

# Can One Be Two?

## A Synopsis of the Twinning and Personhood Debate

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It has been argued that the possibility of monozygotic twinning disproves the conservative position on foetal personhood that defines the foetus as a person from conception. This article will canvass arguments for and against this proposition, in order to arrive at a conclusion as to the relative strength of this finding.

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### Introduction

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It has been suggested that the biological phenomenon of monozygotic twinning is fatal to the conservative position on foetal personhood.<sup>1</sup> The purpose of this paper is to examine the merits of this proposition. Two introductory questions present themselves:

1. what is twinning?; and
2. what is the conservative position?

The following is a brief, non-technical, explanation of the biological processes under discussion. At conception a single celled organism is created: the zygote.

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1 Joseph F. Donceel, 'Immediate Animation and Delayed Hominization,' *Theological Studies* 31, 1970, 76–105; James Diamond, 'Abortion, Animation and Biological Hominization,' *Theological Studies* 36, 1975, 305–24; Thomas A. Shannon & A. B. Wolter, 'Reflections on the Moral Status of the Pre-embryo,' *Theological Studies* 51, 1990, 603–626; Jason T. Eberl, 'The Beginning of Personhood: A "Thomistic Biological Analysis"' *Bioethics* 14, 2000, 134–157; Barry Smith and Berit Brogaard, 'Sixteen Days,' *Journal of Medicine and Philosophy* 28, 2003, 45–78; David W. Shoemaker, 'Embryos, Souls, and the Fourth Dimension,' *Social Theory and Practice* 31, 2005, 51–75.

This organism then begins to grow, cell by cell, through the process of cellular mitosis or cell fission. This is, essentially, a process of genetic replication, whereby one cell divides into two genetically identical cells. At this early stage all such cells are totipotent, which means that each cell has the inherent capacity to break away and form another separate organism (a twin). All of this occurs within the same membrane,<sup>2</sup> and while the cells remain totipotent, any such twins may recombine to (again) form one organism (a process called recombination), or continue to develop as separate organisms.<sup>3</sup> These events (if they are occurring) transpire as the pre-implantation embryo (or 'pre-implantation embryos,' if twinning has occurred) moves down the fallopian tube and into the womb.<sup>4</sup> At about the time of implantation into the uterine wall (which occurs between 13 and 16 days after conception)<sup>5</sup> a significant change occurs, and what has been

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- 2 This is a simplistic use of the term 'membrane,' and is purely designed to succinctly illustrate the point that the twins at this stage exist within the same limited physical parameters. One might more accurately label this membrane the zona pellucida, but as the pre-implantation embryo(s) 'hatches' from the zona pellucida at some point prior to implantation (whereby the zona pellucida degenerates), and a new type of membrane forms the outer layer of the pre-implantation embryo, it is in the interests of overall clarity to simply make the point that the biological processes under discussion occur within the same 'membrane' (broadly defined).
  - 3 The zygote may also develop into nothing more than a hydatidiform mole or teratoma. However, the implications of this phenomenon will not be pursued here. Furthermore, there is a strong argument that such organisms are not the result of 'normal, biologically complete, conceptions' but are in fact 'flawed or deficient fertilizations' (Francis Beckwith, 'The Explanatory Power of the Substance View of Persons,' *Christian Bioethics* 10, 2004, 51). Thus, such organisms cannot really be said to originate in zygotes, and therefore they are not appropriate targets for the individuation argument canvassed in this paper – see Stephen Heaney, 'The Human Soul in the Early Embryo,' *The Thomist* 56, 1991, 46; and Lisa Sowle Cahill, 'The Embryo and the Fetus: New Moral Contexts,' *Theological Studies* 54, 1993, 136.
  - 4 It should be noted that, as the number of cells constituting the pre-implantation human organism increases, biology provides different labels. For instance, the original single celled fertilized egg is the 'zygote'; the approximately 16 celled organism is a 'morula'; and the approximately 32+ celled organism is a 'blastocyst.' It is only upon implantation that the term 'embryo' is generally utilised. However, for present purposes (and in the interests of overall clarity) this article will refer to the 'pre-implantation embryo' for all stages of the human organism from immediately post-zygote stage (i.e., immediately post a single celled organism) to implantation stage.
  - 5 See Anne McLaren, 'Where to Draw the Line?' *Proceedings of the Royal Institution* 56, 1984, 101–121; Louis M. Guenin, 'The Nonindividuation Argument Against Zygotic Personhood,' *Philosophy* 81, 2006, 463; Smith & Brogaard, 'Sixteen Days,' 54–58.

called the 'primitive streak' appears.<sup>6</sup> This primitive streak indicates that the embryo's cells have become differentiated or restricted.<sup>7</sup> In other words, the embryo's cells lose their totipotency at this point; thereby precluding any further twinning (and/or subsequent recombination). Thus, whatever has occurred up to this stage with respect to twinning (whether it be twinning, recombination, or further twinning after recombination) is now fixed, and no further changes of this nature are possible.<sup>8</sup> Although the processes involved are far more complex than this summary suggests, it will suffice for the purposes of this article.<sup>9</sup>

The conservative position on foetal personhood defines the foetus as a person from the time of conception.<sup>10</sup> Advocates of this position tend to be loosely placed into two camps: the theological and the secular. In the theological camp the sole criterion for personhood is the possession of a rational soul, and it is argued (on various grounds) that the foetus has such a soul from the time of conception. This position is often referred to as a belief in immediate animation or ensoulment.<sup>11</sup>

The parameters of the secular camp are less easily defined, with varied criteria suggested to establish foetal personhood at conception: myriad theories too numerous to mention in this paper.<sup>12</sup> However, there does appear to be a

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6 Shannon & Wolter, 'Reflections on the Moral Status of the Pre-embryo,' 613.

7 See John Mahoney, *Bioethics and Belief*, London: Sheed and Ward, 1984, 66–67; Thomas A. Shannon, 'Fetal Status: Sources and Implications,' *Journal of Medicine and Philosophy* 22, 1997, 420; Smith & Brogaard, 'Sixteen Days,' 55–56.

8 Diamond, 'Abortion, Animation and Biological Hominization,' 311–312; Marc Ramsey, 'Twinning and Fusion as Arguments against the Moral Standing of the Early Human Embryo,' *Utilitas* 23, 2011, 189; John Burgess, 'Could a Zygote Be a Human Being?' *Bioethics* 24, 2010, 63.

9 For a more in depth discussion of the biological process of twinning see Smith & Brogaard, 'Sixteen Days,' 54–58; Eberl, 'The Beginning of Personhood,' 141–149; William Werpehowski, 'Persons, Practices, and the Conception Argument,' *Journal of Medicine and Philosophy* 22, 1997, 482–485.

10 For the purposes of this article, I will ignore the fact that conception is a process, and not a moment, as advocates of this position appear to assume. For a discussion of this issue see Mark Rankin, 'The Roman Catholic Church and the Foetus: A Tale of Fragility,' *Flinders Journal of Law Reform* 10, 2007, 282; and Lynne Rudder Baker, 'When Does a Person Begin?' *Social Philosophy and Policy* 22, 2005, 26.

11 For further discussion on this view of immediate ensoulment see Mark Rankin, 'The Roman Catholic Church and the Foetus,' 275–281.

12 There also exist 'cross-over' points of view that float between these two camps – see, e.g., Lee, who favours a secular conservative position that he labels the 'substance'

general consensus among advocates of the secular conservative view with respect to the fundamental criterion for personhood: to be a person one must be an individual organism. This criterion of ontological individuality is rarely viewed as a sufficient condition of personhood, but there seems to be almost unanimous agreement that it is a necessary condition of personhood.<sup>13</sup> There is commonality here with the conservative theological position, as most (if not all) believers in immediate ensoulment maintain that only individuals have souls – it is not a collective concept.<sup>14</sup>

It is of interest to note that the Human Embryo Research Panel decided in 1994,<sup>15</sup> largely in response to this overwhelming consensus, that the pre-implantation embryo did not have the same status as a person because of its inherent capacity to divide, and that therefore the appearance of the primitive streak, which signals the termination of that capacity, also signaled a significant ontological change.<sup>16</sup> In finding that no person existed prior to the primitive streak, the Panel essentially adopted what I will call ‘the twinning argument’

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view of personhood, while simultaneously supporting the principle of immediate ensoulment – Patrick Lee, ‘A Christian Philosopher’s View of Recent Directions in the Abortion Debate,’ *Christian Bioethics* 10, 2004, 7–31; and Patrick Lee, *Abortion and Unborn Human Life*, Washington DC: Catholic University of America, 1996. Another example of this position might be the Catholic Church, which although clearly adopting the conservative theological view, nonetheless tends to buttress that view by reference to the secular science of genetics – see Pope Pius XII, ‘*Humani Generis*,’ *Acta Apostolicae Sedis* 42, 1950, 568, 574–575; and John Paul II, ‘The Gospel of Life: *Evangelium Vitae*,’ *Acta Apostolicae Sedis* 87, 1995, 401.

- 13 Christopher Tollefsen, ‘Embryos, Individuals, and Persons: An Argument Against Embryo Creation and Research,’ *Journal of Applied Philosophy* 18, 2001, 69; George Khushf, ‘Embryo Research: The Ethical Geography of the Debate,’ *Journal of Medicine and Philosophy* 22, 1997, 505; Shannon & Wolter, ‘Reflections on the Moral Status of the Pre-embryo,’ 612–613 & 623; Smith & Brogaard, ‘Sixteen Days,’ 45–46.
- 14 See, e.g., Sacred Congregation for the Doctrine of the Faith, ‘Declaration on Procured Abortion,’ *Acta Apostolicae Sedis* 66, 1974, 730; John Paul II, ‘The Gospel of Life,’ 401; Mahoney, *Bioethics and Belief*, 62–67; Shannon & Wolter, ‘Reflections on the Moral Status of the Pre-embryo,’ 613–614; and Eberl, ‘The Beginning of Personhood,’ 137–151.
- 15 This panel was formed by the US National Institutes of Health in January 1994. It provided a report in September 1994, and the Advisory Committee to the Director of the National Institutes of Health unanimously approved the report later that year.
- 16 Carol A. Tauer, ‘Embryo Research and Public Policy; A Philosopher’s Appraisal,’ *Journal of Medicine and Philosophy* 22, 1997, 427–431.

(TA).<sup>17</sup> The Panel is not alone in this response to the question of foetal personhood.<sup>18</sup> The purpose of this paper is to critique this response.

In answer to TA some scholars have simply pointed out that twinning is accidental and consequently so rare that TA advocates are arguing by way of an improbable ‘hypothetical possibility, rather than by current actuality,’<sup>19</sup> and the fact that ‘there is no intrinsically directed potential for monozygotic twinning in every conceptus’<sup>20</sup> should render TA irrelevant. This is a specious rebuttal to TA, as although twinning may be rare,<sup>21</sup> it is not illusory, and remains an actual possibility in all conceptions. It must therefore be addressed.<sup>22</sup>

Advocates of TA maintain that both theological and secular conservative views on foetal personhood are inadequate because they cannot account for the biological phenomenon of monozygotic twinning. With respect to the theological conservative view, TA essentially asks the question: If the soul is indivisible, and is in existence at conception, then what happens to the soul when the pre-implantation embryo splits into two distinct organisms, that may go on to become two distinct human persons, or remain as distinct pre-implantation embryos for a period, but then recombine into the one individual person? TA answers this question by stating that, as souls cannot split or fuse, no soul is present, and accordingly no person exists, while twinning and recombination

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- 17 See Ramsey, ‘Twinning and Fusion as Arguments against the Moral Standing of the Early Human Embryo,’ 191, who labels the same position ‘the twinning/fusion argument.’
  - 18 Indeed, the level of scholarship in this area has led Curtis to conclude that TA is the major argument against the conservative position on foetal personhood – Benjamin L. Curtis, ‘A Zygote Could be a Human: A Defence of Conceptionism Against Fission Arguments,’ *Bioethics* 26, 2012, 136.
  - 19 Mark Johnson, ‘Quaestio Disputata: Delayed Hominization – A Rejoinder to Thomas Shannon,’ *Theological Studies* 58, 1997, 714.
  - 20 Beckwith, ‘The Explanatory Power of the Substance View of Persons,’ 47.
  - 21 Johnson suggests that twinning only occurs in 0.25% of cases, whereas Beckwith believes it to be in only 0.003% of cases – see, respectively, Mark Johnson, ‘Delayed Hominization: Reflections on Some Recent Catholic Claims for Delayed Hominization,’ *Theological Studies* 56, 1995, 751–754; Beckwith, ‘The Explanatory Power of the Substance View of Persons,’ 47. There is more support for Johnson’s figure – see Gregor Damschen, Alfonso Gomez-Lobo, and Dieter Schonecker, ‘Sixteen days? A Reply to B. Smith and B. Brogaard on the Beginning of Human Individuals,’ *Journal of Medicine and Philosophy* 31, 2006, 172.
  - 22 Burgess, ‘Could a Zygote Be a Human Being?’ 65.

are possible.<sup>23</sup> This answer involves one relatively non-controversial assumption – i.e., that souls cannot split or fuse – and one controversial assumption – i.e., the necessity of soul splitting (in the case of twinning) or soul fusion (in the case of recombination), when perhaps there exist other viable alternatives to explain what occurs at the soul level during these biological processes.

TA operates against the secular conservative view in a more direct fashion, simply pointing out that the pre-implantation embryo cannot be a person because it is not an individual.<sup>24</sup> This view denies ontological individuality to the pre-implantation embryo by virtue of the biological fact that it is capable, as a result of twinning, of becoming two or more persons.<sup>25</sup> So, again we see one reasonably non-controversial assumption – i.e., that ontological individuality is a necessary condition of full moral personhood – and one controversial assumption – i.e., that a being capable of self-replication or division cannot be an individual.

Throughout this paper I will not oppose the non-controversial assumptions inherent in TA. Henceforth, I will assume that souls cannot split or fuse (of course, this also necessitates accepting the controversial assumption that souls exist in the first place),<sup>26</sup> and that ontological individuality is a necessary con-

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23 Shannon & Wolter, 'Reflections on the Moral Status of the Pre-embryo'; Shoemaker, 'Embryos, Souls, and the Fourth Dimension,' 54–69; Donceel, 'Immediate Animation and Delayed Hominization,' 98–99; Diamond, 'Abortion, Animation and Biological Hominization,' 312.

24 See, e.g., Diamond, 'Abortion, Animation and Biological Hominization,' 315–319.

25 As stated earlier, there is some cross-over here with the conservative theological view as it is generally agreed that only individuals have souls. This point is well made by Christian Munthe, 'Divisibility and the Moral Status of Embryos,' *Bioethics* 15, 2001, 383–385. It also works in the other direction, as Ford, an early advocate of TA as against the theological conservative view, clearly demonstrated the applicability of TA to the secular conservative view – Norman Ford, *When Did I Begin? Conception of the Human Individual in History, Philosophy and Science*, Cambridge, UK: Cambridge University Press, 1988, 119–182. It should, however, be noted that Ford is no longer an advocate of TA, and now adopts a more conventional Catholic view on foetal personhood – see, e.g., Norman Ford, 'The Moral Significance of the Human Foetus,' in Richard E. Ashcroft, Angus Dawson, Heather Draper, and John R. McMillan (eds), *Principles of Health Care Ethics*, Hoboken NJ: Wiley, 2<sup>nd</sup> ed, 2007, 387–392.

26 Of course, there is also no reason to assume that souls do not exist – see Michael J Selgelid, 'Moral uncertainty and the moral status of early human life,' *Monash Bioethics Review* 30, 2012, 54–55.

dition of full moral personhood. In addition, as TA does not apply to the post-implantation embryo, there is no need for this paper to make any comment concerning the personhood of the post-implantation embryo. Dealing first with ontological individuality, as this criterion for personhood exists in both the secular and theological conservative camps,<sup>27</sup> the question we must ask, in examining the merits of TA, is as follows: Is the pre-implantation embryo an individual?

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### Individuality: the argument from biology

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An obvious place to begin to address the question of whether the pre-implantation embryo is an individual is to determine whether the biological facts themselves point to an answer. Advocates of TA would have us believe that prior to the appearance of the primitive streak the pre-implantation embryo is merely a cluster of individual cells,<sup>28</sup> and lacks the ‘sort of individuation and multicellular unity’<sup>29</sup> necessary to establish the existence of an individual organism. Smith and Brogaard discuss this issue at length, and claim that although the cells of the pre-implantation embryo are collected together within the same membrane,<sup>30</sup> there is no ‘causal interaction’<sup>31</sup> between the cells within this shared membrane. Accordingly, the pre-implantation embryo cannot be described as a ‘unified causal system,’<sup>32</sup> which they argue is necessary for personhood.<sup>33</sup> Consequently, they describe each cell within the shared membrane as existing effectively as a separate zygote,<sup>34</sup> and the number of zygotes multiplies at every instant of successful (cellular) fission.<sup>35</sup> According

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27 For a comprehensive metaphysical discussion of ‘individuation’ – see Guenin, ‘The Nonindividuation Argument Against Zygotic Personhood,’ 467–475.

28 See Smith & Brogaard, ‘Sixteen Days,’ 60; Rudder Baker, ‘When Does a Person Begin?’ 26.

29 Ford, *When Did I Begin?* 175.

30 Smith & Brogaard, ‘Sixteen Days,’ 46.

31 Ibid, 55. Indeed, they argue that some forms of yeast are ‘more properly unified’ – Ibid, 60.

32 Ibid, 49.

33 Ibid, 58.

34 Ibid, 55.

35 Ibid, 59.

to Smith and Brogaard the multi-cellular pre-implantation embryo is thus ‘not one but many,’<sup>36</sup> or at least ‘potentially many.’<sup>37</sup>

On the basis of such findings, TA supporters view the appearance of the primitive streak and the event of implantation, which signals cellular differentiation and the loss of totipotency, as the point at which the embryo may be described as an individual.<sup>38</sup> For TA advocates, it is at this time that a ‘radical and categorical’<sup>39</sup> change occurs that converts the embryo from a ‘mere mass of homogenous cells’<sup>40</sup> into a ‘discrete, coherent’ organism;<sup>41</sup> in essence, an individual.<sup>42</sup>

Of course, this is but one side’s interpretation of biology. Opponents of this view argue that the pre-implantation embryo is ‘integrated’ biologically,<sup>43</sup> has ‘biological unity’ from conception,<sup>44</sup> and remains a ‘unified and self-directing’<sup>45</sup> organism. Beckwith explains that, although totipotent, the cells of the pre-implantation embryo are interacting with each other in a unified manner,<sup>46</sup> and ‘are functioning in ways consistent with their being constituent parts of a unified organism.’<sup>47</sup> There is recent evidence that such cells are communicating with each other,<sup>48</sup> or interacting in some way,<sup>49</sup> and it is thus reasonable to

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36 Ibid, 60.

37 Ibid, 66.

38 Rudder Baker, ‘When Does a Person Begin?’ 27; Smith & Brogaard, ‘Sixteen Days,’ 63. It is also of interest to note that the appearance of the primitive streak has been interpreted to signify the creation of a real human body in the hylomorphic sense – see Eberl, ‘The Beginning of Personhood,’ 137–151.

39 Diamond, ‘Abortion, Animation and Biological Hominization,’ 316.

40 Smith & Brogaard, ‘Sixteen Days,’ 60.

41 Ibid, 62–63.

42 Consequently, if twinning has occurred (and recombination has not), we would have had two pre-implantation embryos, that at this point may now be defined as two distinct individuals according to this view.

43 Guenin, ‘The Nonindividuation Argument Against Zygotic Personhood,’ 497–499.

44 Johnson, ‘Delayed Hominization,’ 744–749 & 763.

45 Ibid, 753.

46 Beckwith, ‘The Explanatory Power of the Substance View of Persons,’ 49–50.

47 Ibid, 49. Also see Tollefsen, ‘Embryos, Individuals, and Persons,’ 71–74; Lee, ‘A Christian Philosopher’s View of Recent Directions in the Abortion Debate,’ 9.

48 Jan Deckers, ‘Why Eberl is Wrong: Reflections on the Beginning of Personhood,’ *Bioethics* 21, 2007, 274.

49 Ramsey, ‘Twinning and Fusion as Arguments against the Moral Standing of the Early Human Embryo,’ 196–197.



assume some ‘form of over-all coordination’<sup>50</sup> suggestive of a unified casual system, isolated from its surroundings;<sup>51</sup> in essence, a human individual.

The opposing arguments concerning individuation presented above rely on fundamentally identical biological ‘facts.’<sup>52</sup> It would therefore appear that biology does not, in itself, provide a clear answer to whether the pre-implantation embryo is an individual. The biological ‘facts’ do not speak for themselves, but rather are open to interpretation.<sup>53</sup> This finding perhaps illustrates the point made by Khushf: that biological concepts such as ‘individuation’ and ‘unity’ are not really ‘empirically accessible,’<sup>54</sup> and that those who make such determinations beg the question of personhood, as one’s view of unity or individuation involves an interpretation of facts that essentially turn on one’s already formed values or view of the criteria for personhood.<sup>55</sup>

That is, if one holds the view that the pre-implantation embryo is not an individual, then biology may be utilised to support this view, and the same biological facts may be exploited to support the counter argument that the pre-implantation embryo is an individual. As a consequence:

There is no deep, recondite truth to be discovered about whether these cells together constitute an organism or whether instead the organism begins to exist only later, when the proliferating cells lose their totipotency, become differentiated, and begin to be tightly allied both organizationally

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50 Damschen et al., ‘Sixteen days? A Reply,’ 170.

51 In this respect it is significant that ‘[t]here is not only a complete, connected external boundary, but, more precisely, a membrane or a physical covering – the *zona pellucida* – surrounding the cells. This membrane does not divide or disappear. The division takes place *within* its boundaries.’ Ibid, 169.

52 As evidence of the fluid nature of such ‘facts,’ it is interesting to note that Eberl changed his view of biology, from holding that we are viewing a mere cluster of cells, to finding that there is ‘evidence of an inchoate organization and intercommunication among the cells that constitute an early embryo...functional interdependence among the cells.’ – Jason T. Eberl, ‘A Thomistic Perspective on the Beginning of Personhood: Redux,’ *Bioethics* 21, 2007, 284.

53 Tollefsen, ‘Embryos, Individuals, and Persons,’ 71–74.

54 Khushf, ‘Embryo Research,’ 508.

55 Ibid, 507–509; Tollefsen, ‘Embryos, Individuals, and Persons,’ 71–74; Jason Morris, ‘Substance Ontology Cannot Determine the Moral Status of Embryos,’ *Journal of Medicine and Philosophy* 37, 2012, 349. Cf Thomas A. Shannon, ‘Response to Khushf,’ *Journal of Medicine and Philosophy* 22, 1997, 527.

and functionally. Neither of these views is definitely true—or definitely false. This is because there is really nothing more to a human organism than a collection of cells functioning together in complex ways. Whether the cells within the zona pellucida are sufficiently integrated to constitute an organism is simply underdetermined by our concept of an organism. The claim that the zygote is the earliest stage of the organism is something that we are neither rationally compelled to accept nor rationally compelled to deny.<sup>56</sup>

So, perhaps it is better to study the implications of the process under scrutiny? Specifically, what are the implications of the idea that twinning involves organism division?

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### The significance of indivisibility

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For advocates of TA the ability to replicate or divide precludes ontological individuality. As Shannon states: ‘Until they are individualized through the restriction process, the pre-implantation embryo is not an individual because it is not yet indivisible.’<sup>57</sup> One of the advantages of this view is that it does not need to make any assertions concerning interpretation of biology, and indeed may accept the possibility that there is unification and organism individuation in the biological sense from conception.<sup>58</sup> TA simply asserts that an organism capable of self-replication cannot be described as an individual.<sup>59</sup> Accordingly, the argument against the secular conservative view on foetal personhood may be summarised as follows:

1. only individuals may be persons;

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56 Jeff McMahan, *The Ethics of Killing: Problems at the Margins of Life*, New York: Oxford University Press, 2002, 28–29.

57 Thomas A. Shannon, ‘Delayed Hominization: A Further Postscript to Mark Johnson,’ *Theological Studies* 58, 1997, 716.

58 In addition, it should be noted that there is an argument that biological unity or genetic distinctiveness is not the same as ontological individuality in any case – see Shannon & Wolter, ‘Reflections on the Moral Status of the Pre-embryo,’ 612–614.

59 See, e.g., Smith & Brogaard, ‘Sixteen Days,’ 66.

2. if a being is capable of becoming two or more persons then it cannot be an individual;
3. until approximately 13–16 days after conception the pre-implantation embryo may become, as a result of twinning, more than one person; and
4. therefore, the pre-implantation embryo cannot be a person from conception because it is not an individual at conception.

To put this another way: this view presupposes that an individual must not be divisible ‘into surviving individuals of the same kind as itself,’<sup>60</sup> and prior to the loss of totipotency at the achievement of implantation, the pre-implantation embryo is so divisible, and therefore not an individual.<sup>61</sup> As stated in the introduction, the above proposition 1 will not be challenged. However, proposition 2 is susceptible to criticism. Although it is indisputable that the pre-implantation embryo is manifestly divisible while twinning remains possible,<sup>62</sup> TA fails to adequately establish the significance of this biological fact; in particular TA does not prove a necessary association between indivisibility and individuality. The argument that a pre-implantation embryo is not yet one because it might yet be two merely assumes that divisibility is inconsistent with individuality, and there exist a number of arguments contrary to this assumption.<sup>63</sup> TA states that if A can divide into beings of the same kind as itself, A cannot be an individual, but arguably the mere potential to become many does not preclude the individuality of the holder of that potential.

The classic example given to illustrate this point is that of the flatworm: flatworms are capable of division, so that one flatworm may divide and become two flatworms, yet this fact does not necessarily prove that prior to that division the original flatworm was not a unitary individual.<sup>64</sup> Similarly, it has been highlighted that bacteria and amoebae reproduce through organism division,

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60 Guenin, ‘The Nonindividuation Argument Against Zygotic Personhood,’ 464.

61 Smith & Brogaard, ‘Sixteen Days,’ 66.

62 Ibid, 67.

63 Guenin, ‘The Nonindividuation Argument Against Zygotic Personhood,’ 476–479; and Munthe, ‘Divisibility and the Moral Status of Embryos,’ 394–397.

64 John Haldane and Patrick Lee, ‘Aquinas on Human Ensoulment, Abortion and the Value of Life,’ *Philosophy* 78, 2003, 273; Beckwith, ‘The Explanatory Power of the

and they were clearly individual bacteria or amoebae prior to reproducing.<sup>65</sup> To allow that an individual exists prior to implantation is to allow that pre-implantation embryos, like flatworms, bacteria and amoebae, may be described as individuals despite possessing the potential for division.<sup>66</sup>

Of course, human beings are clearly not flatworms,<sup>67</sup> bacteria or amoebae, so perhaps the better example might be that of cloning: In the future human cloning may move from the theoretically feasible to the practically commonplace. In such a scenario our cells may be described as *effectively* (although arguably not ‘naturally’) totipotent for life.<sup>68</sup> This future human being therefore has the capacity to duplicate herself whenever she so desires, yet she cannot be described as less of an individual than present human beings (that are unable to avail themselves of this future technology) because (other than having access to such technology) she is ‘exactly (genetically) similar’ to present human beings.<sup>69</sup> The example of cloning thus appears to establish quite convincingly that cellular

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Substance View of Persons,’ 47–48; Guenin, ‘The Nonindividuation Argument Against Zygotic Personhood,’ 487.

65 Guenin, ‘The Nonindividuation Argument Against Zygotic Personhood,’ 479.

66 In addition, the simple recognition that reproduction may occur via organism division is arguably another reason why the capacity for such division should not preclude an organism from being described as an individual – see Khushf, ‘Embryo Research,’ 505–509; A Chadwick Ray, ‘Humanity, Personhood, and Abortion,’ *International Philosophical Quarterly* 25, 1995, 244.

67 Smith & Brogaard, ‘Sixteen Days,’ 69.

68 It might be disputed that our cells are not totipotent in such a scenario because cloning requires that the particular somatic cell be inserted into the enucleated egg cell and activated before it may be said to be totipotent. In response to this argument I say that: 1. The argument is predicated upon current technology, and my example is set in an undefined ‘future,’ in which it is feasible to assume that cloning may not require this level of external manipulation; and 2. I define a ‘totipotent’ cell (for the purposes of this example) to mean a cell that is ‘capable of developing into another whole organism,’ and the fact that such external manipulation is required does not preclude a finding that this definition is met (this is a similar definition to that adopted by Ford – see Norman Ford, *The Prenatal Person: Ethics from Conception to Birth*, Oxford: Blackwell Publishing, 2002, 56).

69 It might be argued that an answer to this question depends upon whether genetic duplication results in identity duplication. I agree with Manninen that one does not necessarily result in the other – see Bertha Alvarez Manninen, ‘Cloning and individuality: Why Kass and Callahan are wrong (but maybe a little right),’ *Monash Bioethics Review* 30, 2012, 66–73. This issue of personal identity will not be discussed in this paper. For such an in-depth analysis see McMahan, *The Ethics of Killing*, 3–94.

totipotency is not significant for defining and describing individuation.<sup>70</sup> It might be countered that cloning requires external manipulation or external intervention,<sup>71</sup> so such a future human being is not capable of division in and of itself – that is, there is no ‘natural’ or inherent internal ability to divide – so may nonetheless be defined as an individual without affecting the strength of the TA assumption concerning a necessary link between individuality and indivisibility.<sup>72</sup>

However, it is questionable whether the cloning example is any less ‘natural’ than other evolutionary changes through time. That is, we are entering into an era of human development in which the distinction between organic humanity and technological humanity may become blurred. Indeed, one might argue that whatever we create is ‘natural’ for us.<sup>73</sup> Alternatively, one may allow the external manipulation exception, and simply grant a hypothetical alien the ability to divide ‘generating two successors that are both qualitatively identical to their originator.’<sup>74</sup> Such creatures might also bind together to form one individual.<sup>75</sup> If this alien were similar to us in other ways – being self-conscious, intelligent, and sentient – should we deny this alien individuality, and therefore personhood, merely on the basis that it is capable of self-replication?<sup>76</sup> If the alien analogy seems inapplicable, what if we imagine a future where, through natural evolutionary changes, humans have developed this ability to self-replicate? Surely, such humans would be individual, yet clearly divisible, persons?<sup>77</sup>

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70 Beckwith, ‘The Explanatory Power of the Substance View of Persons,’ 45–49. The cloning example is another way of illustrating Parfit’s split-brain thought experiment on this issue – see Derek Parfit, *Reasons and Persons*, Oxford: Oxford University Press, 1984, 254–264.

71 Guenin, ‘The Nonindividuation Argument Against Zygotic Personhood,’ 485.

72 Smith & Brogaard, ‘Sixteen Days,’ 66; Lee, ‘A Christian Philosopher’s View of Recent Directions in the Abortion Debate,’ 10–12.

73 It is also arguable that the focus on the ‘natural’ ability to divide places too much weight on ‘natural’ – see Ramsey, ‘Twinning and Fusion as Arguments against the Moral Standing of the Early Human Embryo,’ 194.

74 Ramsey, ‘Twinning and Fusion as Arguments against the Moral Standing of the Early Human Embryo,’ 194.

75 Ibid.

76 Ramsey concludes on the basis of this alien illustration that an ability to twin or divide must be irrelevant to any findings as to a being’s moral standing – Ibid, 194–195.

77 Munthe, ‘Divisibility and the Moral Status of Embryos,’ 387–388.

What these various scenarios serve to illustrate is that it is not the ability to divide (whether this is defined as ‘internal’ or ‘external,’ ‘natural’ or ‘unnatural’) that is crucial for the moral question of individuality and hence personhood. The ultimate question in this respect cannot be: is that being capable of division? Indeed, by focusing on division one thereby denigrates more worthwhile criteria for moral standing, such as sentience.<sup>78</sup>

It may be the case that the ordinary conception of a person does not allow one person to split into two,<sup>79</sup> but there is nothing inherently irrational about allowing for this ability in a conception of personhood. Just because something is potentially two, it does not logically follow that it is not actually presently one – a stick is potentially two if broken, but before this event it is still one.<sup>80</sup> Put simply, the ability or capacity to undergo division is not a good reason to hold that the possessor of that potential is not a unique individual.<sup>81</sup> As it does not seem absolutely necessary to insist upon indivisibility in order for an organism to constitute an individual, one may conclude that TA is not fatal to the secular conservative view on foetal personhood. However, the implications of TA for the theological conservative position may be more profound.

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## Souls and twinning

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As we have seen, TA is not fatal to a secular conservative position on foetal personhood that accepts individuation as a necessary condition of personhood. The pre-implantation embryo may be considered an individual from concept-

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78 Ramsey, ‘Twinning and Fusion as Arguments against the Moral Standing of the Early Human Embryo,’ 192. Munthe raises the related point that such reasoning is incompatible with the view that human persons possess unique values that have meaning – see Munthe, ‘Divisibility and the Moral Status of Embryos,’ 387–388.

79 Jean Porter, ‘Individuality, Personal Identity, and the Moral Status of the Pre-embryo: A Response to Mark Johnson,’ *Theological Studies* 56, 1995, 767.

80 Damschen et al, ‘Sixteen days? A Reply,’ 172–173.

81 Jeff McMahan, ‘Killing Embryos for Stem Cell Research,’ *Metaphilosophy* 38, 2007, 177; Deckers, ‘Why Eberl is Wrong: Reflections on the Beginning of Personhood,’ 275; Eberl, ‘A Thomistic Perspective on the Beginning of Personhood: Redux,’ 287; Deckers also believes that there is no good reason to hold that divisibility precludes ensoulment – see Deckers, ‘Why Eberl is Wrong: Reflections on the Beginning of Personhood,’ 278–280.

ion as the biological facts do not unambiguously determine otherwise, and there is no persuasive reason to preclude a finding of ontological individuality to a being merely because it has the potential to divide. However, once the concept of the soul is introduced problems arise, as the soul, although immaterial, is presumably incapable of fission or fusion.<sup>82</sup> That is, an individual organism may be divisible, but the soul is indivisible.<sup>83</sup> As souls cannot divide as cells divide, advocates of TA thereby assert that twinning disproves immediate animation (i.e., the theological conservative justification for personhood from conception), as it highlights the metaphysical impossibility that underlies it, because, in essence, one soul cannot be divided into two.<sup>84</sup> As explained in the introduction to this article, there is universal agreement within the conservative theological camp that the human soul is both created at conception and is indivisible. Accordingly, TA appears at first glance to create serious doubt as to the correctness of the conservative theological position. Many scholars over the years have made this point quite forcibly.<sup>85</sup> As Tauer states: ‘such a being cannot have a human soul, if one accepts the metaphysical notion of the soul as an indestructible, indivisible supposit.’<sup>86</sup> As a consequence, such authors argue that no soul exists until twinning and recombination are no longer possible, and accordingly the soul is not acquired until the development of the primitive streak or implantation,<sup>87</sup> ‘when there is an unambiguously individual subject capable of receiving the soul.’<sup>88</sup>

The point made here by TA is that although twinning may constitute cellular replication, it cannot signify soul replication. Does this mean that TA is fatal

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82 Burgess, ‘Could a Zygote Be a Human Being?’, 66.

83 Eberl, ‘A Thomistic Perspective on the Beginning of Personhood: Redux,’ 285; Shannon & Wolter, ‘Reflections on the Moral Status of the Pre-embryo,’ 613.

84 Diamond, ‘Abortion, Animation and Biological Hominization,’ 315.

85 Ibid, 312 & 321; Donceel, ‘Immediate Animation and Delayed Hominization’; Shannon & Wolter, ‘Reflections on the Moral Status of the Pre-embryo.’

86 Carol A Tauer, ‘The Tradition of Probabilism and the Moral Status of the Early Embryo,’ in Patricia Beattie Jung & Thomas A Shannon (eds), *Abortion and Catholicism: The American Debate*, Virginia: Crossroad, 1988, 56

87 Eberl, ‘The Beginning of Personhood,’ 149–150; Mahoney, *Bioethics and Belief*, 62–67; Diamond, ‘Abortion, Animation and Biological Hominization,’ 321.

88 Mahoney, *Bioethics and Belief*, 66–67.

to the conservative theological position? Well, no, because at the metaphysical level there may be a number of other options to describe what happens to the soul when twinning occurs;<sup>89</sup> namely, something that does not involve soul division.

For instance, a common suggestion has been that all that occurs in twinning is the end of one person with a soul and the birth or creation of two or more persons with individual souls.<sup>90</sup> That is, what we see at twinning is not A giving rise to B, so that we have twins A + B, but rather A ceasing to exist in the creation of twins B + C.<sup>91</sup> Under this conception, we may assume that A has soul A from conception, and that twinning involves the death of A (and the consequent release of soul A) and the creation of B and C with respective souls B and C.<sup>92</sup> Indeed, it has been argued that A *must* cease to exist upon twinning because otherwise we must hold that either B or C are identical to A, and this cannot be the case as A cannot be identical to B or C, because if A is identical to B, then A must also be identical to C, and A cannot be identical to both B and C, as B and C are clearly not identical as they are self-evidently ontologically distinct.<sup>93</sup> In other words, if A does not cease at twinning, then we must allow that twinning could result in A + A, which is a logical absurdity.<sup>94</sup>

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89 For example, Shoemaker suggests that there exist four possibilities when pre-implantation embryo A becomes twins A1 and A2, but only two of those will be dealt with here, as the remaining two are not consistent with immediate animation – see Shoemaker, ‘Embryos, Souls, and the Fourth Dimension,’ 63–65.

90 See Donald McCarthy, ‘Moral Responsibility for Abortion, Euthanasia, and Suicide,’ in Edward Gratsch (ed), *Principles of Catholic Theology: A Synthesis of Dogma and Morals*, New York: Alba, 1981, 333–337; Andrew C Varga, *The Main Issues in Bioethics*, New York: Paulist Press, 1984, 64–65.

91 Chadwick Ray, ‘Humanity, Personhood, and Abortion,’ 241–245; McMahan, ‘Killing Embryos for Stem Cell Research,’ 177; Damschen et al, ‘Sixteen days? A Reply,’ 174; Munthe, ‘Divisibility and the Moral Status of Embryos,’ 390; Morris, ‘Substance Ontology Cannot Determine the Moral Status of Embryos,’ 333.

92 Eberl, ‘A Thomistic Perspective on the Beginning of Personhood: Redux,’ 285.

93 See McMahan, *The Ethics of Killing*, 25–26; Ingmar Persson, ‘Two Claims About Potential Human Beings,’ *Bioethics* 17, 2003, 510; Burgess, ‘Could a Zygote Be a Human Being?,’ 62–64.

94 Cf Howsepian who believes that there is ‘no insuperable metaphysical barrier to the possibility’ that B, but not C, is identical to A – see A. A. Howsepian, ‘Four Queries Concerning the Metaphysics of Early Human Embryogenesis,’ *Journal of Medicine and Philosophy* 33, 2008, 142. Also see Guenin, ‘The Nonindividuation Argument Against Zygotic Personhood,’ 483.



The death (or cessation)<sup>95</sup> of A at twinning thus appears a solid hypothesis, but it also means that the conservative camp must concede that both B and C are created *after* the original conception of A.<sup>96</sup> Put another way, immediate animation remains applicable in such circumstances – it is just that B and C had a later conception than A, but this does not affect the existence of A as a distinct individual with a soul from conception.<sup>97</sup> As one may readily note, holding that twinning necessarily involves the death of the original pre-implantation embryo does produce a rather convoluted application of immediate ensoulment. The situation is further complicated when recombination occurs, as applying the same logic we must conclude that both B and C die at the creation of D; two or more people die in order for one new person to be created.<sup>98</sup> D may still acquire a soul at D's 'conception,' but this will occur much later than the original ovum fertilization that created A. From this perspective we may see in some cases the creation of a person(s) at A's conception, B and C's later 'conception,' and D's even later 'conception'; we may still hold that the pre-implantation embryo is ensouled, and is therefore a person, from the original (and each subsequent) conception, but it does produce an arguably contrived application of principle. It also suggests that we should view both twinning and recombination as somewhat tragic events.<sup>99</sup>

One might reasonably argue that this proposed scenario appears counter-intuitive,<sup>100</sup> and the question should be posed: assuming that God directly

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- 95 Cessation is probably a better description because there is no corpse, so nothing appears to have 'died' in the ordinary sense of that word – see Ramsey, 'Twinning and Fusion as Arguments against the Moral Standing of the Early Human Embryo,' 190. That is, it is better to just hold that A goes out of existence or simply 'ceases' – see Burgess, 'Could a Zygote Be a Human Being?,' 69; McMahan, *The Ethics of Killing*, 27.
- 96 Damschen et al, 'Sixteen days? A Reply,' 173; and McMahan, *The Ethics of Killing*, 26.
- 97 Ramsey, 'Twinning and Fusion as Arguments against the Moral Standing of the Early Human Embryo,' 193.
- 98 Alternatively, we might suggest that only one of B and C souls is released and the other simply moves to inhabit the newly created D body – see Shoemaker, 'Embryos, Souls, and the Fourth Dimension,' 65.
- 99 Ramsey, 'Twinning and Fusion as Arguments against the Moral Standing of the Early Human Embryo,' 199; and McMahan, *The Ethics of Killing*, 26.
- 100 It is also inconsistent with the point made by Parfit that cell division should not be confused with death – see Parfit, *Reasons and Persons*, 262.

creates each rational soul,<sup>101</sup> if God is omniscient and knows that the cells will divide, effectively killing A (and in the case of recombination both B and C), why not just wait until totipotency is over and then assign souls at that stage? Why assign a soul to a body destined to die within a matter of days?<sup>102</sup> Of course, time is relative, and souls are presumably not only indivisible, but also indestructible and infinite, so whether a soul exists in a human body for 10 days or 100 years becomes largely insignificant, as both periods of time are relatively equally negligible compared to infinity.

Nonetheless, this scenario does raise the related issue of massive death rates of soul infused human beings. That is, if the soul is in existence at conception, this leads to questions concerning God's motive as between 55%–60% of all pre-implantation embryos die,<sup>103</sup> and about 30% never survive to differentiation.<sup>104</sup> Why does God create only to destroy?<sup>105</sup> It does seem very wasteful,<sup>106</sup> and certainly counter-intuitive as 'we do not lament a loss of life when twinning occurs, nor do we try to prevent it.'<sup>107</sup> Shannon and Wolter conclude that such 'vast embryonic loss intuitively argues against the creation of a principle of immaterial individuality at conception.'<sup>108</sup> Such losses are magnified by virtue of recombination, when B and C die in order to create D.<sup>109</sup> Of course, the fact that there is a high death rate does not, in and of itself, necessarily lead to the conclusion that the original zygote A lacks either a soul or moral status.<sup>110</sup> However, such issues led Shoemaker to conclude that the process of twinning dictates one of two propositions:

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101 An assumption most theologians support – see, e.g., Eberl, 'A Thomistic Perspective on the Beginning of Personhood: Redux,' 289.

102 Shoemaker, 'Embryos, Souls, and the Fourth Dimension,' 63–65.

103 Cahill, 'The Embryo and the Fetus: New Moral Contexts,' 127; Daniel Dombrowski & Robert Deltete, *A Brief, Liberal, Catholic Defense of Abortion*, Champaign, IL: University of Illinois Press, 2000, 52; Shannon & Wolter, 'Reflections on the Moral Status of the Pre-embryo,' 618–619.

104 Diamond, 'Abortion, Animation and Biological Hominization,' 312–314.

105 Shannon & Wolter, 'Reflections on the Moral Status of the Pre-embryo,' 618–619.

106 Eberl, 'The Beginning of Personhood,' 156; Shoemaker, 'Embryos, Souls, and the Fourth Dimension,' 68.

107 Burgess, 'Could a Zygote Be a Human Being?,' 64.

108 Shannon & Wolter, 'Reflections on the Moral Status of the Pre-embryo,' 619.

109 Shoemaker, 'Embryos, Souls, and the Fourth Dimension,' 65.

110 Deckers, 'Why Eberl is Wrong: Reflections on the Beginning of Personhood,' 281.

1. Two (or more) souls were there all along in zygote A from conception; or
2. No souls are present until after twinning is completed or no longer possible.<sup>111</sup>

Proposition 2 clearly refutes the theological conservative position, but proposition 1 has some support within the conservative camp.<sup>112</sup> Koch-Hershenov provides a description of this process whereby she accounts for twins by suggesting that what we see in twinning is actually a case of divine intervention whereby B and C (that have existed since conception, but appearing to be just A) simply separate when the cells divide during the twinning process.<sup>113</sup> This account answers the criticism of requiring A to cease in order to create B and C, because under this scenario A never existed, except as a vessel for B and C – both of which existed since conception.<sup>114</sup> In other words, she asserts that two souls can share the same material dimensions. In this case, two souls share the fertilized single celled egg, and ‘are spatially coincident at fertilization, each united to matter.’<sup>115</sup> They then separate at some stage prior to implantation. When twinning does not occur we only ever had one soul, and when twinning does occur we always had two souls present in the same body. Indeed, Munthe has suggested that ‘such divine interventions may be what *cause* twinning or make it possible.’<sup>116</sup>

This view has been described as the ‘Multiple Occupancy View.’<sup>117</sup> Not only does it avoid the counter-intuitive necessity to regard twinning as tragic, and perhaps even ‘a little creepy,’<sup>118</sup> but by defining A as simply the initial stage

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111 Shoemaker, ‘Embryos, Souls, and the Fourth Dimension,’ 69–75.

112 Eugene Mills, ‘Dividing Without Reducing: Bodily Fission and Personal Identity,’ *Mind* 102, 1993, 37–51.

113 Rose Koch-Hershenov, ‘Totipotency, Twinning, and Ensoulment at Fertilization,’ *Journal of Medicine and Philosophy* 31, 2006, 155–160.

114 Deckers, ‘Why Eberl is Wrong: Reflections on the Beginning of Personhood,’ 274; Curtis, ‘A Zygote Could be a Human,’ 137–138.

115 Koch-Hershenov, ‘Totipotency, Twinning, and Ensoulment at Fertilization,’ 160.

116 Munthe, ‘Divisibility and the Moral Status of Embryos,’ 384.

117 Curtis, ‘A Zygote Could be a Human,’ 136–142.

118 Burgess, ‘Could a Zygote Be a Human Being?,’ 68.

of B and C, we may also thereby trace our continuity to conception.<sup>119</sup> The main problem with this theory is that it does not account for recombination. That is, we may logically hold that if A undergoes fission and becomes B and C, then B and C were there all along, but if B and C subsequently undergo fusion to become D, we cannot logically say that D was there all along.<sup>120</sup> As a consequence, Burgess concludes that the biological events of recombination or chimeras are fatal to the Multiple Occupancy View.<sup>121</sup>

Another problem with the multiple occupancy account is an apparent lack of theological consistency, especially with respect to the doctrine of hylomorphism. It is difficult to accept that two souls (which are indivisible) can occupy or share the one body,<sup>122</sup> when the hylomorphic tradition defines a person as the union of form (soul) and matter (body). Koch-Hershenov herself accepts that ‘human beings are hylomorphic composites of form and matter,’<sup>123</sup> and argues that the fertilized egg ‘is the proper matter for the human form,’<sup>124</sup> but contends that an accurate interpretation of Aquinas allows that more than one human form may share identical matter.<sup>125</sup> This is a novel interpretation of Thomistic hylomorphism that has its critics,<sup>126</sup> especially Eberl, who argues that only ‘one rational soul informs the matter of each individual human organism.’<sup>127</sup> On the other hand, what may we really say with any level of conviction concerning the nature of divine intervention regarding souls? As Munthe points out, given the imprecise nature of the soul, divine interventions and so forth, ‘anything seems to be imaginable regarding souls and twinning.’<sup>128</sup> Consequently, although TA does present significant issues for the theological conservative position, one cannot say with certainty that it disproves that position.

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119 Curtis, ‘A Zygote Could be a Human,’ 136–142.

120 Burgess, ‘Could a Zygote Be a Human Being?’, 64–65.

121 Ibid, 68.

122 Shoemaker, ‘Embryos, Souls, and the Fourth Dimension,’ 63–65.

123 Koch-Hershenov, ‘Totipotency, Twinning, and Ensoulment at Fertilization,’ 140.

124 Ibid, 155.

125 Ibid, 150–155.

126 See, e.g., Shoemaker, ‘Embryos, Souls, and the Fourth Dimension,’ 66.

127 Eberl, ‘A Thomistic Perspective on the Beginning of Personhood: Redux,’ 286.

128 Munthe, ‘Divisibility and the Moral Status of Embryos,’ 384.

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## Conclusion: the issue of continuity

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Although not fatal to the conservative position on foetal personhood (whether this position is arrived at by virtue of a belief in immediate animation or a secular argument), TA does highlight weaknesses inherent in that position. The title to this article posed the question – can one be two? – and it would seem a reasonably universal maxim that only individuals may be described as persons; hence, it is logically impossible for one to be two.<sup>129</sup> However, there seems no conclusive basis for finding that an individual cannot be capable of division. In other words, although one *cannot* be two, one *can* be potentially two.<sup>130</sup>

Nonetheless, what TA does achieve, or rather what the biological process of monozygotic twinning means, is that it is highly questionable whether we, as born human persons, may trace ourselves with certainty as such to the moment of fertilization. That is, although the twins B and C are self-evidently not identical, they are also genetically indistinguishable, so even if we hold that A did not cease upon twinning, and is thus either B or C, it remains impossible to determine which twin was A. Accordingly, neither B nor C can state categorically that they were ever A. Of course, if we hold that A ceases upon twinning, then we can state with certainty that neither B nor C were ever A.<sup>131</sup> Consequently, the adult human person (who is a twin) cannot conclude with any certainty that they were ever A.<sup>132</sup> In terms of continuity, the most we can say with absolute certainty is that we existed subsequent to loss of totipotency at the appearance of the primitive streak and/or implantation.<sup>133</sup> One might counter with ‘but I’m

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129 Rudder Baker, ‘When Does a Person Begin?’, 25–27.

130 Guenin, ‘The Nonindividuation Argument Against Zygotic Personhood,’ 485. Note: Guenin makes the argument from the other side – namely, that the potential of each cell (prior to the loss of totipotency) to become a distinct human person is not the same as each cell being a distinct human person simply by virtue of this potentiality – but the premise is similar, if not identical.

131 Burgess, ‘Could a Zygote Be a Human Being?’ 62–64.

132 The same reasoning would apply to recombination: such that the adult human person could only trace themselves to D, and not to B and C that recombined to form D – see Howsepian, ‘Four Queries Concerning the Metaphysics of Early Human Embryogenesis,’ 143–46.

133 This conclusion is further substantiated when one takes into consideration the placenta: that is, a zygote gives rise to a human being and a placenta, and it cannot be both, so the human being can only trace herself to that point in embryonic

not a twin, so I do have unbroken continuity from conception.’ However, as you can never know with certainty whether twinning occurred at some point in your embryonic development,<sup>134</sup> you cannot trace yourself back to the original conception with certainty. The only indisputable view, in terms of continuity, is to say you existed from implantation.

Consequently, the position that better supports the conservative view that we are persons from conception is to follow Koch-Hershenov and hold that, in the case of twinning, B and C were there all along: they were already in existence prior to twinning, and what appeared to be a unique individual A, was in fact simply a housing or storage vessel for the two unique twins B and C.<sup>135</sup> However, as explained earlier, this position cannot account for the biological event of recombination. Perhaps the better view, from the perspective of defending the conservative position, is to argue that there might be spatiotemporal continuity between A and the subsequent persons B and C.<sup>136</sup> That is, we may accept that A does not equal either B or C, but rather hold that A is a ‘temporal part’ of both B and C.<sup>137</sup> As Curtis explains: ‘to say that every human is identical to the zygote they developed from is just to say that every human has a temporal part that is a zygote.’<sup>138</sup> In this way, we may hold that A and B are parts of one unique human individual, while simultaneously viewing A and C as parts of another unique human individual.<sup>139</sup>

According to this view, we may say that B was once A, even though C was also once A: A grows into both B and C. Thus, we may establish continuity from conception because B’s and C’s ‘ongoing ontological identity is not threatened

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development and not before – see Burgess, ‘Could a Zygote Be a Human Being?’, 61–70.

134 Ramsey, ‘Twinning and Fusion as Arguments against the Moral Standing of the Early Human Embryo,’ 202.

135 Koch-Hershenov, ‘Totipotency, Twinning, and Ensoulment at Fertilization.’

136 Curtis, ‘A Zygote Could be a Human,’ 142; Howsepian, ‘Four Queries Concerning the Metaphysics of Early Human Embryogenesis,’ 154.

137 Curtis, ‘A Zygote Could be a Human,’ 137.

138 Ibid.

139 Ibid. Cf St John concerning the issue of how much change is required before identity may be said to be violated – see Jeremy St John, ‘And on the fourteenth day...potential and identity in embryological development,’ *Monash Bioethics Review* 27, 2008, 16–18.

by the fact that they were once only one individual.<sup>140</sup> Recombination is not fatal to this theory as B and C may simply be defined as temporal parts of the recombined D. This view may also be described as an implicit recognition of the fact that '[h]uman development is continuous.'<sup>141</sup> Morris has made the point that, because human developmental changes are so subtle (and so numerous), biology cannot help identify substance changes because it is difficult to justify any particular one stage as significant.<sup>142</sup> Morris accordingly concludes that any attempt to utilise a biological process to assign moral status is not supported by current understandings of developmental biology.<sup>143</sup>

From this perspective, neither conception nor twinning are particularly significant biological events in human development. To return to the initial question – is TA fatal to the conservative position on foetal personhood? – we must answer in the negative. TA certainly highlights weaknesses with respect to specific elements of the conservative position, but the biological phenomenon of twinning does not, of itself, disprove that position. Nonetheless, the continuing debate on this issue does serve to illustrate that although we may assign moral status to a particular foetus, to attempt to justify that value judgment by reference to a biological event seems fraught with problems. We would do better to look elsewhere when we seek to defend such moral decisions.

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140 Deckers, 'Why Eberl is Wrong: Reflections on the Beginning of Personhood,' 279.

141 Morris, 'Substance Ontology Cannot Determine the Moral Status of Embryos,' 348.

142 Ibid, 333.

143 Ibid, 349.