in Continuity Argument as legitimate: (i) in the continuous processes or in the sorites series it is not possible to non-arbitrarily isolate any single moment as a marker event; (ii) post-fertilization development is continuous process; (iii) therefore, in the post-fertilization process it is not possible to non-arbitrarily isolate any single moment as the marker event. Our question will be now whether we should derive from this that fertilization has to be nominated as a marker event.

Non-sequitur

More precisely, should we conclude with the advocates of the Continuity Argument that fertilization is *necessary* marker event?

(1) *Sorites paradox*. When someone claims such a claim he falls into sorites paradox. Following argument illustrates the applicability of the sorites paradox in the case of a person:

- “1. X is a person at age T, where T is twenty-one years old.
2. If X is a person at age T, then X is person at T-1 second.
3. Therefore, X is a person at T-1.
4. Repeat steps (2)–(3).

Using iterated *modus ponens*, we can eventually slide from the intuitively plausible claim that a twenty-one year old human being is a person to the much stronger claim that a newly fertilized ovum is a person.” (Kerckhove & Waller, 1998: 181)

If it is absurd to claim that someone becomes bald with the first hair he loses because we cannot isolate one single moment or a hair when the baldness starts, it would be, by analogy, very dubious to nominate fertilization as the moment when a person begins to exist because we cannot isolate one single moment in further development when it begin to exist. In spite of the impossibility that we non-arbitrarily isolate a moment when someone becomes bald, nobody can seriously claim that a person becomes bald with the first hair he loses. To derive a claim about fertilization as a marker event from the fact of continuity of developmental process is not absurd as deriving that the a person become a bald with the first hair he loses or that the first drop makes an ocean, but it is seriously doubtful result of sorites reasoning. In short, the inference according to which from the fact of continuous process follows that the beginning of a process is the marker event, presents a clear case of deficient and unacceptable inference.

(2) *Continuity does not imply identity*. It seems that the proponents of Continuity Argument assume that if we have a person at some point in the continuous process, due to the nature of continuity, we have to have a person also at the beginning of this process. What we know is that twenty-one year old (perfectly physically and mentally healthy) Mary is undoubtedly a person with all the rights of a person. There is no single participant in the discussion about personhood who would deny this. Probably, when Mary was ten years old or even seven she was a person as well. Twenty-one years old Mary is physically continuous from the egg that was fertilized more than twenty-one years ago, and from which she developed. However, it does not follow that she became a person when the egg was fertilized. The mere physical continuity does not imply necessary identity. For instance, Robert Lane who argues that physical continuity does not imply even a numerical identity, wrote:

“(…) an early-term PBH (*pre-born-human*) is not sufficiently similar, either anatomically, physiologically, or psychologically, to the late term PBH, infant, or adult with which it is physically continuous, to be one and the same thing as any of them.” (Lane, 2003: 69)

Accordingly, things could be of one kind at some point in development and another at the beginning because they can change their identity *during* this continuous developmental process. The continuity of process does not nec-

essarily imply identity during the whole process. Someone can hold that a person who is named Mary began to live from conception for some other reasons, but a mere physical continuity is surely not the reason for a claim that a twenty-one year old person was necessarily a person also at the moment of fertilization. In short, from the facts that a twenty-one year old human being is a person and that the process from fertilization to being a twenty-one year old person is continuous, to derive that fertilization is the moment when this person began to exist – is an obvious *non sequitur*. It can be perfectly justified to say that, in spite of the continuity of prenatal and postnatal development, Mary over time gradually became a person from a non-person.

Fertilization as the most reasonable marker event

However, it can be argued that such a reading of Continuity Argument – where continuity *necessary* implies that fertilization is the marker event – is a certain argument of a straw man. Namely, it could be said that Continuity Argument assumes only that it is *most reasonably* to nominate fertilization as a marker event.

The two lines of argumentation in favour of such reasoning could be offered. Firstly, it would be arguable that it is most reasonable in terms of moral concerns to nominate the fertilization as a marker event. Namely, in the situation when the marker event is principally unattainable, attributing fertilization as the marker event we could prevent possible murders. Secondly, since moral and legal purposes impose on us the need for some event that can be nominated as a marker event, fertilization – as the only salient event or the only clearly identifiable event – would be a most suitable solution (John Paul II, 1995).

Let us notice that such reasoning relies on two stronger interpretations of continuity that reject the existence of developmental changes, or at least the existence of crucial changes in the post-fertilization development. Only if there are no changes or no crucial changes, any marker event in the post-fertilization period would be unreachable. However, under the third interpretation such an argumentation loses its grounds. In the sorites series, from the fact that we cannot identify non-arbitrarily one single point as a demarcation line it does not follow that we cannot know that a person *somewhere during* the process of losing hair becomes bald, or that we cannot know that the life of a person begins *somewhere during* this continuous process. In gradual process we cannot isolate one single moment but we can isolate the *zone* or *area* where the crucial change happens. For instance, H. J. Morowitz and J. S. Trefil claim that: (i) the individual human fetus becomes a person with rights when the cortex begins to function; (ii) the cortex becomes functioning when the system is “wired up” by synaptic connections; (iii) this process starts at *around* twenty-four weeks of gestation. Such an example illustrates clearly that the continuity does not imply that we don’t know when a person begins to live, or what the features that make a person are.

In the general philosophical debate about sorites paradoxes, a certain solution that supports previous reasoning about the possibility to determine an area as the marker process has been already offered as certain pragmatical strategies that treat sorites-infected paradoxes (Rafman, 1994; Manor, 1997; Horgan, 1994; Van Kerkhove, 2000).

In spite of the fact that we cannot say exactly at which point someone becomes tall, bald, when the door is open or when an egg is hard boiled, we can

perfectly distinguish a tall person from a small one, a bald person from one who is not bald, when a door is open or when an egg is hard boiled and when is not. In the sorites series the existence of change from a non-bald person to bald, from a non-heap to heap, from an orange colour in red is unquestionable. In other words, in spite of the impossibility that we non-arbitrarily isolate a precise one single moment as a marker point, it could be possible to define a *relevant sequence* or simply a *grey area* in which the crucial change that makes person to non-person happens.

For instance, when scientists and moral philosophers would agree about the features that make a person, there will not be any principal obstacles to the isolation of a relevant sequence, or grey area, to which they can attribute a nomination of marker area. Let us imagine that scientists and philosophers make a consensus that the segmentation is a morally relevant developmental change. As well, as any semantically competent speaker (who understands the notion ‘tall’) would say that after 190 centimetres any person is tall, we could say that after the day 14, any scientific intervention or research on embryos is forbidden. The day 14 as well as 190 centimetres presents the end of the sequence after which the any uncertainty disappears. Namely, in the case of segmentation, the grey area finishes for sure at day 14 in *in vivo* developments (and even later in *in vitro* development) when the appearance of the primitive streak precludes the embryo becoming two or more different individuals. Therefore, the fact about the continuity of developmental process would not be a barrier to determine segmentation or cortex functioning or any other process as a marker area. The line that could be drawn at the end (or in the case of the cortex functioning, at the beginning) of a general or grey area would be absolutely reasonable.

Morally malign and benign arbitrariness

It would be reasonable object now that our proposal failed because we have not escaped from the arbitrariness: the lines that determine the beginning or the end of grey areas must be also arbitrary. It could be, quite intelligibly, asked why we chose the 160 cm and 190 cm as the borderlines, why not 159 cm and 188 cm or even more precise sequence from 170–186 cm. However, in contrast to the malign arbitrariness that characterizes sorites paradoxes, such arbitrariness is of the benign kind. It is much more benign to arbitrarily isolate borderlines around the sequence than to point arbitrarily 184 cm as the demarcation line when someone becomes tall. While arbitrariness assumed in pointing 184 cm implies a very high probability of mistake, it can be taken as granted in the highest possible degree that nobody under 160 cm is tall and anybody over 190 cm is not tall. It is definitely much more accurate to say that someone becomes tall in the sequence from 160–190 cm, than at 184 cm. Moreover, such a solution that assumes benign arbitrariness is far more appropriate in bioethical discussions where indifference about hypothetical solutions is intolerable and where moral deliberation in each particular case should minimize the possibility of mistakes. More precisely, an arbitrariness we claim is not only more benign in terms of accuracy, but also it is *morally* benign arbitrariness. Namely, it is much more morally desirable to draw arbitrary lines around grey area than one arbitrary demarcation line so long as our possible mistakes (that can result from arbitrariness) are on the side of caution.

Accordingly, under the assumption that the segmentation is the morally relevant developmental change, day 14 as the line before which embryo experi-

mentation can be performed is arbitrary in a morally very benign sense, because it, in the highest degree, excludes the possibility that we make a mistake concerning the formation of the primitive streak (and, under the assumption that segmentation is the marker process, to kill a person).⁶ Namely, since *in vitro* development is much slower than *in vivo*, such a line is definitely the most secure line before which, for instance, embryo experimentation can be accomplished without any fear that the primitive streak can be formed.

Consequently, contrary to the Continuity Argument on which the fertilization approach is based, it can be argued that the post-fertilization process is continuous and gradual, and that fertilization is neither necessary nor most reasonable determinant of moral status.⁷ In other words, it is possible to accept scientifically and philosophically convincing ideas about the continuity of developmental process, and at the same time to claim that scientific practice of embryo experimentation, therapeutic cloning, abortion and the like are morally justified.⁸

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Namely, after day 14 in the case of *in vivo* development there is no any possibility for twinning or chimera formation because the primitive streak definitely begins to form in the embryonic disc. It should be stressed here that the dynamics of *in vitro* and *in vivo* development are not identical. The development of the *in vitro* embryo up until about 7 days after fertilization is roughly equivalent to that *in vivo*. Beyond this, however, there is no equivalence in development; no primitive streak will be formed *in vitro* embryos at the stage of 14 days.

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It has to be stressed that I have not argued here that more convincing arguments in favour of fertilization approach could not be offered.

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Snježana Prijić-Samaržija

Bioetički predmeti i paradoks sorita

Sažetak

Glavna je svrha ovoga članka analizirati Argument kontinuiteta, jedan od najutjecajnijih argumenata na kojemu su utemeljeni moralna osuda znanstvenih i medicinskih praksi poput istraživanja i eksperimenata s embrijem, potpomognuta reprodukcije, pobačaja, terapijskog kloniranja, itd. Prvo se daje vrlo kratko objašnjenje pristupa koji pripisuje status markirajućeg događaja fertilizaciji, identificirajući Argument kontinuiteta među drugim argumentacijama. Nadalje, pokušava se razdvojiti tri moguće interpretacije pojma kontinuiteta pretpostavljenog u Argumentu kontinuiteta, te izdvojiti najuvjerljiviju filozofsku i znanstvenu interpretaciju post-fertilizacijskog kontinuiteta. Naposljetku, tvrdim da iz filozofski i znanstveno najprihvatljivije interpretacije ne slijedi: 1) da je fertilizacija nužna odrednica moralnog statusa; 2) da je fertilizacija najrazboritija odrednica moralnog statusa. Ukratko, ovaj članak ima dva cilja: I) pokazati da upravo taj argument ne povlači za sobom stajalište da su gore spomenute prakse moralno nedopustive; II) sugerirati da bi neke pragmatičke strategije koje se bave soritom-proizvođenim paradoksima mogle osigurati filozofijski i znanstveno primjeren okvir za alternativni pristup.

Ključne riječi

Argument kontinuiteta, markirajući događaj, paradoks sorita, slijed sorita, fertilizacija, maligna i benigna proizvoljnost

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Bioethische Themen und das Sorites-Paradoxon

Zusammenfassung

Das Hauptanliegen dieses Artikels ist, dem Argument der Kontinuität nachzugehen, weil es eines der einflussreichsten Argumente ist, auf denen die moralische Verwerfung von wissenschaftlichen und methodischen Praxen beruht. Zu diesen werden z.B. die Embryonenforschung, Experimente an Embryonen, die assistierte Reproduktion, die Abtreibung, das Klonen zu therapeutischen Zwecken u.a. gezählt. Zunächst wird eine sehr kurze Erklärung des Ansatzes gegeben, der der Fertilisation den Status eines einschneidenden Ereignisses einräumt, indem das Argument der Kontinuität als eines unter vielen identifiziert wird. Weiterhin wird versucht, die drei möglichen Auslegungen des Kontinuitätsbegriffs, die im Kontinuitätsargument enthalten sind, auseinander zu halten. Es wird auch versucht, die überzeugendste philosophische und wissenschaftliche Auslegung der Postfertilisationskontinuität zu widerlegen. Denn letztlich folgt aus der philosophisch und wissenschaftlich naheliegendsten Interpretation nicht: 1) dass die Fertilisation eine notwendige Determinante des moralischen Status ist; 2) dass die Fertilisation die sinnvollste Determinante des moralischen Status ist. Kurzum, der Artikel hat sich zwei Ziele gesetzt: I. zu beweisen, dass gerade aus diesem Argument nicht folgt, dass die oben erwähnten Praxen moralisch unzulässig seien; II. naheulegen, dass einige pragmatische Strategien, die sich der Sorites-Paradoxa bedienen, einen philosophisch und wissenschaftlich adäquaten Rahmen für alternative Ansätze bereitstellen könnten.

Schlüsselwörter

Kontinuitätsargument, einschneidendes Ereignis, Sorites-Paradoxon, Sorites-Sequenz, Fertilisation, maligne und benigne Beliebigkeit

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Les questions bioéthiques et le paradoxe des sorites

Résumé

Le présent article a pour objectif d'analyser l'Argument de la continuité, qui est l'un des arguments les plus influents sur lequel repose la condamnation morale des pratiques scientifiques et médicales, telles que les recherches et les expérimentations sur les embryons, la reproduction assistée, l'avortement, le clonage thérapeutique, etc. D'abord sera donnée une brève explication de l'approche qui attribue le statut d'un événement marquant à la fertilisation, en identifiant l'Argument de la continuité parmi d'autres argumentations. En second lieu, je vais essayer de distinguer les trois interprétations possibles de la notion de la continuité présumée dans l'Argument de la continuité, ainsi que d'isoler la formulation la plus persuasive de l'Argument de la continuité. Finalement, je soutiens que, même provenant de l'interprétation philosophique et scientifique la plus convaincante de la continuité de la période postérieure à la fertilisation, il ne s'ensuit pas 1) que la fertilisation soit une déterminante nécessaire du statut moral; 2) que la fertilisation soit la déterminante la plus raisonnable du statut moral. Bref, cet article a deux objectifs: (I.) celui de démontrer que justement cet argument n'implique pas que les pratiques mentionnées ci-dessus soient moralement inadmissibles et (II.) celui de suggérer que certaines stratégies pragmatiques qui traitent les paradoxes dus aux sorites puissent assurer un cadre philosophique et scientifique approprié à une approche alternative.

Mots-clés

Argument de la continuité, événement marquant, paradoxes des sorites, séquence de sorites, fertilisation, arbitraire bénin ou malin