

## Pregnant Mereology

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### Abstract

How does the mammalian fetus relate to its gestating organism? In this paper I argue that fetuses are not merely contained within their gestating organism, but are a part of it. This presents a dilemma. Either mammalian organisms begin at birth, or mammalian organisms can be part of other mammals.

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I take these two statements to be uncontroversial: (1) before an organism becomes pregnant, it is only one organism; (2) after the organism's pregnancy, there are (usually) at least two organisms. Together, these two statements raise a question: when does one organism become two? An answer to that question must in part depend on a second question: what, during pregnancy, is the relationship of the mammalian fetus to its gestating organism?

That latter question – the relationship between the fetus and its gestating organism – has not received much attention in the literature.<sup>1</sup> But it is an important one, for at least three reasons. First, because the extent of our organism may be

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<sup>1</sup> This might seem incorrect, because there is so much literature on the metaphysics of abortion. But that literature focuses almost exclusively on the intrinsic features embryo/fetus; not the fetus-gestator relationship. An exception is feminist scholarship (e.g. Young, 1984; Katz-Rothman, 1989; Kristeva, 1993; Irigaray, 1985). I think that latter literature is broadly supportive of my view.

important for determining the scope of e.g. our rights to privacy, bodily autonomy and/or non-interference. Second, because the boundary of the organism may, depending on one's view on personal ontology, bear important relationships to the boundaries of the person or the self. Third, and as already mentioned, because the relationship between the fetus and its gestator is important for determining when a new mammal comes into existence.

In part one of this paper I make a first stab at answering this question. In *section 1* I offer an, admittedly weak, *prima facie* argument in favor of the view that fetuses are part of their gestator-organism – until birth. Call this the *part-whole claim*. In *section 2* I consider an argument offered by Smith & Brogaard (2003) to the effect that that mammalian fetuses are *not* part of the gestating organism, but are merely contained within it. In *section 3* I contend that Smith & Brogaard's claim should be rejected, and moreover that the reasons for rejecting it considerably strengthen the case in favour of to the part-whole claim.

In the second part of the paper I connect the part-whole model with the question when organisms begin. I point out that the part-whole claim results in a dilemma: either human and other mammalian organisms start at birth, and no earlier (*section 4*), or human (and other mammalian) organisms can be part of other mammalian organisms (*section 5*). Neither option is immediately attractive; both demand substantive revision of widely held beliefs.

### *Terminology & Scope*

Before getting into the arguments, note two bits of terminology: the *foster* and the *gravida*. The *gravida* is simply a shorter term for ‘pregnant organism’, based on the Latin designation in medical casenotes. The *foster* is a Danish term that I borrow from Smith & Brogaard (2003), and which I stipulate denotes what the gravida is pregnant *with*, regardless of its developmental stage. Whilst I don’t want to commit to when fosters begin – for reasons that will become clear, possibly zygotes and morulas, but certainly embryos and fetuses are all referred to in the shorthand *foster*.<sup>2</sup>

Also note that this paper’s discussion is focussed entirely on organisms. This means, first, that the discussion in this paper should not just apply to human organisms, but also to, say, elephant seals, camels, sea-otters, and all other placental mammals. Whilst the physiological details used in this paper are specific to human embryonic development, embryonic development is very similar for all mammals which means that they, with adjustment in timing, equally apply to hamsters (14-18 days gestation) and elephants (22 months gestation). Second, this paper is not committed to, and will not actively pursue, any claims about persons.

## **I – The Prima Facie Argument**

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<sup>2</sup> I do not suggest that ‘foster’ is a morally or even metaphysically unified category; there are many relevant and interesting differences between zygotes, term-fetuses and the many stages in between. But for the purposes of this paper, i.e. investigating the relationship between the foster and gravida *during* pregnancy, they can be collapsed into one category, at least after implantation ( see note 7).

Look at a pregnant mammal; what do you see?<sup>3</sup> You see one organism. Then birth happens, and suddenly a new, additional and much smaller organism emerges amidst a pool of liquid, blood and breaking membranes. Sometimes the maternal organism doesn't survive, more often the smaller organism does not.

What was the relationship of that new smaller organism to the larger organism, prior to this event? It was evidently inside it. But was it *part of* the larger organism? Or was it (already) a separate entity *merely contained within it*? As an uninitiated observer you would be quite warranted in thinking that this does not look at all like the emergence of an entity 'merely contained within the organism'; it looks like the detachment or severance of a part. Compare, for example, defecation (no blood!; no death!; no different bits – the placenta – being severed and then emerging at different times) with birth. This view is further supported by those who have investigated pregnancy, so to speak 'from within'.<sup>4</sup>

That is the – admittedly very weak – *prima facie* case in favour of the part-whole claim. What can be said against it?

## II – Objects, Organisms, Tenants & Niches.

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<sup>3</sup> You can do this – as a bit of 'experimental philosophy'. Here are some Youtube videos of (non-human) animals giving birth:

<https://www.youtube.com/watch?v=1kZW8e79Bm0&list=PL1E2737659650EF1B>

<sup>4</sup> See, e.g. Young (1984:50, *my emphasis*): "Later I look with wonder [...] at my child, amazed that this yowling, flailing thing, so completely different from me, was there inside, *part of me*."

Barry Smith & Berit Brogaard (2003) are one of the few philosophers who provide an explicit argument relevant to my question about gravid-fetal relationships<sup>5</sup>; they argue that fosters are *not* part of the gravida, but are merely contained within it like “a tub of yogurt is inside your refrigerator” (2003: 74). To understand their argument, we must understand a little bit about how they view organisms. Smith and Brogaard are substance metaphysicians who see organisms as *objects*: topologically connected, persisting physical entities that are able to undergo change. Objects can have parts, but fosters aren’t such parts – or so Smith & Brogaard argue. To substantiate this claim they invoke the concept of a *niche*. A *niche* “is a part of reality into which an object fits, and into and out of which the object can move”. (2003: p70). Smith & Brogaard maintain that an object *o* can be inside another object *O* without being part of that larger object *O*, iff *O* contains a *niche* that contains *o* as an occupier or *tenant*. Gravidae, Smith & Brogaard argue, contain a niche of which the foster is a tenant. Therefore – appearances notwithstanding – fosters are not proper part of the maternal organism, but instead their own, separate entities, merely contained within it. Thus birth, on their view, is

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<sup>5</sup> Another explicit defence of this view is by Howsepian (2008), who defends it on the basis of an *a priori* assumption that “no thing that is merely part of some other thing could be a human person” (2008:152). I see no reason to accept this assumption. But even if it were accepted, how would it possibly be an argument against fetal parthood, rather than against fetal personhood? Surely fetal parthood is to be settled by considering pregnant organisms, and not by an arm-chair stipulation about fetuses and persons? Howsepian aside, most commentators appear to simply *assume* that the foster is not part of the gravida – or they ignore the question altogether.

*merely* a transition “from one environment into another”, like an “astronaut leaving her spaceship” (2003:65).

I shall now assess whether the tenant-niche view can be applied to the foster-gravid relationship. I shall argue that, by Smith & Brogaard’s own criteria, it can’t – but the real merit of the exercise isn’t that. It is that in investigating this question we shall uncover many physiological considerations that make the part-whole claim much more plausible than the *prima facie* argument alone could establish.

### **III Are Fosters part of Gravidae?**

Let’s evaluate Smith & Brogaard’s claim: is birth a ‘mere change of environment’? Can a foster move in and out of its niche, the way Smith & Brogaard claim a tenant supposedly can? What a preposterous idea. We cannot take ‘the bun out of the oven’, check it, and stick it back in if it is not fully cooked! Birth is irreversible: once a baby is out, it does not go back in – ever.<sup>6</sup> The reason for this is not merely that it is physically difficult to ‘push a baby back in’ and reattach it, but that upon birth both baby and mother undergo significant physiological transformation – such as the rerouting of circulation and the unfolding of lungs in the baby – which means that it is no longer *capable* of oxygenating its blood via placenta and umbilical cord.

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<sup>6</sup> One might think that an exception holds for kangaroos. But kangaroos must still give birth, which is irreversible. Only once born do their joeys move into the pouch, and once there, the joey looks an awful lot like a tenant in a niche. But at this point the kangaroo is no longer pregnant. Which is why this paper focuses on placental mammals – not marsupials.

In fact, we can't even move fosters from womb to womb<sup>7</sup>. And even were we to gain that technology, that would not change things. Consider hearts and kidneys; although we have the technology to transplant these, that does not stop us from considering them parts of the organisms, rather than tenants within it. These organ transplants are possible, but they are exceedingly difficult and risky – and that is precisely *because* they remove and insert parts of organisms which involves severing major connections. The same will apply should we be able to transplant fosters.

### *The Tenant-Niche Claim Rebooted*

It is quite clear that, on Smith & Brogaard's initial formulation of the tenant-niche relation, fosters and gravaidae do not stand in a tenant-niche relationship. But Smith & Brogaard (2003) do not discuss this initial formulation when discussing the foster. Instead they posit three further characteristics for the tenant-niche relationship that they claim *do* apply to fosters. These are that niches and tenants (1) do not *overlap* or have parts in common, (2) do not share an external boundary, and (3) must be separated from each other by some liquid or fluid-filled cavity. As an illustrative example, consider a fish inside an aquarium. Although the fish is *inside* the aquarium it is not *part of* the aquarium; rather it is a tenant in a niche. Not only because fish can be moved in and out of the aquarium, but also because (1) fish

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<sup>7</sup> After implantation, that is. Before implantation this is a different matter, as IVF illustrates. If and how the arguments apply prior to implantation will have to be addressed another time.

and aquarium do not share parts; (2) fish and aquarium do not share an external boundary; and (3) fish are in a [water-filled] cavity in the aquarium.

Based on these criteria, Smith & Brogaard (2003) give two arguments to convince us that fosters are tenants in a niche. First, and corresponding to the second criterion, they assert that a foster has its own, completely connected external boundary, marked by a physical discontinuity between foster and gravida; the foster is at no point topologically connected to the gravida. Second, and corresponding to the third criterion, they focus on the role of the amniotic cavity as ‘surrounding’ the foster

Let’s therefore assess whether, despite their not meeting the initial formulation of the tenant-niche relationship, fosters should be considered a tenant in a niche according to these new arguments and additional criteria. Before this assessment can be executed, we need to have two further bits of information. First, we must know what the *boundaries* of the foster are that the tenant-niche criteria repeatedly refer to. Second, we must understand the concept of a *fiat boundary*.

### *Fosters, Boundaries and Fiat Boundaries*

What are the boundaries of the foster? The answer to this question is less than straightforward, and this is not something that Smith & Brogaard (2003) are explicit about. Nor, in fact, is anyone else.<sup>8</sup> Rather than giving a definite answer, I will

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<sup>8</sup> Odenberg (2008) notes that in discussions of the metaphysical status of fetuses it is conventional to take what I call the *future baby* view of the foster (he calls it the *fetus proper*). But he also notes that there is nothing inconsistent about taking something like what I call the *chorionic content* or *baby-*



identify the three most plausible candidates for delineating a foster. Instead of picking one, I will argue for each of them that Smith & Brogaard's arguments and criteria don't apply, and thus that the foster fails to be a tenant in a niche. These three conceptions of the foster are:

1) '*Future Baby*' (FB), where the foster only comprises the parts that emerge as the future baby: the (future baby's) body, circumscribed by its skin and stopping at the umbilicus or some way along the umbilical cord;

2) '*Baby with Placenta*' (BP), where the foster comprises the 'future baby' plus the umbilical cord and placenta; and

3) the '*Chorionic Content*' (CC), where the foster comprises future baby, umbilical cord and placenta, as well as the chorionic and amniotic membranes and all their contents, including e.g. amniotic fluid.

Before I can examine these three conceptions, it is also helpful to understand Smith & Brogaard's concept of the 'fiat boundary':

"Fiat boundaries are boundaries that correspond to no underlying physical discontinuities. Examples are found above all in the realm of arbitrarily demarcated geospatial entities such as postal districts, census tracts, or air traffic corridors." (2003: 72)

As an example, the closed door to my office marks a real or *bona fide* boundary between my office and the hallway; when I open my door there is merely a *fiat* boundary between office and hall.

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*with-placenta* view. These distinctions seem important, and the widespread ambiguity regarding fetuses problematic – but I will have to expand upon this another time.

Smith & Brogaard's core arguments in favour of the fosters' tenant-niche relationship to the gravida rely on the existence of actual, clear and complete external boundaries. As they themselves state: "if the foster is connected to the mother – if, in other words, the boundary between the foster and the mother is a matter of fiat and not of bona fide boundaries – then the foster cannot stand to the mother in the niche-tenant relation". (2003: 73) As the most expedient way of repudiating their claim to about fosters being tenants, then, I will demonstrate that for each conception of the foster its supposed boundary very clearly is one that incorporates a section that is merely a *fiat boundary*.<sup>9</sup>

### *Testing the Tenant-Niche Claim*

First, consider the *Future Baby* conception, where the foster has a boundary at the umbilicus or a bit further along the umbilical cord. During pregnancy, this clearly marks a *fiat boundary*; a physical discontinuity will only appear once the umbilical cord is severed after birth, but does not exist during the pregnancy. The umbilical cord is a clear example of topological connection, and moreover one that marks a functionally and metabolically essential connection. On the *Future Baby* view, the foster does *not* stand in a tenant-niche relationship to the gravida.

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<sup>9</sup> *Note to reviewers*: a much more elaborated version of this argument, which demonstrates for each conception of the foster how it fails to meet all of the criteria that Smith & Brogaard pose, *and* how Smith & Brogaard's two core arguments don't apply to it, as well as a lot more detail on placental physiology, has been cut at the advice of various peers. But (parts of) it could easily be reinserted if the expedited argument on the grounds of fiat boundaries alone is considered insufficiently clear or convincing.

Second, consider the *Baby with Placenta* conception. Here the foster has a boundary at the maternal side of the placenta: somewhere inside the spongy maternal deciduous tissue – perhaps at the rough site of the placenta’s future separation. This, again is a *fiat boundary*; after birth, the placenta will detach and there will be a physical discontinuity between placenta and the (previously) pregnant organism. But before birth, there is no boundary here; the placenta is not a clearly defined mass with a smooth surface surrounded by a membrane the way that brains, kidneys or lungs are. Instead, the placenta comprises tissues of maternal and fetal origins and grows direct into (or out of) the uterine wall, just as a tail grows out of the cat. The interface between placenta and the womb is best thought of as a zone, and a zone that is not only marked by the intermingling of fetal and maternal tissue, but also traversed by not one but *many* functionally and metabolically essential arteries and veins over a large surface. In other words, the placenta is the hallmark of topological connection. A further testament to this is that the wound created upon placental detachment, despite its being a planned and functional biological event, is of such severity that even in our modern age of blood transfusions, it is one of the main causes of maternal death. On the *Baby with Placenta* view, the foster is not a tenant of the gravida.

Finally, on the *Chorionic Content* conception, the foster still has a *fiat boundary* on the maternal side of the placenta, just as it does on the *baby with placenta* view. For placenta is part of – in a sense even outside – the chorion.<sup>10</sup> This view, then, inherits

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<sup>10</sup> Here is a good illustration of that point:

<http://en.wikipedia.org/wiki/Chorion#/media/File:Gray30.png>

the problem of the *baby with placenta* view: on the *Chorionic Content* view, the foster is not a tenant of the gravida.

On none of the plausible conceptions of the foster does the foster stand in a tenant-niche relation to the gravida. On each of these views, the boundary of the foster involves a 'fiat boundary' – a boundary that is not marked by a physical discontinuity, but recognized by us for other reasons. The existence of fiat-boundaries mean that Smith & Brogaard's three additional criteria of standing in a tenant-niche relation are not met: foster and gravida *do* share overlapping parts (either at the level of umbilical cord, or at the level of the placenta/uterine wall); they share an external boundary at these locations; and they are not fully (but only partially) enveloped by a fluid-filled cavity. Nor do Smith & Brogaard's two arguments, which rely on a complete external boundary, marked by a physical discontinuity, and on the 'surrounding' of the foster by a fluid-filled cavity, apply. The foster does *not* have its own, completely connected external boundary, that is marked by a physical discontinuity between foster and gravida; instead the foster is very clearly topologically connected to the gravida at the locus of umbilical cord or placenta, just like a tail is to a cat, your testes to your body, or your kidney to the rest of the organism. Second, the amniotic cavity only partially 'surrounds' the foster, which remains topologically connected via a 'stalk'. Partial surrounding with stalk-connection can *not* be the sign of tenant-niche status; such morphology is entirely common in mammals: hearts, lung, kidney, brain, pancreas, intestines, and so on are all suspended in fluid filled cavities, but connected by a 'stalk'.

To conclude, either foster and gravida do not stand in a tenant- niche relation –

meaning that fosters are part of gravidae – or Smith & Brogaard must have had another conception of the foster in mind than the three I just outlined. Such a conception of the foster – that is free of fiat boundaries – would have to delineate the foster in such a way that no boundary is drawn anywhere between umbilicus and uterine wall. I, for the life of me, cannot think what such a conception would be – but I am open to suggestions.

*A possible come-back*

At this point, Smith & Brogaard would likely retort that external boundaries can never be complete: I have holes – pores in my skin, a urethra – and every single organism has ‘entry points’ through its external boundary by which it can exchange things with its environment. That is true – but these are almost all exchange functions within an outer layer/membrane. To reiterate, there is no membrane surrounding the placenta at the maternal side, and the placental zone of fetal-maternal connectedness is traversed by *veins and arteries*, not pores or membrane pumps.

If such a response is to work, then the onus is firmly on Smith & Brogaard to give us a more adequate account of the distinction between topological connectedness and ‘pore’- connectedness, where pores are the fiat boundaries that are compatible with continual external boundaries. They also have to explain why, by their own criteria and *on topological* grounds, the foster is different from organs and other body-parts that also have a stalk-morphology. And we need an argument why the umbilical cord should be seen as a ‘pore’ in the foster’ skin, rather than the

topologically connecting stalk containing main arteries, veins and other main transport channels, that is so common in our anatomy, and that it so obviously is. Without such an argument, it starts to look as if Smith & Brogaard's criteria are rather ad hoc; interpreted inconsistently in order to arrive at a desired answer, as opposed to consistently applied to physiology in order to arrive at a truth.

*Taking Stock: the part-whole claim.*

Let me summarise where we stand. First, we have an (admittedly weak) *prima facie* case in favour of the *part-whole claim*, that is the claim that fosters are part of the pregnant organism: not only to pregnant organisms seem to be one organism, at first sight, but birth is decidedly *unlike* 'taking a tub of yoghurt out of the fridge'. Second, I have dispatched Smith & Brogaard's argument *against* the part-whole claim: if we take an actual look at physiology, fosters, despite their assertions, do not meet any of their own criteria for being a tenant in a niche. Third, and most importantly, we have uncovered many important considerations that contribute to making progress on my question about fetal-maternal relations. On the one hand we encountered an ambiguity regarding the boundaries of the fetus that seems to be viewed widely as unproblematic, but that is hardly going to be helpful if we want to settle a question about fetal-gravid mereology; this requires clearing up. On the other hand, we learnt many relevant details about pregnant anatomy and physiology, many of which seem to speak in favour of the part-whole claim directly: the intermingling of fetal and maternal tissue at the placenta. These include the lack of clear boundaries between foster and the rest of the gravida; the sharing of the

placental organ; the 'stalk' morphology familiar from other bodily organs; and the evidence of the foster being firmly knitted into the gravida's physical body and metabolic systems. That is progress: this provides us with a set of considerations that will have to be examined in the context of the best – or one's favoured – account of the organism if the central question of this paper is to be conclusively answered. For the time being they all seem to speak in favour of the part-whole claim *prima facie* as well as on Smith & Brogaard's specific proposal. They thus put the part-whole claim in a far stronger position than the *prima-facie* argument alone ever could.

Identifying the best account of the organism and testing the part-whole claim against it, however, is a task for a different time<sup>11</sup>. Instead I want to use the rest of the paper to consider some the implications of the part-whole claim in conjunction with the question I opened with: when mammalian organisms start. I shall argue that the part-whole claim presents us with an intuitive dilemma: either organisms start at birth, or organisms can be part of other organisms of the same kind. I elaborate the first horn of this dilemma in section four; I focus on the second in section five. Remember, in what follows, that the focus in this paper is on organisms – not persons – and that this encompasses all mammalian organisms, including e.g. humans, elephants, elephant seals and rats.

#### **IV Metaphysics of Organisms: Beginning at Birth.**

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<sup>11</sup> For the simple reason that there is no present consensus on the best account of the organism.

At least on the face of it, mammalian organisms are individuals: self-standing entities that are distinct from each other. Mice are not normally thought to be problematically overlapping with other mice, nor do we ordinarily think that there are mice that are part of other mice.<sup>12</sup> If we accept and commit to this intuitive view of the organism, where organisms can't be part of other organisms *of the same kind*<sup>13</sup>, and combine it with the part-whole claim, then the part-whole claim delivers an answer to the question this paper opened with – the question of a new organism began: on this intuitive view of the organism, mammalian organisms begin at birth, and no earlier.

Put this argument more formally:

*Intuitive Claim:*

(P1) an organism cannot be part of another organism of the same kind.

*Part Whole Claim:*

(P2) fosters are part of another organism of the same kind (gravida).

=> (C) fosters cannot be organisms

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<sup>12</sup> It is difficult to judge *how* strong the intuition is that organisms can't be part of other organisms of the same kind. One reason to think that this is an intuition that is held very strongly – and that, indeed, is seen as uncontroversial and self-evident – is the frequent expressions to that effect by authors who write about fetal human beings (see e.g. Oderberg, 2008; Howsepian, 2008).

<sup>13</sup> It is much less controversial that organisms can be part of other organisms *of a different kind* (Wilson & Barker, 2014).



### *Attractions*

The view that human and other placental organisms start at birth has, to my mind, significant attractions. First, it is numerically neat; it is clear how we count organisms. Second, it ties coming into existence to a clear and specific *event* – birth. This saves us the notoriously difficult and divisive problem of trying to pinpoint an occasion in or impose a dichotomous classification on what is in fact a very slow and gradual but – overall – massively transformative process: conception to embryogenesis to gestation to birth. Third, it is consistent with our intuitive, non-messy view of mammalian organisms in which they are much like we thought they were: clearly demarcated, physically separate individuals from start to finish.<sup>14</sup> Fourth, it marks out birth as a substantial change. This is attractive because it emphasizes and preserves something that, I submit, too many other views, including popular representations and ordinary language – which often refers to both fosters and babies as ‘babies’ – too easily gloss over (a mistake also made by Smith & Brogaard): birth is a much more substantial event than a mere change of environment, and fosters are not simply ‘babies in tummy’s’; there are many

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<sup>14</sup> This is one of the main attractions of *having* the concept of an organism. In non-mammalian parts of biology, such as plant biology, the concept becomes much less useful as the distinction between different organisms becomes exceedingly fuzzy. In fact the very question whether ‘organism’ is a useful biological category is a live one (Haber, 2013). If the concept is to make sense *anywhere* however, the best candidates are mammals and other complex, multicellular animals such as birds, reptiles and fish.

differences (internal, structural, functional, relational and topological) between fosters and babies.

### *Drawbacks*

For all these benefits, however, the view that organisms start at birth has one significant drawback: it seems incredibly counterintuitive. On this view, the baby is not the same organism as the foster that existed seconds before, and that foster was not an organism; merely a part of one. On this view, neither baby nor fosters can *survive* birth – qua organism. But, one might think – surely that can't be right! Surely newborn babies are organisms, and they were fetuses only seconds before?; surely the new mother is holding in her arms the very thing she was pregnant with?; and surely dolphins gestate dolphin-organisms that then come out as dolphin-babies? Indeed many philosophers are explicitly committed to the view that (human) organisms were once fetuses.<sup>15</sup>

How serious of a drawback this clash with our intuitions is, however, depends on one's other commitments – and this demands some explication.

First, it might be a serious drawback if one believes all of our moral attitudes towards fosters must depend on their being organisms, or if one believes all parts of our body must be morally similar. I strongly caution against both ideas, however. First, we have no reason at this stage to think that all relevant moral attitudes must track only organisms rather than organisms *and* fosters. Second, nor do we have reason to think that all parts of organisms demand the same moral attitude: kidneys

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<sup>15</sup> See e.g. Olson (1997).

and hairs are both parts of organisms, but very clearly deserve different moral and practical attitudes; there is no reason to think fosters wouldn't be demand different moral attitudes again. In fact – clearly they do.

Second, it might be a significant drawback if one believes mammals – including human beings – must be organisms. But of course one need not think that; one could think, for example, that 'organism' is just a phase-sortal, like 'puppy' or 'adult': just as my dog has been the same individual throughout its life, but went from being a puppy to an adult to an elderly dog, one might think that whatever it is that *matters* – what it is that animals, including humans, really are – persists through birth, but goes from being a foster, and thus part of an organism, to being an organism at birth – just as later in life it will go from being a baby-animal to an adult. Such a view can only succeed, however, if neither human beings, nor dolphin-beings nor doggy-beings are organisms, and if one can then say something sensible about what they, are instead. That can be done – dogs and dolphins could be 'souls' for example, or bundles of perceptions – but each such views comes with its own costs and complications that are beyond the scope of this paper.<sup>16</sup> In addition, any position that holds that mammals survive birth will have to contend with at least some of the issues posed by the second horn of our dilemma, which I describe in section four.

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<sup>16</sup> Olson (2007) gives a nice overview of the options. He focuses on persons – which, arguably, neither dogs nor dolphins are – but the different positions could probably be adapted for any mammal. Admittedly, this is a bit of a stretch; the view that *we*, humans, aren't organisms sounds a whole lot less desperate than the view that dogs aren't organisms. But I would refrain from saying anything about persons in this paper – so I will just leave that for the reader to reflect on.

If one thinks that humans, dogs and dolphins *are* organisms, however, then the counter intuitiveness of the above view is difficult to avoid. More strictly, the part-whole claim has that implication for *any* view that commits to the following two statements:

- (1) we, dogs and dolphins are substances (or material objects, or similar).
- (2) substances (or material objects, or similar) cannot be part of other substances (or material objects or similar).

I have already discussed one way of avoiding the counterintuitive implication: denying that we (or dogs, or dolphins) are organisms or things. Can one deny (2) however?

#### **IV Metaphysics of Organisms: Organisms as part of other Organisms.**

In this section I consider what happens if we combine the part-whole view with a commitment to the idea that baby-organisms where once fosters. This avoids the counterintuitive implication that mammalian organisms cannot start before birth, but only at a cost: we have to accept a different counterintuitive implication, which is that organisms can be part of other organisms of the same kind. The choice between two counterintuitive implications is why I consider the part-whole claim to present a dilemma.

In this section I also discuss two further problems that are raised by the revisions necessary to a substance account of organisms if it is to accommodate the idea that organisms can be part of other organisms: it becomes difficult to distinguish

organisms and organs, and it is even less clear when organisms start, or what their boundaries are.

### *Organisms as part of other organisms*

In the previous section, we thought we had an intuitive, clear and non-messy view of what mammalian organisms are: clearly delineated, physically separate, relatively independent individuals. But such individuals can only begin at birth. If we modify our view of organisms so that they start prior to birth, then the part-whole claim implies that organisms can be part of other organisms of the same kinds. Such a view of organisms, where a mammalian organism – say a human or a dolphin– can have another human or dolphin as its proper part (call this a *partial homoeomeric*<sup>17</sup> view of the mammalian organism) strikes me – on the face of it – as at least as counter-intuitive as the view that humans only begin at birth. It requires significant revisions in our intuitive view of organisms and the self, for on this view it is no longer clear that organisms and humans are always physically distinct from each other; they can be non-separate. We may also wonder how the notion of ‘individual’ or ‘self’ is to be interpreted in a human organism that has another human organism as its proper part.

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<sup>17</sup> *Homoemeric*, because the organism has at least one part that is of the same type as the whole. But it is only a *partial* homoeomeric as mammalian organisms, unlike balls of snow, can’t be parted in many ways that result in parts that are of the same type as the whole. [Note to reviewers: if anyone has a better suggestion for naming this – I am very keen!!]

A *partial homoeomeric* view of the human organism also raises wider questions. We can wonder, for example, what the implications would be for the proper application, or even feasibility, of rights to bodily autonomy, privacy and non-interference. We can also wonder what it implies for personal identity and the relationship between gravida and future offspring. I mention these questions because they seem important, but exploring them further is well beyond the scope of this paper. It is important to stress, however, that the *partial homoeomeric* consequence would apply to *any* account of humans and other placental mammals that (1) identifies them with, or on which they inherit the physical properties from, organisms or similar material objects – such as animalism or constitutionalism –; and (2) that wants to hold on to the idea that babies were fosters. Any such view has to contend with the implication that mammals – including humans – can be part of other mammals. Even views of the human on which we aren't organisms or similar physical objects but merely co-locate or coincide with them, such as dualism, will have to take into account that the organisms through which we exercise our agency and engage with the world have these *homoeomeric* features. This applies to those who, as I discussed in the previous section, attempt to avoid the counterintuitive implication that organisms start at birth by claiming that we aren't organisms or substances.

### *Organisms vs Organs*

If fosters are organisms *and* part of larger organisms of the same kind, then this raises a question: how do we distinguish between those parts of organisms that are

organisms (i.e. fosters) and those parts that aren't? To illustrate that the answer isn't straightforward, consider how this would work on the account of the organism given by Smith & Brogaard (2003).

Smith & Brogaard characterise organisms as substances. Substances meet six conditions: they (1) can undergo changes; (2) must either stay numerically the same substance or cease to exist; (3) can have spatial parts some of which can be added, lost and changed over time; (4) have a complete, connected external boundary which separates it from other substances; (5) are internally connected; and (6) are independent entities<sup>18</sup>. Organisms are those substances that meet four additional criteria, which identify them as unified causal systems that are relatively causally isolated from their surroundings: (7) it has an exterior membrane that (9) serves as a barrier; (8) it depends upon the maintenance of an internal climate that falls within a limited range of values<sup>19</sup>; and (10) it has mechanisms to reestablish and maintain that internal climate, and thus itself.

On this account, the foster can't be both a substance/organism *and* part of the grávida, because this violates criterion four.<sup>20</sup> This means that, if the part-whole

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<sup>18</sup> In the sense that they do not require other entities as their 'bearers' or 'carriers', such as a smile which needs a face to bear it.

<sup>19</sup> This criterion bears a strong resemblance to traditional ideas of homeostasis.

<sup>20</sup> Smith & Brogaard (2003) repeatedly make it very clear that organisms/substances can't be part of other organisms/substances: e.g. "substances are distinguished, [...] from the undetached parts of substances. The latter can become substances, but only through becoming detached." (2003: 47). "We might attach a new tail to a tailless cat. Before the attachment, cat and tail are separate substances. As a result of the attachment, what had been a separate substance is now a part of the cat." (2003: 53)

claim, is – as I argue – correct, then Smith & Brogaard are committed to the position I discussed in the previous section: mammalian organism start at birth and not earlier.<sup>21</sup> If, by contrast, their account is to capture that fosters can be organisms *and* are part of the gravida, it needs to be modified as follows:

- Smith & Brogaard have to accept that substances/organisms *can* be a part of another substance/organism.<sup>22</sup>
- criteria (4) having a complete external boundary and (7) external membrane – have to be dropped, because the foster does not meet them.
- criteria (8) internal homeostasis; (9) external barrier-membrane; and (10) mechanisms for self-repair have to be toned down because they are only met by fosters to a rather limited degree; fosters depend on internal homeostasis (8), but they can do relatively little to maintain it: temperature, for example, is regulated by

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<sup>21</sup> This is a change from the position that Smith & Brogaard's (2003) paper was devoted to defending: that a human being comes into existence no later than gastrulation, +/- 16 days after conception. If the part-whole claim is true then by their own criteria their answer is nearly nine months off.

<sup>22</sup> One might object that such a revision does not make sense on a substance-metaphysics account. Whether substances can be part of other substances is, however, a matter of live debate (see e.g. Toner, 2010; Koslicki, 2013) and I cannot cover the relevant arguments here. Instead I will just explore what such a revision would amount to if it were to make sense.

There is at least one additional reason why this should be explored: whilst Smith & Brogaard's (2003) make it explicit in several places that substances can't be part of other substances (see note 20), they imply the contrary in other parts of their paper. Of John's heart, for example, they say both "[t] his is a substance" and "it belongs as proper part to John's organism as a whole." (2003: 68) Perhaps, then, the view that substances could be part of other substances was intended all along.



the gravida. Similarly some membranes in the fosters protect it against some causal influences (9)– but so do membranes in our body everywhere. Consider for example the blood-brain barrier, or membranes between organs and peritoneal cavity. The true protection for fosters against the outside world, however, is the maternal skin. Finally (10) mechanisms for self-repair and re-balancing are limited: no foster can repair the amnion, placental rupture tends to be fatal, etc – and throughout it all the foster crucially depends on continued ‘support’ of the gravida.

With restrictions on parthood and complete external boundaries gone, however, it is not longer just fosters that meet ‘revised’ criteria for being an organism; organs do.<sup>23</sup> Take, for example, a kidney. A kidneys (1) can undergo change (2) must stay numerically the same or cease to exist (3) has spatial parts, [(4) like the foster *doesn’t* have a complete external boundary], (5) is internally connected, (6) is an independent entity<sup>24</sup>, (7) like the foster, is mostly (but not completely) covered by an external membrane that (9) serves as a (sort of) barrier to the rest of the organism<sup>25</sup>, (8) depends to a degree on internal homeostasis that it has some role in

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<sup>23</sup> As, indeed, Smith & Brogaard (2003) also note; their original justification for adopting the ‘no-niches’ condition on parthood was the need to exclude organs from being human organisms. This is suprising because on their own unrevised criteria, involving complete external boundaries, human organs were never candidates for being substances/ organisms in the first place. See also note 22.

<sup>24</sup> In the sense relevant here – as not requiring something else to instantiate it’s existence as a smile is instantiated by a face.

<sup>25</sup> E.g. the kidney has membranes that serve as a barrier to the peritoneal cavity; the brain has membranes that protect it from impact as well as from various chemicals in the blood that cannot traverse this membrane, and so on. Smith & Brogaard (2003: 52): “The heart and lungs, too, are

maintaining<sup>26</sup>, but also depends on the rest of the organism for this, and (10) engages in some self-repair<sup>27</sup>. In fact it is not just organs that are organisms on the revised criteria; all sorts of bits of our body seem to be candidates for meeting these criteria, depending on how strictly we apply them: e.g. muscle fibres, fingers, lymph nodes, tongues, the aorta, liver or pancreas lobes, glomeruli, etc – and even individual cells.

Ones fosters are both organisms *and* part of the grávida, then, questions open up about the difference between fosters and other body-parts. How might this be remedied? First, one may attempt to distinguish organs and organisms/fosters on the grounds that the latter are not essential to the functioning of the larger organism, whereas the former are. That does not work for two reasons. First, fosters are essential for ensuring the reproductive functioning of the grávida; if we respond by arguing that reproductive functioning is not essential, then not only would fosters be organisms and not organs, but so would testes, the ‘corpora cavernosa’ of the penis (responsible for erections), testicles, ovaries, the uterus – and so on. Second, very many muscle fibres, cells and other body bits are not essential; we

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separated from each other by appropriately constructed membranes (pericardium, pleura), which shield the processes occurring within them from outside influences.”

<sup>26</sup> Parts of kidneys and other organs, for example, locally regulate vasodilation and vasoconstriction. Human testes have their own temperature regulation mechanism, keeping the sperm at a considerably lower temperature than the rest of the body

<sup>27</sup> Organs also have local mechanisms for replacing cells, membranes and other damage – and even considerable abilities of regeneration (e.g. liver).

have a lot of over capacity in various places, including in our kidneys (one is essential – two are not).

Second, one might attempt to distinguish organisms/fosters and organs on the grounds that only fosters/organisms but not organs can, will or are disposed to become substances in their own right. But such a criterion can neither be necessary nor sufficient. It can't be sufficient because kidneys, spermatozoa, milk teeth and hair *can* all become substances in their own right – and several of them will or are even disposed to become substances: milk-teeth, spermatozoa, hairs, skin cells, cells lining the uterus, etc. It can't be necessary because there are fosters that aren't in fact disposed to become adult organisms, for example because they lack the capacity to grow beyond a certain point or will not survive childbirth. And what about the fosters that would have – or would never have – become substances had it not been for medical technology, and/or the mother's exercise of her free will? Thus at least one reason why this position is not easy to cash out is because of the problems of defining 'normal' in biology<sup>28</sup>.

I do not rule out that we could have a set of criteria that could successfully discriminate between organs and organisms/fosters – and a sophisticated version of the third option seems most promising. But it does illustrate my point: if we want to adopt a view of the organism where fosters are organisms *and* part of the gravida,

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<sup>28</sup> Does it mean 'uninterfered with by humans?' (in which case, what about IVF? And what about the fact that all human conceptions involves two adult humans 'interfering' with eachother?); does it mean 'without technology' (then what about the fosters saved – and the fosters destroyed – by that technology?) Does it mean 'statistically normal?'; etc

then such a view will only be convincing if it can successfully distinguish between parts of the organism that are fosters-and-organisms, and parts of the organism that are cells, organs, and other non-fosters/organisms.

*When do fosters begin?*

Another question that is raised by a view on which fosters are both organisms and part of organisms of the same kind – is when mammalian organisms begin. It is frequently thought that an individual – or at least a human individual – can't begin prior to the point at which a zygote (or any of its descendants) ceases to be able to divide into two entities that would result into two different organisms.<sup>29</sup> Prior to that point – or so the thinking goes – there isn't an individual organism because individual organism aren't divisible. If the part-whole claim holds, however, and the foster is an organism, then mammalian organisms evidently are divisible – at least in the sense that they *can* have a part that has the ability to continue as an organism in its own right: this is called being pregnant and giving birth. This means that we can't put 'non-divisibility' as a condition on being an individual organism: it is possible to have parts that can or will become organisms in their own right. What is clear is that this means organismic individuality *could* precede differentiation. What is less clear is what exactly this would tell us about pluripotentiality in the very early days post-conception. On the one hand, the ability to generate multiple organisms should not stand in the way of the whole conceptus already being an individual organisms. On the other hand, does this mean that the morula or blastula is composed of

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<sup>29</sup> See e.g. Anscombe (1984).

multiple organisms? The answer, presumably has to depend on the more general question of how to distinguish parts of organisms that are organisms in their own rights (i.e. fosters), from parts that aren't. At the very least it appears that the view that mammalian organisms can have parts that have organisms in their own right does affect debates about our onset and our earliest beginnings.

## **V Conclusion**

Time to sum up. This paper has considered a largely neglected question: the (metaphysical) relationship between the foster and the pregnant organism. I have articulated and defended a novel view of this relationship: the *part-whole claim*, according to which fosters are a proper part of their gestating organism. I have argued in favour of this position in three steps. First I provided a (very weak) prima-facie argument in favour of the part-whole claim: the apparent unity of the pregnant mammal and the apparent detachment that is birth. Second I dispelled what seems to be the only explicit philosophical defence of its alternative, the 'mere-containing' view: against Smith & Brogaard's (2003) claim that the foster stand in a 'tenant-niche' relation to the pregnant organism – as a fish does to its aquarium – I argued that the foster is evidently topologically connected to the gestating organism via umbilical cord and placenta. Third, I noted that discussing that argument not merely dispelled it, but uncovered an important set of considerations that speak in favour of the part-whole claim directly, and are likely to do so on a range of plausible conceptions of the organism: the lack of clear boundaries between foster and the rest of the gravida; the sharing of the placental organ; the 'stalk' morphology

familiar from other bodily organs; and the evidence of the foster being firmly knitted into the gravida's physical body and metabolic systems.

I don't think that this makes the part-whole claim conclusive; this paper is merely a first stab at considering what I take to be an interesting and largely neglected question. But it does establish the part-whole claim as the presently most plausible answer. Whether it can sustain that position depends on further consideration of the question and considerations I have uncovered in the context of other plausible accounts of the organism.

In the second half of the paper I connected questions about the relationship between the foster and gravida to debates about when the mammalian organism begins. I suggested that the part-whole claim generates a dilemma: either organisms are the intuitively plausible, non-overlapping individuals that we take them to be – which means they begin at birth and no earlier. I noted several attractions of this view. Or – and this is the second horn – mammalian organisms being prior to their birth. But that view has several unwelcome consequences. First, it means mammals can have other mammals as their part, which sits uncomfortable with our intuitive ideas about human individuals and may have implication for ethics and law. Second, it is a view that can only be convincing if we can provide an account of the organism that can robustly distinguish between organism-parts (i.e. fosters) and non-organism-parts (e.g. organs). This needs further work. Third, it may have implications for and require revisions of common philosophical views about our earliest beginnings.

Finally, I have noted that there are many ways of (roughly) delineating the

boundary of the foster, and that the ways we tend to talk about fosters tends to be ambiguous on whether we are referring to an entity includes e.g. placenta and amniotic sac – or not. If we are to further investigate and make progress on the important question about the relationship between foster and gravida, however, than surely the (general) boundaries of the central entity referred to this is one of the many issues that is important to settle or – at the least – about which we ought to be precise.

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