

A structuralist approach to animalism

Arthur Gregory Carlyle

Submitted in accordance with the requirements for the degree of
Doctor of Philosophy

University of Leeds
School of Philosophy, Religion, and History of Science

May 2021

The candidate confirms that the work submitted is his own and that appropriate credit has been given where reference has been made to the work of others.

This copy has been supplied on the understanding that it is copyright material and that no quotation from the thesis may be published without proper acknowledgement.

The right of Arthur Carlyle to be identified as the Author of this work has been asserted by her in accordance with the Copyright, Designs and Patents Act 1988.

© 2021 The University of Leeds and Arthur Carlyle

Acknowledgements

Of course, the first people to whom I owe an extreme amount of gratitude are my wonderful supervisors: Ellen Clarke, Helen Steward, and Steven French. I originally came to Leeds to be supervised by Ellen, with whom I had the pleasure of discussing biological individuality prior to applying to the School. Her knowledge of the topic was indispensable to me throughout this essay, and her guidance regarding it was nothing if not thorough.

Due to personal circumstances, Helen became a supervisor for some time, after which I was happy to have her as a co-supervisor. I found that the odds of us agreeing on any particular topic of philosophy were about 50/50. Her insight into the aspects on which we disagreed helped me appreciate from where such positions were coming. I hope that I'm fairer towards these issues now than I would have been had I not worked with her.

Steven became a third co-supervisor relatively late in my time at Leeds. I was having a challenging time conveying my thoughts on scientific metaphysics and metametaphysics in a way that made sense to Ellen and Helen. For a while, I was starting to think my thoughts were nonsensical. One night after a seminar, I was talking with Steven about my project. After which he said, "oh, that makes sense", and that was that. If it weren't for Steven, I would probably still be trying to formulate my views in a coherent way (and driving Ellen and Helen crazy in the process!) His guidance and insight have been a lifesaver!

To all of my supervisors: I cannot begin to thank you enough. Several personal difficulties occurred throughout this process. These difficulties only added to the already stress-inducing issues that generally occur during working on a PhD (and that isn't even beginning to bring up the pandemic!) You were all incredibly understanding and patient with me when I wasn't understanding nor patient with myself. From the bottom of my heart: thank you.

Special thanks to Gregory Radick and Eric Olson for an enjoyable and insightful viva. I tried my best to bridge some gaps between philosophical disciplines in this work, and both of you were especially helpful to me in this regard. With any luck, there will be many more discussions in the future. Reading Eric's first book was what convinced me animalism must be true, and

it was an amazing experience to have a constructive discussion with him about where we differ on how to reach that conclusion.

I also owe gratitude to the rest of the PRHS faculty and staff of the School of PRHS, as well as the other colleagues and friends that attend other institutions. This is especially true to my colleagues who have endured (and, in some cases, even embraced) my presence. I've been called "a little extra" more in my life than I can count, and thus my sincerest and special thanks to Miriam Bowen, David Heering, Helen Piel, Tadhg O'Laoghaire, Alice Murphy, Nathan Wood, Aleksander Domoslawski, Simon Newey, Adina Covaci, Alex Aylward, Emily Herring, Zach Gudmunsen, Caz Avery, James Haley, Marc Cole, Michael Bench-Capon, Allison Krile Thornton, and Polo Camacho for regularly embracing or enabling the "extra" that I bring to the discussion. Of course, this includes, but is not limited to, patiently listening to me constantly talk about necrophilia. No one should have to hear that much about the scientific, metaphysical, and ethical implications of having sex with dead animals. Still, you all did, and for that, I am eternally grateful (well, at least until I'm a corpse.)

I would also like to thank the cast of *Critical Role*: Matthew Mercer, Marisha Ray, Taliesin Jaffe, Laura Bailey, Travis Willingham, Liam O'Brien, Sam Riegel, Ashley Johnson, Brian W. Foster, and Dani Carr. We've never met, but I was introduced to your show (and D&D in general) mid-way into working on my thesis and at a time when I was considering giving up. *Critical Role*, and the game it introduced me to, gave me an outlet to work out some of my thoughts and emotions. You will never understand what you nerdy voice actors have done for me. To you, and all Critters that form the great community we have, don't forget to love each other (and, is it Thursday yet?)

To my friends and family: Steve and Cathy Maxam are like a second pair of parents to me, and their emotional, intellectual, and sometimes monetary support made all of this possible. Adam Munio has been my best friend for almost two decades. He has been there with me (even if only in spirit) through all of this. He and his sister Allie helped me get to where I am today, and I am very proud and honoured to call them friends (but they will still have to call me 'doctor' from now on). My grandma Helen, Mom, and my stepfather, Ken, have been incredibly supportive of me throughout this

process—even when they have no idea what it is that I’m doing. I’ll take whatever I can get, so thank you for your love and support!

This thesis is partly dedicated to my grandma Janet, who passed away almost a decade ago on the same day I gave my first talk at a philosophy conference. I’ve come so far since then, and my memories of our discussions about philosophy over coffee have been with me the entire way. I love and miss you.

My uncle Tony and father died less than a year before I submitted this work. Tony was always happy to hear me talk about my work and often claimed I was the most intelligent guy he knew (which isn’t saying much). I love and miss you both.

Finally, this is for my wife, Callie, and to my new-born child, Ambrose. Callie has been more loving, patient, and supportive than any person could ever ask. This acknowledgement is only brief because I don’t know how to adequately thank you for everything you’ve gone through for me to work on this. You and Ambrose mean more than the world to me. Ambrose was born less than a year before submitting this and in the middle of a pandemic. His arrival into this world has been surreal and chaotic, but I don’t think I could ever love anyone more. I can only hope that I make him proud. More importantly, I hope he doesn’t someday find this thesis and realise it marked the beginning of his father’s descent into madness and obscurity.

Abstract

Animalism is the view that each of us, each human person, is identical to a human animal—a member of the species *Homo sapiens*. This project aims to formulate a version of animalism that accommodates our best current science, especially our current biology. There are three steps that I will make to this aim: first, I will argue that current (or ‘traditional’) versions of animalism have been unnecessarily relying on problematic metaphysics. Once a more scientifically-minded metaphysics has been established, I will argue that such a scientific metaphysics is better suited for defending and developing animalism in that evidence from biology (as well as other sciences) can be used to ground and bolster the position. This leads us to my second step: although animalism is more adequately defended and developed by our best current biology, said biology could be more easily understood if it was understood in non-substance terms. I will argue that a substantivist metaphysics is not as equipped to make sense of biological individuality as is certain non-substantivist alternatives. Biological individuality understood in terms of biological *structures* will be proposed and defended. A structural metaphysics is a non-substantivist metaphysics based on Ontic Structural Realism, a form of realism within the philosophy of science. With a *structural* theory of biological individuality in hand, I will make my third and final step: to articulate a scientifically informed animalism that is grounded in structure rather than substance. This *structural* animalism is preferable to its substance-based animalist alternatives in that it is more accommodating to our best current science. It is also able to better respond to certain problems and criticisms than its alternatives.

Table of Contents

| | |
|--|-----|
| Acknowledgements | iii |
| Abstract | vi |
| Table of Contents | vii |
| List of Figures | ix |
| List of Tables | ix |
| Introduction | 1 |
| 1. Animalism’s central claim..... | 3 |
| 2. Animalism and the Psychological Criterion..... | 8 |
| 3. Prospectus..... | 15 |
| Chapter 1. Arguments for Animalism: A critical analysis | 21 |
| 1.1. Thinking Animals Argument (TAA)..... | 22 |
| 1.2. Foetus Problem..... | 34 |
| 1.3. Animal Ancestors Argument (AAA)..... | 38 |
| 1.4. Conclusion..... | 50 |
| Chapter 2. Arguments against animalism: A Taxonomy | 51 |
| 2.1. A&~P..... | 52 |
| 2.2. P&~A cases..... | 60 |
| 2.3. Conclusion..... | 71 |
| Chapter 3. A defence of ‘real’ cases | 73 |
| 3.1. Scientific metaphysics..... | 75 |
| 3.2. Thought experiments: scientific vs traditional metaphysics..... | 87 |
| 3.3. An alternative to ‘traditional’ and ‘scientific’ metaphysics..... | 100 |
| 3.4. Conclusion..... | 105 |
| Chapter 4. Animalism naturalised | 107 |
| 4.1. Varieties of animalism..... | 108 |
| 4.2. Defending “new animalism”..... | 116 |
| 4.3. Conclusion..... | 126 |
| Chapter 5. A meta-problem of biological individuality | 128 |
| 5.1. The <i>definitional</i> problem..... | 130 |

| | |
|--|-----|
| 5.2. The <i>existential</i> problem | 140 |
| 5.3. The <i>meta</i> -problem of biological individuality | 155 |
| 5.4. Conclusion..... | 157 |
| Chapter 6. Structural biology | 158 |
| 6.1. Structural realism | 159 |
| 6.2. Concerning laws..... | 165 |
| 6.3. Eliminating biological objects..... | 174 |
| 6.4. Objection and Conclusion..... | 183 |
| Chapter 7. Structural Animalism | 185 |
| 7.1. The same life criterion and animalism's Foetus Problem..... | 186 |
| 7.2. The Animal Ancestors Argument | 198 |
| 7.3. Thinking animals and thinking parts..... | 200 |
| 7.4. Dicephalic cases | 203 |
| 7.5. Conclusion..... | 208 |
| Chapter 8. Corpses in science | 209 |
| 8.1. The termination thesis | 210 |
| 8.2. The use of corpses in science..... | 219 |
| 8.3. The case of necrophilia..... | 222 |
| 8.4. An explanatory gap..... | 226 |
| 8.5. Conclusion..... | 231 |
| Conclusion | 232 |
| 1. Summary: Step one (animalism to biology) | 232 |
| 2. Summary: Step two (biological objects to biological structures) | 237 |
| 3. Summary: Step three (biological structures back to animalism) | 238 |
| 4. Looking forward | 239 |
| References | 242 |

List of Figures

| | |
|---|-----|
| Figure 1: Snowdon's (2014) taxonomy: arguments against animalism | 68 |
| Figure 2: Possible structure of science, epistemology, and metaphysics..... | 86 |
| Figure 3: Olson's varieties of animalism..... | 109 |
| Figure 4: Thornton's varieties of animalism..... | 113 |
| Figure 5: Dicephalic Twinning (COH) | 206 |

List of Tables

| | |
|--|-----|
| Table 1: Wilkes' (1988) kinds of thought experiments | 96 |
| Table 2: Comparing animalist positions..... | 127 |
| Table 3: The Hardy-Weinberg Law | 171 |

Introduction

This thesis aims to engage critically with animalism—the view that each of us is identical to a human animal—as well as posit and defend a unique version of animalism that I believe possesses many of the virtues of its predecessors yet evades many of their faults. To this end, I first show that animalism, as formulated, does not give adequate consideration to contemporary received views in biology and philosophy of biology. I then need to show a way in which a naturalised form of animalism can work in tandem with these received views in the philosophy of biology and biology.

The claim that there is a tension between animalism and particular received views in biology (and philosophy of biology) should sound strange to those familiar with animalism. Apart from “animalism” (a term attributed, in the current context, to Snowdon (1991, p. 109)), the view has been referred to as “the biological approach” (Olson 1997a; Noonan 2003), and the “biological criterion” (D. Shoemaker 2008). These alternative names given to the animalist position may give the impression that animalism takes a serious attitude towards biology (in fact, as I will show in chapter 1, this relationship is one motivation for animalism). Given this, it may surprise one to discover that the contemporary biological sciences (or *any* of the sciences) have played a minimal role in debates concerning animalism. Few animalists have utilised biology or arguments from biology to motivate their position. Those who have employed such scientific evidence to motivate animalism will be discussed in this thesis. Still, I will show that even their arguments tend to be based on faulty or outdated science.

In arguing for my second aim—to provide a view of animalism that works alongside contemporary views in biology and philosophy of biology—I will attempt to *naturalise* the animalist position in a way that has not been

previously attempted (I will later motivate this attempt, as well as show why I believe it is necessary). In doing this, I will suggest that approaching animalism from the perspective of biology complicates the animalist position and creates possibilities for positions that were previously seen as untenable. I will suggest that a version of “new animalism”—a position conceived of, and a version of which was found problematic by Olson (2015)—serves as the most defensible animalist position.

The form of “new animalism” I propose in this project I call *structuralist animalism*. The ‘structuralist’ in *structuralist animalism* refers to the structural realism discussed in philosophy of science and to a narrower version (called *Ontic Structural Realism*) that has been formulated in response to problems in physics (see, e.g., French and Ladyman 2003; Ladyman and Ross 2007; French 2014). According to *structuralist animalism*, human persons are necessarily human animals, but this necessity does not spring from animals having some intrinsic essence; instead, the necessity comes from specific biological structures in the world. These biological structures, I argue, put constraints on our ability to understand and talk about the world and ourselves. One job for the *structuralist animalist* is to determine the relevant structure (or structures) in deciding the heuristic identity (or identities) that serve our needs as human animals. That is to say that I will argue that the animalist will only find as much “personal identity” in organisms as they have put in. At the same time, it would be unhelpful to debates regarding personal identity if the answer was this easy and, indeed, it is not. Although animalists will find only as much personal identity in organisms as they put it, certain aspects of biology can better serve animalists in this endeavour, whilst others may be unhelpful or cause a hindrance. These biological structures can be seen as different tools in a toolbox. Finding the best tool for the job at hand (in this case, understanding what we want from a theory of personal identity) is an interesting and worthwhile endeavour.

Structuralist animalism, unlike its traditional alternatives, offers a compositional eliminativist (perhaps even compositional nihilist) explanation of our identity as animals insofar as they deny “animals” are objects (in any ontologically compositional sense). Although this may seem to put structuralist animalism in a strange position, I will show that there is precedent for this

move in debates regarding personal identity (see Hume 1738 [2009]; Unger 1979c, a), consciousness (see Dennett 1991a), and philosophy of biology (see French 2014, ch. 12). I will also show that some animalists have accepted similar (although noticeably different) eliminativist ontologies (see van Inwagen 1990; Olson 2004; Hershenov 2005; Olson 2013), and as such, a move to an eliminativist or nihilist form of animalism is not a radical departure from views that are already held in other (although related) topics.

Before I can get to the core of my project, it would be helpful to clarify precisely what animalism is and where it stands in relation to other proposed answers to the question of our nature. Section 1 of this introduction will offer some basic background clarifications concerning what animalism is, what it is not, and the kind of question for which it provides an answer. In section 2, I will provide the context for animalism's role in the debate regarding personal identity by laying out the position that animalism has historically been seen as rejecting (i.e., the *Psychological Criterion* of personal identity). I will show how this position relates to John Locke's conception of personal identity and how it has affected animalism historically and philosophically. In section 3, I will provide a prospectus of what is to come in this project.

1. Animalism's central claim

Animalism is the view that we are animals (Blatti 2014; Olson 2015; Thornton 2016b). The "we" in "we are animals" refers to *human* persons, not persons *simpliciter*—animalists do not assert that all persons are animals. The possibility is left open as to the existence of non-animal persons (e.g., robot persons, deity persons, angelic persons, etc.). Similarly, animalists do not suggest that all human animals are human persons, as is seemingly the case with human foetuses and patients in persistent vegetative states (Olson 1997a, p. 17; 2007, p. 17; Blatti 2014, sect. 1.1).

Neither is animalism the view that we are "constituted by" animals (Olson 1997a, p. 17; Blatti 2014, sect. 1.1; Olson 2015, p. 87) "where constitution is defined so that nothing can constitute itself" (Olson 2015, p. 88). According to the view that we are *constituted by* animals, a person "is" an animal in the sense that they share the same material with one, not in the sense

that they are identical with one (Shoemaker 1984, p. 113). Versions of our being materially constituted by animals have been defended by Baker (2000) and S. Shoemaker (2008).¹

Animalism, then, states what kind of thing we are, and what we are, according to animalists, are human animals. This point is worth stressing as it gestures to the sort of question for which animalism provides us with a possible answer. The ‘traditional questions’ of personal identity have dominated discussions of the issue since Locke might consist of the *persistence question*, the *evidence question*, and the *personhood question* (Olson 2007, p. 16). The *persistence question* concerns numerical identity. That is, the *persistence question* asks what the necessary and sufficient conditions are for a person at T1 to be numerically identical with a person at T2 (p. 16).

The *evidence question* concerns what evidence is used to determine whether or not a person or object at any given time is numerically identical with a person or object at a different time and how these different forms of evidence relate to one another (Olson 2007, p. 16). For instance, one may take the fact that many people intuitively believe us to be psychological beings as evidence favouring that view (see Nichols and Bruno 2010). Alternatively, one may suggest an approach by which we look at how our cognitive capacities evolved due to their being advantageous to the survival of *Homo sapiens*. The primacy of organismality over the cognitive faculties of such organisms seen in such approaches could count as evidence for our being fundamentally human animals rather than psychological beings (see, e.g., Snowdon 2014b, ch. 4.17).

Although not explicitly stated by Olson, I take it that the evidence question can be applied beyond the persistence question to the other questions of personal identity. For example, I assume that biological evidence can lend itself to the possibility of our being human animals (and persisting as human animals) in the same way that psychological evidence can give lend itself to the possibility of our persisting in virtue of some psychological property (and perhaps to the view that we are something psychological.) Similarly, I take it that certain forms of evidence from psychology, neurology, etc., can help us

¹ The constitutional views held by Baker and S. Shoemaker will be described in more detail in the next chapter.

formulate answers to the personhood question by, for instance, telling us what psychological characteristics human persons have in common such that we deem them ‘persons’ rather than non-persons.

Questions regarding the necessary and sufficient conditions of personhood, i.e., what does it take for a thing to be a person rather than a non-person, fall under the domain of the *personhood question* (Olson 2007, p. 16). Regarding the personhood question, I believe the question itself can be divided into two independent questions on the basis that it can be understood in two ways: the first way it can be understood is by asking, “what does it take for *anything* to be a person?” (call this the *broad personhood question*.) The second way it can be understood is by asking, “what does it take for a particular *kind of thing* to be a person?” (call this the *narrow personhood question*.)

The difference between the *broad* and *narrow* personhood questions is important in that what it takes for one kind of thing to be a person (for instance, a human) may differ from what it takes for a different kind of thing to be a person (for example, a robot). At the same time, having a general idea of what we mean by “person” may be important in that it gives us a set of properties for which we ought to consider. If, for instance, we know that a “person” is any entity that has properties XYZ, then we know that any entity that has properties XYZ is a person. However, just because we know what properties make something a person doesn’t mean that we know what makes different kinds of entities have XYZ properties. Compare this to different power sources that are used to generate electricity. We can have a general account of what it means to generate electricity, but the way in which solar power functions to this end differs from the way that wind power functions to this end.

Unlike the traditional questions of personal identity described above, Olson takes animalism to stand as a response to a different question: “What kind of thing are we?” I will follow Olson (2015) in calling this the *personal-ontological question* (p. 85). Olson (2007) relates the *personal-ontological question* to the mind-body problem in philosophy of mind. Whereas the mind-body problem seeks to understand the essential nature of mental phenomena, the animalists aim to understand the nature of the *subject* of mental phenomena (p.

15). Olson notes that the subjects of these enquiries are related, “but we could know a good deal about mental phenomena and their relation to the physical while knowing little about the basic metaphysical nature of mental subjects” (Olson 2007, p. 15). That is, just as we can make a distinction between the nature of mental phenomena and the nature of the subject of mental phenomena, we can make a distinction between the nature of persons (i.e., responses to the *personhood question*) and the nature of things that can be persons (i.e., a response to the *personal-ontological question*):

The question of what we are is more or less completely unrelated to the personhood question. What qualifications a thing needs in order to count as a person is one thing; what sort of thing meets those qualifications—organisms, immaterial substances, bundles of perceptions, or what have you—is another (Olson 2007, p. 16).

Animalism (broadly speaking) only asks the question “what kind of thing are we?”—it is a position that stands only as a response to the *personal-ontological question*. Similarly, a response to the personhood question (e.g., a person is anything that is rational and consciously aware of itself) stands only as a response to the personhood question. Having an answer to the personhood question doesn’t necessitate that we are the kind of thing described by that answer, nor does it explain or necessitate the kinds of entities that can be the thing described by the answer.

Similar to the difference between the personal-ontological and personhood question, the personal-ontological question also doesn’t directly answer the *persistence question*. That being said, a response to the *personal-ontological question* (such as animalism) will imply an answer to the *persistence question* when conjoined with an account of what it takes for a human animal to persist through time (Olson 2015, p. 85). For example, suppose we assume that animalism is the best response to the personal-ontological question, and we take animals to be something that is essentially living. In that case, an answer to

the persistence question is implied: we persist (on this view) insofar as we are alive.

Regarding this point, the persistence question may be implied by a response to the personal-ontological question—I take it that the reverse may also be true: knowing our persistence can imply what kind of thing we are. For example, suppose some evidence suggests that we track individuals over time in virtue of what memories they have. In that case, I take it that such evidence gives credence to an account of our nature that includes memories as a necessary component in some way. Similarly, suppose some evidence suggests that we track individuals over time in virtue of some object that persists over time. In that case, I take it that such evidence is indicative of a view of our nature that includes bodies as a necessary component in some way. Put simply, if what we are can imply how we persist (even if some extra information is needed), then how we persist can imply what we are.

The implications formed between answers to the personal-ontological and the persistence questions work both ways will become important in chapters 1 and 2. As I will show, since proponents of animalism and proponents of the Psychological Criterion are focusing on different kinds of evidence, it leads them to the opposite conclusion. Proponents of the Psychological Criterion tend to emphasise evidence concerning our mental capacities, which leads them to answer the persistence question in such a way that emphasises these mental capacities. These answers to the persistence question then lead them to embrace answers to the personal-ontological question implied from their answer to the persistence question. Likewise, animalists tend to emphasise our biological aspects and thus answer the personal-ontological question in such a way that emphasises our biological properties. From this answer to the personal-ontological question (in addition to claims about the persistence of organisms,) animalists embrace accounts of our persistence implied by their answers to the personal-ontological question.

Given that answering the personal-ontological question first leads to an implied response to the persistence question (and vice-versa,) I will ultimately argue that starting from these questions first is a mistake. It leads to the overlooking of some kinds of evidence over others. As such, I will argue that

starting with the evidence question is ideal when trying to understand what we are and how we persist.

2. Animalism and the Psychological Criterion

Animalism is typically seen as opposing the *Psychological Criterion* (or *psychological approach*) of personal identity (Blatti 2014, sect. 2.3). The psychological approach to personal identity is a position that offers an answer to the *persistence question*—it offers an answer to the question regarding what it takes for one thing to exist over time (Olson 2015, p. 87). According to the psychological approach, the necessary and sufficient conditions for survival consist only in some psychological relation (Olson 1997a, p. 13). It's debatable precisely what this psychological relation is, and figuring out the relation has been a traditional problem in personal identity (p. 13).²

Neo-Lockeans share a commitment to some version of the psychological criterion of personal identity (Blatti 2014, sect. 2.3). Thus it may come as no surprise that the chief rival of animalism is typically seen to be *neo-Lockeanism* (sect. 2.3). It has been shown by Blatti (2014) that viewing the debate in this way (i.e., animalism vs neo-Lockeanism) can be harmless in the respect that neo-Lockeans share a commitment to some version of a psychological criterion of personal identity (sect. 2.3). However, he also notes that framing the debate in this way can be misleading in that this framing doesn't capture the finer-grained differences amongst animalists and neo-Lockeans. For instance, animalists differ on their reasons for resisting the psychological criterion, there are a variety of neo-Lockean positions that differ in important ways, and not all positions that oppose animalism are neo-Lockean (sect. 2.3).

Given that this project assumes some version of animalism to be correct, an in-depth look at anti-animalist positions (neo-Lockean or not) is unnecessary. At the same time, it would be difficult to overstate John Locke's effect on debates surrounding personal identity. S. Shoemaker (2008, p. 314) and Noonan (2003, p. 24) have both claimed that all discussion regarding

² Snowdon (2014b), I will occasionally refer to views that adhere to the psychological criterion as *mentalism*, and to proponents of such views as *mentalists*.

personal identity is a footnote to Locke, and Blatti (2014) has said that it is “undeniable that no single discussion of personal identity has done more to shape the current debate than the chapter titled ‘Of Identity and Diversity’” (sect. 2). Blatti (2014) also acknowledges that the chapter “Of Identity and Diversity”—the chapter in Locke’s *An Essay Concerning Human Understanding* in which Locke walks us through his philosophy of personal identity—has had an undeniable effect on animalism as it rose as an alternative to the Lockean approach to personal identity (2014, sect. 2). Due to the lasting importance Locke has had on the topic of personal identity, and animalism specifically, it would be amiss not to spend some time outlining Locke’s views on the topic as a way of framing both *traditional* animalism as well as the positions to which I will align myself during the course of this project.

It has been said that to understand Locke’s position regarding personal identity, we must remember that he was concerned with formulating a view that was consistent with the problem of resurrection and immortality (Ayers 1991, p. 205; Noonan 2003, p. 24), which in his time was a “fact” that had to be taken into account (Noonan 2003, p. 24). It is also worth bearing in mind that Locke was concerned with how we approach and understand concepts in our everyday social lives—he was a conceptual pragmatist (Alston and Bennett 1988, p. 43ff; see also Noonan 2003, ch. 2.6).³

Given these concerns, Noonan (2003, p. 27) suggests that Locke had three main aims in mind when formulating his theory of personal identity: the first was to formulate an intelligible theory of personal identity that could make sense of the resurrection and immortality whilst remaining independent of a dualistic metaphysics. The second was to have a theory of personal identity that considered our experiences of our personal identity over time, which we could not doubt. Thirdly, Locke wanted to formulate a theory of personal identity that took seriously the fact that our personal identity was something that matters to each individual in a way that the personal identity of others didn’t. That is, Locke held that each individual has a special concern for their

³ Later, in chapters 5-7, I will show that Ontic Structural Realism (and thus *structuralist animalism*) are conducive to some degree of conceptual pragmatism. At the same time, I will argue that the Psychological Criterion is unable to accommodate how we approach and use our everyday concepts as well as other criteria such as the Biological Criterion (i.e., animalism).

own future in a way that they don't have of the future of others, and formulated a theory of personal identity this belief.

In formulating his theory of personal identity, Locke creates a three-part ontology that he believes accounts for the identity of three distinct ideas we have, which are associated with the words 'substance,' 'man,' and 'person' (Noonan 2003, p. 27). In determining what the ideas are behind these words, Locke believes we can begin to think about and judge identity correctly, "for such is the *Idea* belonging to that Name, such must be the *Identity* [. . .]" (Locke 1690 [1975], II.xxvii.7).

'Man' is similar to plants (Locke 1690 [1975], II.xxvii.4) and brutes (II.xxvii.5), in that the identity of these things consists in nothing more than a material body which is organised in such a way that it is conducive to life (1690 [1975], II.xxvii.6). "Man", in particular, Locke argues, is nothing more than an animal of a certain form that continues to exist insofar as it partakes in the one and the same life (II.xxvii.8). To motivate this idea, Locke suggests that if one were to see "a Creature of his own Shape and Make" (Blatti 2014) (1690 [1975], II.xxvii.8), they would call this creature a "man", even if the creature had no more reason than a cat or parrot. Likewise, he states that we would call a cat a "cat" and a parrot a "parrot" even if the cat or parrot were intelligent and rational (1690 [1975], II.xxvii.8).

Locke argues that the idea behind the word 'person' is different from that of the word 'man', and thus he states we must first figure out the idea behind the word 'person' if we wish to find out its identity. He takes this idea to be "a thinking intelligent Being, that has reason and reflection, and can consider it self as it self, the same thinking thing in different times and places" (II.xxvii.9). He believes that this thinking can only be done by means of a consciousness that is inseparable and essential to it (II.xxvii.9).

Since thinking always coincides with consciousness, and since Locke believes that it's this accompaniment that people refer to as their "self" (i.e., such that they can make the distinction between themselves and other thinking things,) Locke concludes that it is this sameness of rational being in which personal identity consists:

And as far as this consciousness can be extended backwards to any past Action or Thought, so far reaches the Identity of that *Person*; it is the same *self* now it was then; and 'tis by the same *self* with this present one that now reflects on it, that that Action was done” (Locke 1690 [1975], II.xxvii.9)

Furthermore, Locke argues that the identity of substance is entirely irrelevant to personal identity (1690 [1975], II.xxvii.10). That is, it is irrelevant whether or not the same identical substance thinks in a person or if it is different substances that combine in thinking in a person—all that matters is that it is the same *person* that thinks (II.xxvii.10). Locke compares this latter possibility (the combination of substances that think in a person) to how animals have their identity preserved. This preservation occurs despite its body being organised by different particles of matter due to its partaking in the same continued life (II.xxvii.10).

The ability for personal identity to persist regardless of changing substances allows Locke to solve the problem of the resurrection (1690 [1975], II.xxvii.15). This was a problem that seventeenth- and eighteenth-century theologians and philosophers had debated in an attempt to account for the Bible’s prediction that on judgement day the dead would be resurrected (Blatti 2014, sect. 2.1). If the prediction was true, then the problem of precisely what was to be resurrected had to be solved, as the body of the person seemed unlikely due to decomposition, consumption by other organisms, the constant change of the associated particles, etc. (sect. 2.1). Given that Locke’s account of personal identity is comprised only in terms of the same continued consciousness, and given that he is not at all concerned with substance, then a person (i.e., a continued consciousness) can “travel” from one substance to a different substance and be the same person. Thus, on Locke’s account, a person could exist in a soul at one time and a different soul at another time. Or, the person could exist in one body at some point in time and a different body at another. Through these changes, the person would altogether maintain their identity (Locke 1690 [1975], II.xxvii.15).

Locke's human/person distinction also allowed him to formulate a thought experiment that has since been regularly used to defend a psychological criterion of personal identity (Blatti 2014, sect. 2.1). He provides us with the following:

should the Soul of a Prince, carrying with it the consciousness of the Prince's past Life, enter and inform the Body of a Cobliner as soon as deserted by his own Soul, everyone sees, he would be the same Person with the Prince, accountable only for the Prince's Actions (1690 [1975], II.xxvii.15).

Regarding this thought experiment, Blatti (2014) has noted that it is not "a puzzle in need of explanation, but [. . .] a case whose apparent plausibility vindicates the human/person distinction (and thereby, his solution to the problem of the resurrection)" (sect. 2.1.).

Locke's human/person distinction has had a lasting impact on personal identity debates, so much so that it may have impacted how animalism has been received throughout history. For instance, Blatti and Snowdon (2016) note that the notion of our being animals was mostly absent in post-war analytic philosophy, despite the problem of personal identity receiving a considerable amount of attention during this time period (p. 2). The two philosophers' conjecture that this absence may have been due to Locke's discussion of personal identity and the distinctions he makes between the terms 'animal' and 'person':

Locke's treatment of these two terms and notions was so effective that it generated in people engaging with the problem the conviction that the notion of person is the central one fixing the type of thing the problem is about, with the consequence that the notion of an animal was lost to sight (Blatti and Snowdon 2016, p. 3)

The impact Locke has had on animalism as an emerging alternative to the psychological approach was first noted by Blatti (2014), stating, “For whatever intuitive appeal animalism may seem to have in our secular, post-Darwinian climate, in the wake of Locke’s work, the falsity of animalism was long taken for granted” (sect. 2).

Even if we assume the hindering effect Locke had on the emergence of animalism, the latter position doesn’t entirely disagree with many of the positions Locke posits. For instance, many animalists accept the human/person distinction (Blatti 2014, sect. 2.2). They typically agree with Locke’s account of personhood (sect. 2.2). Olson, in particular, notes that:

to say that something is a person is to say that it can think in a certain way—that it is rational, that it is ordinarily conscious and aware of itself as tracing a path through time and space, that it is morally accountable for its action, or the like (Olson 1997, 32).

Animalists, like Locke, believe that there is a difference between a person and an animal. Animalists, like Locke, also take certain properties (e.g., rational, ordinarily conscious, etc.) to be indicative of persons. To use the questions of personal identity described above, animalists agree with Locke on the *personhood question*—what does it take for some entity to be a person rather than a non-person?

The difference between Locke (as well as anyone embracing the Psychological Criterion of personal identity) and animalists on this point is that animalists disagree that ‘person’ is what Wiggins (1980, p. 24) calls a “substance concept” (Olson 1997a, p. 27). To understand what a substance concept is, one must first understand what a sortal predicate is: a predicate “whose extension consists [. . .] of all the particular things or substances of one particular kind” (Wiggins 1980, p. 7). A concept that stands for a sortal predicate is a “sortal concept” (p. 8). A *substance concept* is a sortal concept that can be applied to an individual for the entirety of its existence (p. 24).

Snowdon notes that considering ‘person’ a sortal concept is an assumption often made in discussions on personal identity. He refers to this assumption as ‘PS’ (i.e., Person Sortal), that is, the notion of a person is the notion of a kind of things which has built into it, or somehow attached to it, conditions for members of its kind to remain in existence (e.g., it’s a sortal concept) (Snowdon 2014b, p. 34). Rather than being a sortal concept, animalists typically take ‘person’ to be a “phased-sortal” (see also, Olson 1997a, pp. 29-31; Blatti 2014, sect. 2.2). A *phased-sortal* is a sortal concept that cannot be applied to an individual for the entirety of its existence (Wiggins 1980, p. 24). A *substance concept* is a concept that typically answers the question “what is x?” whereas a *phased-sortal* can only answer such a question appropriately in the appropriate tense (p. 24).

Take, for example, the concept “philosopher”. A philosopher is a kind of thing that something can belong to for a certain duration of time (Olson 1997a, p. 29), thus making “philosopher” a *phased-sortal*. “Philosopher” must be a *phased-sortal* because one does not come into existence as a philosopher, and likewise, one does not cease to exist if one ceases to be a philosopher (p. 29). Similarly, animalists take “person” to be a *phased-sortal*, allowing for there to be potential persons and former persons (p. 30). If “person” were a *substance concept*, then the possibility of potential persons and former persons would be incoherent (p. 29), given that *substance concepts* must be sortal concepts that can be applied to an individual throughout its entire existence. Unlike “person”, animalists take “animal” to be a *substance concept*—they take “animal” to be what we are fundamentally (p. 30).

Many animalists also accept Locke’s identity criteria for human animals (that they persist insofar as they partake in the same continued life) (Blatti 2014, sect. 2.2). Whether or not this “same life” criterion is beneficial or ultimately contradictory to animalism will be discussed in detail in chapter 7. A closely related topic (whether or not an animal continues to exist after death) will be discussed in detail in chapter 8.

Although many animalists typically accept many of Locke’s positions regarding identity and personal identity, there is a big difference in how they respond to the *personal-ontological question* (i.e., “what are we?”). As noted above,

animalists may endorse Locke’s human/person distinction but, according to animalists, a person (at least a human person) is simply a phase that human animals typically go through. What we *really* are (i.e., the correct answer to the personal-ontological question) is a human animal, *not* the phase (i.e., the person) that the human animals go through.

3. Prospectus

As I noted above, this thesis proposes a defence of a new kind of animalism. Because of this, the view I defend is in contrast with the Psychological Criterion (i.e., views that maintain that there is a psychological aspect that is necessary for our existence and/or that we persist in virtue of that mental or psychological aspect.) Although animalism has traditionally been seen as the view that best comports with our intuitions about biology, I argue that the position, at least as it is currently articulated, is misguided by a metaphysics that fails to sufficiently take empirical science seriously. This unempirical metaphysics hasn’t accommodated biological phenomena (in all of their complexities) straightforwardly. Similarly, the current metaphysics used by animalists commonly relies on fictional cases in biology rather than real ones—a reliance that I find problematic (and will argue against later on, in chapter 3.)

As I mentioned above, I take it that the best question to answer first when approaching personal identity is what Olson has referred to as the *evidence question*. The *evidence question* is that which asks, “what pieces of evidence do we consider when formulating a theory of personal identity, and how do these pieces of evidence relate to one another?” This question, as it has been noted above, is distinct from the *personal-ontological question* (i.e., “what are we?”) that Olson emphasises and the *persistence question* (i.e., “what does it take for an individual at one time to be numerically identical with an individual at another time?”) that many proponents of the Psychological Criterion seem to emphasise. Chapters 1 and 2 will defend my evidence-first approach to personal identity by first considering what evidence we use to defend certain conceptions of our nature and persistence. After such evidence is in hand, I will then argue that certain pieces of evidence are stronger than others, and

thus we ought to accommodate them more in our conceptions of personal identity.

In chapter 1, I will elucidate three arguments that have been made in favour of animalism: the *Thinking Animals Argument*, the *Foetus Problem*, and the *Animal Ancestors Argument*. As will be shown, all three of these arguments share an emphasis on the biological aspects of our nature and identity that, on the face of it, seem commonsensical. The *Thinking Animals Argument*, for instance, takes seriously the common intuition that many have that certain animals (such as human animals) have the ability to think. The *Foetus Problem* emphasises the common belief that each of us was a foetus for a period of time prior to our birth. The *Animal Ancestors Argument* takes seriously the view that each of us is a result of the evolutionary process.

Apart from showing the similarities between the three arguments in support of animalism, I will also analyse some criticisms posed regarding them. In doing this, I aim to show which criticisms are problematic (for example, by being based on false or undefended premises) and which criticisms should cause animalists concern.

In chapter 2, I turn my attention to some arguments that have been made against animalism. As will be shown, these anti-animalist arguments have a commonality in that they emphasise certain psychological features that we commonly take to be important to our nature. These anti-animalist arguments have also been categorised in ways that emphasise the methodologies that underpin them (see Snowdon 2014b). For instance, certain arguments are derived from real-world cases in which a person ceases to exist, yet a human organism continues to exist (such cases occur when an organism is in a persisted vegetative state.) Other anti-animalist arguments rely on the kind of cases that, at least at the time of my writing this, can only occur in the realm of science fiction and fantasy.

In response to the different methodologies utilised in anti-animalist arguments, I will argue that arguments based on thought experiments, common sense and/or language (i.e., cases that can only occur in science fiction and fantasy) have only limited use in practice. Specifically, such thought experiments may help us consider our intuitions, but they don't help us

understand what we are. These fictional scenarios that we use to generate intuitions about our nature and persistence should, at best, be considered as weak evidence for what we are. At worst, such fictional accounts shouldn't be considered as evidence at all. The same thing can be said about our linguistic uses and common-sense conception of what we are. It will be argued that common sense and linguistic practices cannot help us understand our nature or identity because it's not clear what common sense or linguistic practices actually tell us about our nature or persistence. What *will* help us understand our nature and persistence is any evidence that has scientific merit (understood here in a loose manner): such evidence may be gathered following particular scientific methodologies or be used to defend certain scientific theories or hypotheses.

Once the various pieces of evidence for our nature and persistence are on the table and the strength of each kind of evidence considered, I can focus on the varieties of animalism that have been fleshed out and hypothesised thus far in the literature. This is the purview of Chapter 3, in which I will focus on clarifying the differences between *traditional* animalism and *new* animalism. Traditional and new animalism are alike in that both categories propose that we are animals; both traditional and new animalism answer the personal-ontological question the same. However, the two kinds of animalism differ in what they take organisms to be—*traditional* animalists take organisms to be individuals of a single kind, whereas 'new' animalists reject that a single kind of organism is adequate to understanding the complexities of biological individuality. This difference will lead me to adopt a *naturalised* form of animalism—a form of animalism motivated by, and that necessarily accommodates, scientific evidence and practice.

A naturalised form of animalism makes *new* animalism much more plausible than has hitherto been acknowledged. Once we focus on a more *naturalised* metaphysics (e.g., a scientifically informed metaphysics as will be advanced in the previous chapter), it becomes clearer that what it means to be an organism—a biological individual—is much more complex and unintuitive than the animalist has traditionally taken it to be. To this effect, I argue that the animalist has to decide what to do with this complexity. They can either find a way to incorporate the traditional metaphysics used into our understanding of

biology (potentially leading to a pluralism of biological individuals) or by taking seriously the view that an alternative to the traditional substance views of metaphysics is needed.

Chapter 4 looks at some of the accounts of biological individuality that biologists and philosophers of biology have proposed. It has been shown by Eric Olson (2021) that all of these solutions to the problem of biological individuality are similar in that they are definitional by nature. All of the accounts of biological individuality offered by biologists and philosophers of biology, Olson claims, suggest a set of properties some entity requires for that entity to count as an organism—the solutions complete the formula ‘for any x , x is an animal *iff* x has properties XYZ.’) Olson has criticised such definitional solutions because definitional solutions presuppose the existence of the individuals that are being defined. Furthermore, he shows that the existence of these individuals can only be accommodated in virtue of accepting certain controversial metaphysical theses. In replacing definitional accounts, Olson offers what can be called an *existential* solution of biological individuality. Such solutions propose the conditions under which a biological organism would exist—the solutions follow the formula ‘(y s)($\exists x$) x is an organism and the y s compose x *iff*...the y s....’) Although I agree with Olson that definitional solutions to the problem of individuality are problematic, I argue that existential solutions to the problem face their own problems. I provide several examples of what a solution to the *existential* problem could be and show that none of them are satisfactory. These unsatisfactory solutions result from the claim that biological individuals exist in a substantial way, which I will argue leads to either a problem of overlapping substantial kinds or a problem of diminishing the importance of certain kinds over others. Because of this, I will suggest that there is good reason to prefer a metaphysics that doesn’t rely on substances.

On the issue of whether a substance-based or a non-substance-based metaphysics affords us with a better picture of biological entities) the position I propose can be compared to Jack Wilson’s position on biological individuality. Insofar as “substance” is treated in a narrow sense and refers to “things” or “objects” as opposed to “properties” or “events,” Wilson (1999) opts for the

more traditional route by grounding natural kinds in patterns in nature. In Wilson's case, a natural kind is a "[. . .] shorthand for a complete description of particular properties *of a particular object or process*" (p. 43, my emphasis). Considering that Wilson takes natural kinds to be patterns in nature and also descriptions of properties of objects or processes, it must be that he takes patterns in nature to describe or "pick out" particular properties of a particular object or process.

In chapter 5, I argue that the former option (i.e., that we articulate the complexity of biology in terms of a traditional, substance-based metaphysics) is less fruitful. Whilst I agree with Wilson that a "pattern in nature" picks out particular properties in nature, as well as that "[a] robust pattern is one that identifies a group of phenomena that share important causal or lawlike similarities" (p. 43). However, contrary to Wilson, I argue that organisms (along with all entities) are pattern-deep. That is, I don't take patterns, or the properties they pick out, to be properties *of* an object (at least not in any robust ontological sense). This is to say that I forward a non-substantivist view of biological individuals. In particular, a non-substantivist view of biological individuals found in the metaphysics of Ontic Structural Realism (OSR) can, I believe, offer an interesting and fruitful direction for work on biological individuality. It does this by providing a framework to identify the "important causal or lawlike similarities" found in biology and referring to those patterns in a coherent way that doesn't necessitate them being properties *of* an object.⁴

I carry this structuralist approach of biology over to issues regarding animalism in chapter 6. Here I take a closer look at some arguments for and against animalism and show how a structuralist metaphysics can strengthen specific arguments in favour of animalism and offer objections to the arguments against animalism. At the same time, a structuralist metaphysics can offer certain avenues of criticism against proponents of the Psychological Criterion that a substance-based metaphysics cannot.

⁴ It could be argued that properties are necessarily properties *of* an object. If this is the case, then proponents of OSR are mistaken in referring to properties in this way. This is an interesting question that I cannot begin to respond to here.

In chapter 7, I will consider what it means for something to endure and persist in a structuralist metaphysics. In particular, I will use forensic and medical sciences and necrophilic phenomena in biology and psychology as case studies for how we talk about corpses as scientific evidence. In this way, I will argue that human organisms are best understood as ceasing to exist at some point *after* death. Thus, I reject the view that human organisms cease to exist at death (known as the *Termination Thesis*). Not only is understanding human persistence in this way more straightforward in terms of our scientific discourse, but the persistence can be seen as being rooted in specific important biological structures that are referred to by forensic scientists, medical doctors, and even in the law of most countries.

Lastly, in the Conclusion of this work, I will provide a brief overview of the work and briefly offer some possible avenues for further research on this issue.

Chapter 1. Arguments for Animalism: A critical analysis

In the Introduction to this work, I explained that animalism is the view that each of us—each human person—is identical to an animal (specifically, a human animal—a member of the species *Homo sapiens*.) I also explained how animalism is an answer to the *personal-ontological* question of personal identity; that is, it is an answer to the question “what are we?” This question was shown to be distinct from the *persistence question*—the question concerning numerical identity, which seeks to determine the necessary and sufficient conditions for an entity at T1 to be numerically identical to an entity at T2. The *personal-ontological question* was also shown to be distinct from the personhood question (i.e., the question about what it takes for something to be a person rather than a non—person) as well as the *evidence question* (i.e., questions regarding what evidence we use to determine numerical identity, and how these types of evidence relate to one another.)

I explained in the introduction that one way of navigating the debate between animalists and proponents of mentalism (i.e., proponents of positions that regard our identity to be something essentially mental or psychological) is to take each position as responding to different questions about personal identity. Animalists such as Olson provide an answer to the *personal-ontological question* of personal identity. Animalists such as Snowdon provide an answer to the *persistence question* of personal identity. Mentalists also seem to begin their position by answering the *persistence question* whilst arriving at a different position than Snowdon.⁵ Once these initial questions are answered, the other personal identity questions are answered based on what can reasonably be implied by the answer to the first (such as how many animalists take our

⁵ Lynn Rudder Baker may be a proponent of mentalism that doesn't begin her position by responding to the *persistence question*, but rather the rather *personhood question*. This could be seen as her starting point given that her constitutional view of persons stems from the from persons being things that essentially have a first-person perspective (see, e.g., Baker 2000). Her view and some implications of it will be discussed below.

persistence to be whatever a human animal is—such an answer to the *persistence question* is implied by the animalist’s response to the *personal-ontological question*.)

A question of personal identity that I argued receives not enough attention is the *evidence question*—questions concerning what evidence we use to determine questions of persistence and how different pieces of evidence used in this regard relate to one another. I suggested that the *evidence question* was the best starting point for discussing questions of personal identity, and the defence of starting the discussion here is the aim of this and the following two chapters. In these chapters, I will highlight some arguments for animalism (which is the aim of this chapter), arguments against animalism (the aim of chapter 2), and finally (in chapter 3) show that a naturalised metaphysics is best equipped to defending animalism.

As mentioned above, the purpose of this chapter is to show some arguments for animalism and evaluate some of the objections to those arguments that have been raised by critics. In the process of doing this, I will offer some quick responses as to why some of these criticisms are unwarranted, miss the point, or are uncharitable and, as such, I won’t be discussing these objections further. At the same time, some of the objections made against arguments for animalism reveal issues that animalists ought to be concerned with. As such, I will highlight these objections and use them to foreshadow some larger issues within the conversation around personal identity. These objections will be analysed more in-depth in later chapters.

The *Thinking Animals Argument* will be the first argument for animalism I cover (in section 1). In section 2, I will discuss what can be called the *Foetus Problem*. Lastly (in section 3), I will provide an exposition of the *Animal Ancestors Argument*. As we will see, these arguments all focus on things about ourselves that emphasise the ‘human’ aspect of ‘human person.’ That is, all of these arguments pick out and highlight beliefs and assumptions that are distinctively biological—beliefs and assumptions that most of us seem to share.

1.1. Thinking Animals Argument (TAA)

The *Thinking Animals Argument* (TAA) is predicated on the assumption that there are biological organisms of the species *Homo sapiens* that reside on planet

earth and that these *H. sapiens* have the ability to think. The argument can be set out as follows:

P1: There is a human animal sitting in this chair

P2: The human animal sitting in this chair is thinking

P3: I am the thing sitting in the chair thinking

Conclusion: I am the human animal sitting in the chair thinking.

The strength of this argument is meant to come from the fact that many people intuitively find each premise true, in which case the conclusion must follow. It has been observed that it is difficult to deny any of these premises unless some “far-reaching” metaphysical work is done to make sense of their denial (Blatti 2014, Sect. 3.1). This hasn’t stopped philosophers from putting in that strong metaphysical work, of course, and several responses have come of it. P1 has been objected to by Zimmerman (2008) on the grounds that the truth of P1 is not sufficient to lead to the conclusion of the argument. P2 has been shown by Blatti (2014) to be objectionable according to Sydney Shoemaker’s functionalist views of mind, which leads Shoemaker to believe that animals cannot think. Lastly, P2 and P3 can be rejected out of ambiguity according to Baker’s constitution view or Noonan’s revisionist view of personal pronoun use. In the rest of this section, I will briefly consider and critique these objections.

One problem that has been shown with the TAA comes from Zimmerman (2008), who notes that accepting the schema of the argument entails the acceptance of a number of animalism’s rivals (as well as animalism itself). He notes that Olson’s schema takes a form akin to:

P1[^]: There is a human-shaped *F* sitting in this chair

P2[^]: If there is a human-shaped *F* sitting in the chair, then it is thinking

P3[^]: I am the one and only thinking thing sitting in this chair

Conclusion[^]: I am an *F*

A consequence of having such a schema is that *F* could be plausibly substituted with terms other than ‘human animal’ and still be true. Candidate

substitutions Zimmerman refers to are ‘mere body,’ ‘psychological person,’ ((2008, p. 24) and ‘mere hunk of matter’ (2008, p. 25). Insofar as F could be replaced by these to make the premises just as plausible as if it were replaced by ‘human animal,’ then there needs to be independent justification for why we ought to see our identity relation to ‘human animal’ rather than ‘mere hunk of matter’ or ‘psychological person.’ Call this the *Rival-Candidates Problem*.

Could F be replaced by ‘mere body,’ ‘psychological person,’ or ‘mere hunk of matter’? I’m not convinced that it can with ‘psychological person,’ and I’m not sure that animalism (broadly understood) is incompatible with our being a ‘mere body’ and ‘mere hunk of matter’—especially if an animal turns out to be just a particular kind of body or hunk of matter. That an animal is just a kind of body or ‘hunk of matter’ will be fleshed out in more detail throughout this work. However, even if such an understanding of ‘animal’ isn’t plausible—even if animals are more than mere bodies or hunks of matter—taking ourselves to be anything but an animal doesn’t solve the problem of there being too many thinkers.

Let’s consider what F would look like if it were replaced with ‘psychological person.’ If F were replaced with ‘psychological person,’ then there would be a human-shaped ‘psychological person’ sitting in the chair that I would have reason to believe that I share an identity relation to. If I am a human-shaped psychological person and also the only thinking thing in the chair (as $P3^{\wedge}$ stipulates), then the human animal that is also in the chair doesn’t have the ability to think (i.e., $P2$ is rejected).⁶ I will show why a rejection of $P2$ is problematic momentarily, but first, let’s continue with what substituting F with ‘mere body’ would look like.

By ‘mere body,’ Zimmerman seems to mean whatever possible composite object exists prior to, during, and after the animal dies. He asks, “[d]oes an animal continue to exist after it dies? Presumably not; but something does, a body that was there before death and that has the same history as the animal” (p. 24). In chapter 8, I will argue that animals do, in fact, survive death (as corpses), but for present purposes, I will assume Zimmerman is right that they don’t survive death and that the resulting thing left is ‘mere

⁶ It seems like Zimmerman acknowledges this as well, as he refers specifically to Sidney Shoemaker as an example of how this idea would work out. As I will show shortly, Shoemaker does reject $P2$, although I don’t find his position tenable.

body.’ If F were substituted by a mere body understood in this way, and we assume that an animal is still sitting in the chair at the same moment that the mere body is, then the human animal that is also sitting in the chair must not think (a rejection of P2). Alternatively, the animal sitting in the chair at the same moment as the body does think, in which case, there are two thinking things (the animal and the body) sitting in the chair, and thus the problem of there being too many thinkers persists.

The same problem shown above is true if F is taken to be a ‘mere hunk of matter.’ That is, any animal that coincides with a mere hunk of matter in the chair will be unable to think insofar as the hunk of matter does. Unless, of course, the animal thinks as well, in which case there is still the problem of having too many thinkers in the chair.

All of this is to show that if (a) insofar as we take there to be an animal in the chair, and (b) insofar as we assume that animals can think, then (c) it doesn’t matter what we substitute F with. Regardless of how we fill that variable, it will always lead to a problem of there being too many thinkers. This is precisely what the TAA is meant to show: insofar as we believe ourselves to be anything but an animal, then there is a problem of there being too many thinkers.

A similar problem to the *Rival-Candidates Problem* arises when we consider that parts of the thinking organisms can, themselves, be considered to think. Consider the following:

P1’: There is a human head located near the chair

P2’: The human head located near the chair is thinking

P3’: I am the one and only thinking thing sitting in this chair

Conclusion’: I am the human head

In this argument, ‘human head’ could plausibly be replaced with any part of the organism. Thus, it’s not clear that animalists can accept the premises of the TAA without accepting that we are also identical to any of the thinking parts of the animal—at the very least, animalists need to provide some principled explanation for why we are the whole organism and not any of the parts. Call this the *Thinking Parts Problem*.

The main issue with the ‘thinking parts problem’ is that it pushes the boundaries of what is conceivable. If one adopts some form of panpsychism, then stating that a ‘left arm’ or ‘right nostril’ sitting in the chair is thinking may carry some weight. Beyond adopting a position of this sort, however, it’s difficult to see how such claims can be made in good faith.

Although it’s unlikely anyone (apart, perhaps, from panpsychists) seriously takes *any* conceivable part (e.g., a left-arm) to think, it is undeniable that many take certain parts to have the capacity to think—these parts being the head or, more specifically, the brain. It is also undeniable that the brain plays an important role in the human animal’s capacity to think. Because of this, I take the strongest possible interpretation of the ‘thinking parts problem’ to be limited to the brain (or, perhaps, a whole head). Whether or not a brain (or head) can think on its own is, of course, open to speculation.

Baker has also objected to the TAA, arguing that P2 (“the human animal sitting in this chair is thinking”) and P3 (“I am the thing sitting in the chair thinking”) are unclear as to whether not the thing that is thinking is doing so *derivatively* or *nonderivatively*. The distinction between the two helps her explain and defend her constitution-view of personal identity, whereby persons are non-identically constituted by animals. In order to understand Baker’s view, it will be helpful to start by articulating the relationship between what she calls *primary kinds* and *circumstances*.

A *primary kind* is a kind of thing to which a particular individual belongs (and the only kind thing to which that particular individual fundamentally belongs). According to Baker, an individual *x*’s primary kind is referred to by using a substance noun when answering the question “what most fundamentally is *x*?” (Baker 2000, pp. 39-40). In terms of personal identity, for example, Baker takes our primary kind to be persons, whereas Olson, Snowdon, and myself take our primary kind to be an animal. This is due to Baker believing that we are essentially persons and contingently animals, and Olson, Snowdon, and I believing that we are essentially animals and only contingently persons.

Circumstances are understood by Baker to be the various variables that provide the context that determines why a particular individual is the kind of thing that it is (Baker 2000, p. 41). For instance, a particular sheet of paper

constitutes a particular marriage license in virtue of certain legal conventions—the legal conventions are the circumstances that make possible the constitutional relation between the sheet of paper and the marriage license.

With the concepts *primary kind* and *circumstances* articulated, Baker goes on to informally describe *constitution*. She writes:

Where *being an F* and *being a G* are distinct primary-kind properties, it is possible that an F exists without there being any spatially coincident G. However, if an F is in G-favorable circumstances, then there is a new entity, a G, that is spatially coincident with the F but not identical to it (Baker 2000, p. 42, original emphasis).

If we have two different individuals (F and G), and each individual belongs to a different primary kind, G is constituted by F in instances where F exists in circumstances (i.e. in contexts) that are conducive to the bringing about G. Take, for example, a given individual piece of marble (call it ‘Piece’). Piece belongs to a primary kind—call this kind ‘Body.’ At any particular time, Piece will have the persistence conditions (along with any other properties) of Body in virtue of it belonging to that primary kind. At a later time, Piece is relocated to the workshop of a sculpture who begins sculpting Piece into a statue—the circumstances of which are conducive to the creation of statues (call these ‘statue-favourable circumstances’). When Piece is in ‘statue-favourable circumstances’, a different entity comes into existence (call it ‘David’)—which belongs to a different primary kind (call it ‘Statue’). Given that David belongs to the primary kind Statue, it will have the persistence conditions (along with any other properties) that things of that kind have.

But, ‘David’ and ‘Piece’ aren’t just two objects that share the same spatial boundaries. Baker argues that the relationship is also one of unity, claiming:

[W]hen x constitutes y , there is a unitary thing - y , as constituted by x - which is a single thing in a sense [. . .] As long as x constitutes y , x has no independent existence. If x continues to exist after the demise of y , then x comes into its own, existing independently. But during the period that

x constitutes y , the identity of “the thing” – y , as constituted by x – is determined by the identity of y (Baker 2000, p. 46).

According to Baker, when two coincident objects are in a constitutional relation, the identity of the whole unified object is understood by the identity of the ontologically superior—or higher-level—object. Thus, although Piece and David belong to two distinct primary kinds, the unified object (i.e., David constituted by Piece) is identified with the higher-level object (understood here as any object that is constituted by another), David. If David were ever to be put in a situation where the persistence of the kind Statue ends (for example, if it were to be broken into bits), then David would cease to exist, and Piece would “come into its own” and persist independently.

As I mentioned earlier, Baker’s constitution view poses a problem for the TAA on the grounds that the ‘thing’ that is thinking in P2 (“the human animal sitting in this chair is thinking”) and P3 (“I am the thing sitting in the chair thinking”) is doing so *derivatively* or *nonderderivatively*. According to Baker, “[. . .] x has H at t derivatively if and only if x ’s having H at t depends wholly on x ’s being constitutionally related to something that has H at t independently of its being constitutionally related to x ” (Baker 2000, p. 47). That is, if an object (x) has a property in virtue of its constituted relation with a different object (y), and y has that property in virtue of it belonging to the primary kind that it does (not, in virtue of its constituted relation with x), then x has the property derivatively, and y has the property nonderivatively.

If Baker is right in her belief that persons are constituted by animals, then ‘persons’ and ‘animals’ would have derivative properties in virtue of their constituted relationship. For example, Baker takes the first-person perspective to be a necessary and sufficient property of persons (this ‘first-person perspective’ property will be explored in more detail momentarily), and thus any person has the ‘first-person perspective’ property *non-derivatively* (it has it in virtue of being of the primary kind ‘person’). A human animal also has the ‘first-person perspective’ property, although it has the property *derivatively*, i.e., human animals have the ‘first-person perspective’ property in virtue of their constituting a person. Baker refers to this derivation of properties from a higher-level object to a lower-level object *downward derivation*, and cases where a

higher-level object has properties in virtue of the object that constitutes its *upward derivation*. An example of *upward derivation* would be a person having high blood pressure, a property that the animal has nonderivatively, but the person has derivatively (i.e., in virtue of it being constituted by the animal with high blood pressure).

Given the distinction between *derivative* and *nonderivative* properties, Baker takes P2 (“the animal in the chair is thinking”) of the TAA to be ambiguous as to whether the animal in the chair is thinking derivatively or if it is thinking nonderivatively. If the animal is thinking derivatively (i.e., if the animal is thinking in virtue of the person thinking), then the ‘thinking animal argument’ can be sound yet still cause no problem for psychological accounts of identity. This is due to the fact that, on Baker’s constitution-view, we can be identical to persons who have the ability to think nonderivatively and be non-identically constituted by animals that have the ability to think derivatively. This is a result of Baker’s belief that identity is determined by an entity’s nonderivative properties (which must be the case given that entities have nonderivative properties fundamentally in virtue of their belonging to the primary kind that they do.)

Similarly, the ‘thing’ in the chair thinking in P3 (“I am the thing sitting in the chair thinking”) could either be thinking derivatively or nonderivatively. If it’s thinking derivatively, then “I” am only non-identically constituted by the thing sitting in the chair thinking. “I” would only be identical to the thing sitting in the chair thinking if the “thing” were thinking nonderivatively—something Baker takes to be characteristic of persons only.

The problem with Baker’s account of the constitution relation—at least as it pertains to the current discussion—is that it hinges on the constituted object being ontologically superior to the object that constitutes it. Remember that, according to Baker, constituted objects exist in a hierarchy—David was described as ontologically superior to—or being an object of a ‘higher-level’—than Piece. This hierarchy exists because when David comes into existence, a new object with new causal powers comes into existence. Thus, Baker states:

If x constitutes y at a certain place and time, then there is a unified individual at that place at that time, and the identity of that individual is

determined by y . The object (y) that is constituted by something (x) but that constitutes nothing else is ontologically more significant than the thing (x) that constitutes it. The identity of the constituting thing is submerged in the identity of what it constitutes. As long as x constitutes y , y encompasses or subsumes x . (Baker 2000, p. 33).

The claim that ‘higher-level’ objects are ontologically more significant is a substantial claim in need of substantial justification. Yet, Baker acknowledges that her belief that constitution is an asymmetric relation is pretheoretic (Baker 2000, p. 33). If Baker’s belief is wrong—if constituted objects *aren’t* ontologically more significant than the objects that constitute them—then whether or not certain properties (such as the ‘first-person perspective’ property) are derivative or nonderivative is put into question because whether or not an entirely new entity (y) comes into existence when a different entity (x) is in a y -favourable circumstance is put into question.

Baker does offer a metametaphysical position (i.e., a position concerning what metaphysics is, ought to be, and what kind of methods metaphysicians ought to use) that could be seen as supporting her view that constituted entities are more ontologically significant than the entities that constituted them (see Baker 2008a)⁷ The position, which she calls ‘Big-Tent Metaphysics’ take there to be a close relationship between metaphysics and value such that things that we value have some kind of ontological status (the extent of this ontological status, or which things of value have it, are unclear). As a result of this close relationship between metaphysics and value, value acts as a constraint to the possible conclusions of metaphysics. (Olson 2008) has argued against Big-Tent Metaphysics on the grounds that metaphysics shouldn’t be constrained by other disciplines, and (Snowdon 2014b) has argued against the position on the grounds that some truths don’t have to do with value.

In the following chapter, I will argue that Baker is right (contra Olson) in thinking that metaphysics needs to be constrained by other disciplines, but that (being sympathetic to Snowdon’s point that some truths have nothing to

⁷ I more thorough explanation of metametaphysics and its importance to debates around personal identity (especially regarding animalism) will be addressed and argued for in chapter 3.

do with value) Baker is wrong in thinking that these constraining disciplines have to do with value. Given that I take Baker's value-based metaphysics to be untenable (as I will argue for in the following chapter), I likewise take her position that the constitution relation is asymmetric to be problematic. Thus, I take her objections to P2 and P3 to pose no issue to the TAA.

Sydney Shoemaker also defends a constitution-view, although his works differently (A complete overview of these differences aren't needed here, such differences, when they occur below, will be addressed.) Blatti (2014) has pointed out that Shoemaker's functionalist theory of mind poses a problem for P2 ("the animal in the chair is thinking") of the TAA because animals don't have the ability to think according to Shoemaker's theory. A full picture of Shoemaker's functionalist theory of mind isn't necessary here but, briefly, he summarises the view thus:

[. . .] the functionalist view in question says that the psychological continuity that Neo-Lockean views take to constitute person identity is best viewed as the playing out over time of the functional roles of the various sorts of psychological states, and that given that such states are individuated by their functional roles, and given that persons are subjects of such states, psychological continuity of this sort must constitute the persistence of persons over time. (Shoemaker 2004, pp. 525-526).

Shoemaker's functionalist view suggests that the right relation to pay attention to when formulating a theory of persistence (i.e., when answering the *persistence question* described in the introduction) is the relations between functional roles of things. The functional role of psychological states, for example, constitute the persistence of persons precisely because it's persons that are subjects of those states (states that play out in a causal succession of mental functions).

To flesh how functional relations work in more detail, Shoemaker takes there to be two sorts of unity relations: synchronic unity occurs between various mental states working together at the same time to rationalise a particular thing. For example, when a single individual has a belief (a mental state) and a desire (a different mental state) together bring about an action.

Diachronic unity relations occur when synchronic unity relations bring about other synchronic unity relations; the relations between the various synchronic unity relations are diachronically united (Shoemaker 2004, p. 526). For Shoemaker, these causally connected relations constitute the persistence (and thus the identity) of something because each state is causally dependent on the state that realised it, thus “[t]here is an internal relation between the properties a thing is capable of having and the persistence conditions for things of the sort it is” (Shoemaker 2004, p. 527). If the nature of the property is such that there is an internal relation, the property is *thick* (S. Shoemaker 2008, p. 319). An example of a *thick* property is mental properties because each mental state (or a synchronic unity of mental states) play a functional role that stands in a diachronic relation to other mental states that, themselves, have functional roles. Similarly, biological properties are *thick* because the functional role of, e.g., each organ (or, a synchronic unity of organs) stands in a diachronic relation to other organs that themselves play a functional role in the persistence of the organism.

To Shoemaker, animals (i.e., biological things) and persons (i.e., thinking things) are coincident entities, which he takes to be entities that have different persistence conditions. This, he believes, means that they cannot have identical properties. Coincident entities may share certain properties—such as micro-structural properties—that can be had by entities with different persistence conditions (which he calls *thin* properties (S. Shoemaker 2008, p. 319; see also, 2004, p. 528). However, coincident entities don’t share the *thick* properties, which necessarily belong only to things with certain persistence conditions (e.g., mental persistence conditions, biological persistence conditions, etc.) Thus, Shoemaker denies that persons, bodies, and (assuming they are individuated differently than bodies) animals share the same physical properties (2004, p. 528).

The difference in *thick* properties (e.g., mental properties and biological properties) leads Shoemaker to reject P2 of the TAA (i.e., the human animal sitting in this chair is thinking) because, on his view, human animals lack this capacity—animals don’t have the requisite *thick* properties (in this case, mental properties) to think.

The last objection to the TAA that I want to address has been made by Noonan, who objects to P2 and P3 on the grounds that only persons are capable of referring to themselves in the first person, and thus when animals are thinking in the first-person they aren't referring to themselves (i.e., an animal), but to the person with whom they coincide. By revising the first-person referent in this way, Noonan can accept that there is a multiplicity of thinkers (that is, both the animal and the person are thinking) without worrying which thinker (i.e., the animal or the person) he is. He states:

[. . .] there is no epistemic worry since the question whether I am a person or animal answers itself, and there is no worry that we must say that there are two persons present, since there is a difference between the person and the animal which justifies denying that the animal is a person, namely that it is not an object of first-person reference, a self (Noonan 2012, p. 317).

According to first-person revisionism, there is a thinking animal in the chair (P2), and I am in the chair thinking (P3), but that doesn't entail that I am the animal in the chair thinking (the conclusion of the TAA) since I must be a person to refer to myself as "I".

This conclusion may seem strange given that it creates a mystery as to how the animal and the person, sharing in identical thoughts, can differ in the cognitive capacities—why can the person think of itself in the first-person, but the animal cannot? Noonan acknowledges this concern but denies that there is cause for it because, on his view, the animal and the person do, in fact, have identical cognitive capacities. He states:

To the question 'Why is the animal not thinking of itself in the first-person way given that the coincident person is?', the answer is that this must be so given that there are the same in this respect: namely, that each is thinking of the person in the first-person way and neither is thinking of the animal in the first-person way. (Noonan 2012, p. 317).

According to Noonan, the animal the person does share identical cognitive capacities: both the animal and person think, both have the same thoughts and, importantly, both the animal and the person refer to the *person* when thinking in the first-person.

The issue with Noonan's first-person revisionism is that it's not clear that it totally absolves the critic of the problem of there being too many thinkers. It *may* resolve what the first-person referent is in cases where there is more than one thinker (i.e., both the animal and the person refer to the person when thinking in the first-person), but it still acknowledges that there are two distinct thinking things (which is one more than it seems there should be.) "Don't worry, animalist," the first-person revisionist insists, "there may be two thinkers here, but at least they both refer to me as 'I'".

An important aspect of the TAA that I want to emphasise is that proponents of the TAA highlight a capacity that we commonly take certain biological organisms (such as humans) to have: the capacity to think. I take it that any adequate objection to the TAA will have to address this assumption. Zimmerman's criticism, it was argued, failed because it only suggested that other things (such as bodies or hunks of matter) might be able to think, thus not solving the problem. Zimmerman's criticism merely shows that we could be identical to other thinking things; it doesn't suggest how we are to account for more than one thinking thing. Baker's objections to the TAA relies on there being an asymmetric relation between coincident entities. Similarly, Shoemaker's objection to the TAA relies on coinciding entities having different properties that are closed off from one another. Lastly, Noonan's argument against the TAA relies on how we account for the first-person perspective. This, I've shown, is an inadequate response because even if animals and persons each refer to the person when thinking the first-person, there are still two thinking entities—thus, the problem of there being too many thinkers isn't resolved.

1.2. Foetus Problem

Another problem that the animalist has posed against mentalist theories of identity involves the common-sense view that all human persons were, at one stage in their lives, human foetuses. The *Foetus Problem* is a problem that Olson

(1997a; see also, Olson 1997b) claims anyone that embraces a psychological criterion of identity must face. As Olson sees it, the problem occurs as a consequence of the psychological criterion's position that some psychological relation is necessary and sufficient for our persistence. As a result of this psychological necessity, it must be the case, he argues, that no human person was ever a foetus because foetuses don't have the required psychological features of human persons (Olson 1997a, p. 73). Olson writes:

Just as I could not *lose* all of my mental contents and capacities and still survive, I could not have existed at some past time when I had no such mental features. Thus, I could not have been a human embryo or fetus (or at least a fetus in the earlier stages of its development, before the relevant psychological features are in place). According to the Psychological Approach, nothing could be a fetus at one time and a person later on. No person was ever a fetus, and no fetus ever becomes a person (1997a, p. 74)

That no human person was ever a foetus is a conclusion that we should want to avoid, not least of all because our once being foetuses is what our biological science and folk wisdom tell us to be the case (Olson 1997a, p. 73). An advantage of animalism is that the position doesn't seem to have to deal with the Foetus Problem. It is typically thought by the animalist that since we are human animals, and since human animals all go through a phase of being a foetus, then animalism is compatible with our once being a foetus (see, for instance, Olson 1997a, p. 91). It is concluded that animalism must be a more satisfactory response to what kind of thing we are since it does not entail a rejection of a belief that we usually hold.

Lynne Rudder Baker (2000) has denied that there is a Foetus Problem in personal identity. She offers three arguments that will be discussed later (in chapter 6) because, if sound, these arguments would cause serious problems for animalism. One of Baker's arguments against the Foetus Problem is of particular relevance here because it doesn't seem to pose much of an issue for animalism.

Baker argues that, contra Olson, our having never been foetuses does not go against any common sense understanding about our identity, stating “[c]ommon sense is not fine-grained enough to distinguish between x ’s being identical to y and x ’s being constituted by y ” (p. 205). Furthermore, she argues that Olson is wrong to suggest that “[. . .] there does not appear to be a deep logical difference between saying, in the ordinary course of life, that I was once a toddler or an adolescent and saying, in the ordinary course of life, that I was once a fetus, or that I once lived inside my mother’s womb (Olson 1997b, pp. 99-100). She writes, “[t]his assertion seems plainly false. We do, in the ordinary course of life, regard fetuses and adolescents as different kinds of things” (Baker 2000, pp. 205-206). She then provides us with an example that she believes demonstrates this fact, writing:

[I]n the late seventeenth century, Mary, the Protestant wife of William of Orange, daughter of James II of England, a Catholic, and heir to the English throne, became pregnant. Many nonCatholics feared that she would finally have a son, who would be brought up as a Catholic. The birth of a son would have altered the order of succession, and the temporary Catholic rule (of James II) might have become permanent. Any male person of whom Mary was the mother would be a new heir. When Mary was five months pregnant, there was no new heir because there was at that time no new person. But if at that time, instead of there being a five-month fetus, there had been an adolescent son, there would have been a new person and a new heir. So, I think that from the perspective of common sense, we do in fact regard a fetus as a different sort of entity from an adolescent (Baker 2000, p. 206).

Bakers’ example is meant to highlight what she sees as an obvious reference to foetuses and adolescents as different *kinds* of things in our everyday, common-sense life. In particular, it shows that foetuses aren’t—but adolescents are—the kind of thing that can be heirs to a kingdom.

I find it odd that Baker used this as an example because it’s not clear that it demonstrates the ‘common sense’ relation between a foetus and an adolescent that she thinks it clearly does. There are two reasons for this: the

first is that there is a seeming inconsistency between Baker's contention that a common-sense understanding of identity is not fine-grained enough to make the distinction between identity relations and constitution relations and her above contention that common sense tells us there is a substantial difference between fetuses and adolescent children. For instance, the non-Catholics in Baker's example could state their worry in two different ways: a worry stemming from the identity of the fetus, and the other stemming from the possible constitution relation that fetus may have to a human person. Thus, the group may state their worry as "any child of Mary (x) would be heir to the throne if x were a male. As such, when Mary became pregnant with x , we were worried x would be born and that x would be raised catholic. However, x ended up never being born." Or, the group could state their worry as "any child of Mary (y) would be heir to the throne if y were male. As such, when Mary became pregnant, we were worried that the fetus (x) would come to constitute y and that y would be raised Catholic. However, x never came to constitute y ." The first example would have the non-Catholics take the fetus to be a stage in the life of their potentially Catholic future king. The second example would have the non-Catholics take the fetus to be a sign (perhaps a very strong and clear sign) of an impending king that may be Catholic. Baker is overstating what we can learn about our common sense understanding of the relation between fetus and human adolescent from this example because there is (at least) an equally plausible alternative interpretation to hers.

The second reason Baker's example doesn't clearly express the common sense understanding of the fetus/adolescent relationship isn't about the example itself but is about her interpretation of it. Namely, Baker's interpretation of the phenomena she describes disregards what I take to be important aspects of the story—that the non-Catholics in her example became afraid *only once* Mary became pregnant. One may wonder why, in Baker's view, anyone would be worried about a potential heir at that specific point. It seems a straightforward interpretation of the events in question would be that the common sense of the non-Catholics in question leads them to determine that the fetus Mary's carrying is going to be born and potentially raised Catholic. Such an interpretation of the events not only considers the fear of the non-Catholics but explains that fear in a straightforward way. Thus, it seems that an

identity relation between foetus and adolescent child is more plausible than a constitution relation between the two.

Of course, the problems I'm describing aren't limited to Baker's specific example. As we will see, trying to do metaphysics by way of common sense is, at best, a starting point. That something is supported or not supported by common sense is not an argument—or, if it is, it's not a very good one. This is partly due to common sense often being a bad indicator of what reality is really like. I only analyse Baker's example to show that common sense can be interpreted in different ways (some, perhaps, more straightforward than others) and that any metaphysical theory should try to accommodate as much of the phenomena in question as it can (e.g., that non-Catholics were afraid Mary's child, and heir to the throne, would be a male and raised Catholic).

There are more productive methods of objecting to the Foetus Problem. For example, if there was reason to believe that human animals don't have a foetus stage (e.g., if there was reason to believe that human animals begin their existence at the moment of birth), then the Foetus Problem wouldn't exist because it would deny, on biological and/or metaphysical grounds, that any human animal was ever a foetus (regardless whether or not we are identical those animals). An objection of this kind, as well as other biologically informed criticisms of the Foetus Problem, will be discussed in more detail in chapter 6.

1.3. Animal Ancestors Argument (AAA)

Another argument that supports animalism is the *Animal Ancestors Argument* (AAA). The argument was posited by Blatti (2012), and it takes the form of a *reduction ad absurdum*. He explains it thus,

Assume for *reductio* that animalism is false. If you are not an animal, then nor are your parents animals. But then, nor are your parents' parents, nor your parents' grandparents and so on, as far back as your ancestry extends. In this case, the falsity of animalism entails the rejection of evolutionary theory (or at least that theory's applicability to us), since it means denying that your distant ancestry includes beings who were animals. But, since the rejection of evolutionary theory is too

high a price to pay, we should reject the assumption that animalism is false (Blatti 2012, p. 686).

According to Blatti's argument, to reject animalism is to reject evolutionary theory because such a rejection would mean that we are no biological beings. If we aren't biological beings, he reasons, then we can't be the product of evolution as we wouldn't be the kind of things that can evolve (i.e., biological beings).⁸

Although Blatti acknowledges that the AAA isn't a knockdown argument for animalism, he does believe that it serves us against some objections that could be posed. Take, for instance, the objection that he refers to as *evolving persons*. According to the *evolving persons* objection, we evolved from animals, but we are not animals ourselves. The idea here is that at some point in our animal ancestry, a thing was produced that shouldn't be classified as an animal but as something else (e.g., a person). Such a view may be held by someone that has a constitutional view of persons (i.e., someone that takes us to be persons non-identically constituted by human animals). Someone who holds such a view could argue that we evolved from animals to persons that are non-identically constituted by animals. Contrary to the AAA, then, we would not have to reject evolutionary theory (as it pertains to us) by rejecting animalism. We *did* evolve from animals (we just evolved into something else).

The *evolving persons* objection is problematic, according to Blatti, because it doesn't seem like biologists take personhood as the most recent speciation stage that human animals have undergone (i.e., that we have transitioned from *H. sapiens* to what he calls *Homo personae*.) He argues:

The reason is that evolution is not a process that begins with one kind of thing and results in another kind of thing: natural selection may operate so as to produce new varieties of organisms, but it does not operate so as to produce non-organisms. Whatever explanation a constitutionalist gives of the appearance of a new kind of thing – a

⁸ It's important to note that the AAA does not entail that no human organism is a human person. Insofar as 'person' isn't a substance concept, animalists can still accept that most human animals are persons and, at the same time, accept that at one point in our evolutionary history there were animals that were not persons (Blatti 2012, p. 687).

person non-identically constituted by a human animal – it will not be an evolutionary story (Blatti 2012, p. 686).

It's not possible for human animals to evolve into some other substance that isn't a human animal (such as a neo-Lockean person) because, according to Blatti, natural selection is not in the business of producing different substances from those that are currently in play. Given this, constitutionalists must give a non-evolutionary story for how we (persons non-identically constituted by human animals) came to be.

Blatti notes, however, that constitutionalists could suggest that at some point in time, something that can be properly understood as a new kind of thing was observed in some animals that are sufficiently psychological. The non-overlapping properties and capacities that are distinctive of animals and of this new kind of thing can be appealed to explain why the new kind of thing is associated with, but not identical to, animals. As such, we can explain animal-constituted persons that are consistent with, but do not appeal to, evolutionary theory (2014, pp. 686-687). However, he suggests that we should be sceptical of non-evolutionary explanations of these new kinds of things because the capacities that are attributed to personhood (such as self-consciousness, rationality, etc.) can be explained in terms of adaptation to selective pressures (2014, p. 687).

Furthermore, Blatti argues that an appeal to non-overlapping sets of properties and capacities isn't really an argument against animalism but an assertion of its falsity given that this is precisely what is at issue between animalists and their rivals. Animalists claim that animals bear properties and capacities that are associated with personhood, and their opponents claim that they do not (Blatti 2014, p. 687).

Another objection that the AAA helps dissuade against accepts that we are animals but argues that we are not *identical to* animals. Blatti refers to this objection as *overstatement*. According to *overstatement*, Anti-animalists could object to animalism by noting that, although evolutionary theory results in each of us being an animal, it doesn't result in our being *identical to* an animal. Given this, evolutionary theory does not entail that animalism is true (likewise, animalism being false doesn't entail evolutionary theory being false). As Blatti

correctly notes, it is the stronger identity claim (i.e., the claim that we are identical to animals) that animalists accept and that their opponents deny.

Sydney Shoemaker (2016) has suggested a distinction that Blatti considers to be a version of *overstatement*. Shoemaker suggests that the term ‘animal’ has two equivocal senses: ‘biological animals’ and ‘animals’. Whereas ‘biological animals’ have purely biological persistence conditions, ‘animals’ are psychological things that are constituted by (rather than identical to) biological animals (from here, I will refer to this narrower sense of ‘animals’ as p-animals to avoid confusion).

Using the distinction between biological animals and p-animals, opponents of animalism may contend that it’s Shoemaker’s narrower sense of ‘animal’ (i.e., p-animals) to which evolutionary theorists refer, and not the ‘biological animals’ which animalists assume them to refer. If this were true, then animalists would be wrong to suggest that evolutionary biologists are referring to ‘biological’ animals, and thus would be wrong to argue that a denial of animalism entails a denial of evolutionary theory (i.e., because both ‘biological’ animals and p-animals can be the result of evolution).

In response to *overstatement*, Blatti notes that there is no evidence that evolutionary theorists understand ‘animals’ to refer to things that are not identical to animals but to things that are non-identically associated with animals (such as beings that are constituted by animals, i.e., p-animals). There is also no evidence that the word ‘animal’ is used differently depending on whether the animal in question is human or non-human. Given this, he concludes that “[. . .] the simplest interpretation of evolutionary theory’s assertions about animals treats them as referring non-derivatively to the animals themselves” (Blatti 2012, p. 688).

In addition to this, proponents of Shoemaker’s version of *overstatement* have the problem of explaining the appearance of p-animals (a similar problem faced by those forwarding *evolving persons*.) The issue, similarly to *evolving persons*, is that any explanation of p-animals must be evolutionary if the belief in our having evolved is to be maintained. At the same time, p-animals are not the kinds of things that can result from evolutionary processes because, as Blatti believes, evolutionary processes do not produce non-organisms from organisms (Blatti 2012, pp. 688-689).

An argument against the AAA that hinges on evolutionary considerations will be considered and argued against in chapter 6, but for the present purposes, what needs to be appreciated is the driving assumption behind the argument—that evolution has produced the kind of thing that we are (i.e., human persons). That we are products of evolution seems to be a very common belief and, contra Shoemaker, understanding ourselves as biological organisms that have evolved (rather than p-animals) seems the most straightforward interpretation of this common belief. Still, there is another attempt that has been made to avoid the conclusion that we are organisms produced by evolutionary processes: deny that we are the kinds of things that evolve altogether. It is outside the purview of this project to take an in-depth look at objections that claim we are not the kind of things that evolve. However, a brief overview of two possible arguments made in this manner may be helpful.

There are at least two kinds of arguments that could be made to conclude that we are not the kind of things that have evolved: *Arguments from Meaning and/or Normativity*, and what I will call *Arguments from Human Exceptionalism*. *Arguments from Meaning and/or Normativity* propose either that the search for any meaning and moral standards are futile insofar as we take ourselves to be biological organisms, or that given that there *is* such meaning and moral standards means that we must be more than biological organisms. Proponents of such ways of thinking can easily be found in the creationism/evolution debates, such as when Albert Mohler states that:

[. . .] evolutionary theory stands at the base of moral relativism and the rejection of traditional morality. If human beings are not made in the image of God, and if the entire cosmos is nothing more than a freakish accident, morality is nothing but a mirage, and human beings -- cosmic accidents that we are -- are free to negotiate whatever moral arrangement seems best to us at any given time. Human life has no inherent dignity, morality has no objective basis, and we are alone in the universe to eat, drink and be merry before our bones join the fossil record and we pass from existence (Mohler 2005, Web).

The point that Mohler is making here is that if we are organisms (as evolutionary theory states), then social contrivance rules the day: there is no inherent meaning (except, perhaps, whatever meaning we create for ourselves,) no inherent dignity (dignity is given to those that society deems worthy), and morality is relative to the norms of any particular social group.

A similar conclusion has been made by Baker (2000), who takes moral agency to presuppose personhood (p. 148). According to Baker, moral agents necessary (1) have the ability to ‘do things’, and (2) appreciate their ability to do things (p. 154). The first clause in the above conditions for moral agency is more restrictive than simply doing *anything*; it must have occurred in virtue of some attitude. Baker states:

S does something in the relevant sense if and only if there is some occurrence *o* and some attitude of S’s such that *o* would not have occurred if S had not had that attitude (p. 149).

An example of doing something in this restrictive sense is when I take a drink of coffee because I’m tired. There is a particular action (i.e., my drinking the coffee) that only comes about because of a particular attitude that I have (i.e., my belief that drinking coffee will help me stay awake to finish this chapter, along with a desire for me to do so). In this sense, Baker takes ‘doing something’ in this way to be conceptually tied to having attitudes such as beliefs, desires, and intentions (p. 150).

‘Doing things’ in Baker’s sense isn’t sufficient for an entity to be a moral agent, however, as the entity must also *appreciate* ‘doing things’ in this way (Baker 2000, p. 152). By *appreciate*, Baker means that the entity that does a thing in the relevant way described above would be able to (1) claim or disclaim moral responsibility for the thing that was done in that sense (e.g., they would be able to claim that they are responsible for drinking the coffee) and (2) the entity would be able to recognise that they did a particular thing because of some attitude and that they would have done something different if they had a different attitude—they could try to change their attitudes (e.g., they could learn that water is better than coffee for staying up long-term, and thus drink water rather than coffee in the future.)

All of this is important to Baker's understanding of a moral agent because only persons can satisfy the second condition (i.e., only persons can appreciate the fact that they 'do things' in the relevant way). Some animals can satisfy the first condition (i.e., 'do things' in such a way that they satisfy the above description), such as when cats eat because they are hungry. However, no non-human animal has the ability to think of itself as itself (p. 155). Only entities that conceive of themselves as themselves in this way can satisfy the second condition. As Baker argues:

[. . .] to have a first-person conception of oneself as oneself just is to have a first-person perspective. Therefore, having a first-person perspective is a necessary condition for being a moral agent. Since, on the Constitution View, having the capacity for a first-person perspective is both necessary and sufficient for being a person, it follows that only persons are moral agents (pp. 155-156)

That Baker takes moral agents to be persons *necessarily*, creates a problem for animalists because, if she is right, then animalists have to face either concede that their position is wrong (i.e., we aren't biological things essentially, but rather persons essentially) or else claim that no human person has the necessary qualities to make them a moral agent. Both of these options are unsavoury. Luckily, there is good reason to think that Baker is wrong in her claim. To understand why, however, we must first take a look at the second argument against our having been evolved.

What I'm calling *Arguments from Human Exceptionalism* claim that if we are animals (as evolutionary theory suggests), then we can expect ourselves to act like animals. We don't act like animals (as these arguments suggest); therefore, we are not animals. Baker has argued that we are not animals using a similar argument to the one above. She notes that:

[i]f we are nothing but animals, then either goals that people die for—for example, extending the rule of Allah, furthering the cause of democracy, or something else—should be shown to promote survival

and reproduction or those people who pursue such goals should be deemed to be malfunctioning (p. 14)

Baker is starting an Argument from Human Exceptionalism to show that if we are animals, then we would expect ourselves to act like animals (e.g., have the same propensities and limitations of animals). To Baker, these propensities and limitations begin and end with things that promote survival and reproduction. As such, anything that goes against these two propensities should be considered malfunctions as they would not be doing what is good for the organism (which are limited to things that promote survival and reproduction). As Baker continues to claim, “[w]e are not limited to goals derived from those of survival and reproduction” (p. 14), and since we lack these limitations of animals, she concludes, we must not be animals.

That human persons have goals that go beyond survival and reproduction, goals such as “extending the rule of Allah” and “extending the rule of democracy” is indicative of their first-person perspective, according to Baker, as is our being moral agents. Moreover, first-person perspective (and thus personhood) is not a property that is capable of being just a phase that most human organisms can go through (i.e., it’s not a phased sortal) (Baker 2000, p. 16). She states:

Although I agree that human animals normally develop the capacity to support first-person perspectives, it seems obvious (to me, anyway) that anything capable of having a first-person perspective is basically different from anything incapable of having one. [. . .] But Darwin’s message is that human animals are not basically different from nonhuman animals.

Those who take us to be essentially like nonhuman animals want to describe and explain our traits in terms of general biological traits shared by other species. But the first-person perspective, whether selected for or not, is a biological surd in this respect (Baker 2000, p. 15-16).⁹

⁹ It’s not clear what Baker means by ‘surd’ in this context. I take her to mean that the first-person perspective is something that, even if biological, cannot be explanatorily reduced any further—a position she states later on (see Baker 2000, p. 18)

This is an interesting move to make because, unlike others that may endorse some version of human exceptionalism, Baker is resistant to a biological explanation of the kind of thing we are.¹⁰ She states this more emphatically later on, stating:

The first-person perspective, or the abilities that it brings in its wake, may well be a product or a by-product of evolution by natural selection. My claim is: However the first-person perspective came about, it is unique and unlike anything else in nature, and it makes possible much of what matters to us. It even makes possible our conceiving of things as mattering to us. The first-person perspective—without which there would be no inner lives, no moral agency, no rational agency—is so unlike anything else in nature that it sets apart the beings that have it from all other beings. The appearance of a first-person perspective makes an ontological difference in the universe (p. 163).

Thus, according to Baker, whether or not we evolved is irrelevant; what matters is that the kind of thing that we are is not biological (even if it is, perhaps, a product of biological processes). But, as I've shown earlier in this section, whether it is possible or not for a non-organism (such as Shoemaker's p-animal or Baker's first-person perspective) to be the product of evolutionary processes is uncertain.

Furthermore, as Snowdon (2014b) has argued, several premises that Baker uses to support her arguments are either unsupported or false. Take, for instance, her argument that we cannot be animals because whereas all non-malfunctioning animals are limited by properties that promote survival and reproduction, humans are not limited by such properties. Baker's argument here relies on the premise that non-malfunctioning animals only have

¹⁰ This has been observed by Daniel Dennett (2018), a proponent of human exceptionalism himself. The difference between the two on this matter is that Dennett's version of human exceptionalism is based on Darwinian natural selection and Baker (as shown in the main text) is "at pains to distance herself from my [Dennett's] bottom-up, naturalistic *elevation* of our species above the rest, which by her lights is an unworthy substitute for a more traditional version that descends from the myths of Western Civilization, and of Christianity in particular" (p. 346).

properties that promote survival and reproduction—a premise that is not only unsupported by Baker but is also false. Animals could easily have capacities that evolved such that they promoted survival and reproduction, but that also had the unintended consequence of functioning in a way that didn't support these things (e.g., we've evolved the capacity to solve practical problems that could aid in our survival and reproduction, but that same capacity could be used for non-practical problems that don't benefit for survival and reproduction). Similarly, two or more traits may have evolved that aid in survival and reproduction, but that together confer a trait that doesn't aid in these things (e.g., we've evolved an advantageous arm length and to have our waist at an advantageous area, but that doesn't mean that the trait of our arms being at waist level is advantageous) (Snowdon 2014b, p. 241).

Baker's position that we aren't animals also stems from what she seems to believe is something true about biological entities—namely, that they can be fully explained in biological terms. This is why she claims, for instance, that animalists want to describe our traits in the same way that we describe the traits of any other species of animal. But, as Snowdon points out, the premise that biological entities can only be fully explained by biology is false given that many non-biological sciences contribute to our scientific understanding of animals (e.g., ethology and animal psychology). Furthermore, if biology was the only science at our disposal, then there would be many aspects of animals that we would be unable to ascertain, such as why there are the number of sheep in Australia as there are (Snowdon 2014b, p. 242).

Lastly, Baker's position relies on an argument that is partly premised on our having a property or several properties that animals do not have (namely, a first-person perspective and all of the properties that follow from that, e.g., moral accountability). But, why assume that animals don't have these properties? To illustrate what Baker is doing here, Snowdon represents her argument thus:

P1: We (in virtue of self-consciousness, etc.) have properties P1...Pn.

P2: Things which are agreed so far to be animals lack P1...Pn. T

Conclusion: We are not animals

And then compares it to the parallel argument here:

P1*: Rolls Royces can cruise silently at 150 mph.

P2*: Things that are agreed to be cars so far cannot do that.

Conclusion*: Rolls Royces are not cars.

Given that the conclusion of the Rolls Royces argument is false, but that the premises could be true, we should instead conclude that Rolls Royces are either not cars *or* that Rolls Royces are a new type of car that has capabilities that aren't yet included in the agreed-upon things cars can do. Yet, Baker hasn't stated the later disjunct, nor does she support her favouring the first disjunct in the conclusion (Snowdon 2014b, p. 239).

It is at the very least odd that Baker has decided that certain (e.g., newly discovered, advanced, and/or evolved) properties are so exceptional in the biological world as to necessitate categorising anything that has them as being a metaphysically distinctive kind of thing from those that don't have them. This is especially bizarre when considering the range of different capacities found within the animal kingdom (not to mention the other kingdoms of biology). As Snowdon himself acknowledges:

We should be struck, too, when considering [Baker's] argument, by the manifest and colossal diversity within the class of what are agreed to be animals. There are enormous differences between amoeba and gorillas.

Why should some more differences within the class of animals be significant?

(Snowdon 2014b, p. 239, my emphasis).

Baker has provided us with no principled way in which to judge the significant number of differences found within the animal kingdom. She has also not provided us with an unproblematic reason to suppose that our capacity for a first-person perspective couldn't just be a capacity of a human animal. Given this, we should consider this particular argument against our being animals sufficiently defused.

So, what are we meant to take away from the above objections to the AAA? Although the argument isn't perfect, the criticisms I've described above

aren't effective. First, when listening to biologists, we ought to take care to consider what the most straightforward interpretation is when they make the claim that we are human animals that are products of evolution. Trying to gerrymander our linguistic or conceptual practices to force person essentialism compatible with evolution isn't a feasible or charitable way to solve this issue.

Similarly, claiming it as obvious that our moral agency and/or first-person perspective is incompatible with our being biological organisms *even if* they are products of biological processes is going to be more difficult to defend than I believe Baker takes it to be. Given that such approaches have been found wanting, I take it that the best—if not only—way to argue against the AAA is to assume that a common sense understanding of biological theory takes us to be biological animals (i.e., the kinds of things that evolve) and show why that common sense understanding of evolution is incomplete or incorrect. One such argument has been made by Gillett (2013), who argues that Blatti is wrong to assume that organisms are the only kinds of entities that go through the process of, or are products of, evolution. He correctly notes that evolutionary theory *can* explain how one kind of thing can result in another kind of thing. In fact, it is precisely evolutionary theories being able to do this that makes it so attractive and useful to scientists (Gillett 2013, p. 277). As such, a denial of animalism doesn't entail a denial of evolutionary theory. In fact, evolutionary theory can be accepted by a variety of positions regarding what we are, including parts of organisms (e.g., brains), psychological entities, and even souls.

In chapter 6, I will argue that what's important to take away from the AAA isn't that only organisms can be the products of evolutionary theory, but that only biological *entities*¹¹ can be the products of evolutionary theory. As such, a slightly modified version of the argument that emphasises this fact withstands the force of Gillett's objection (unless, of course, we take psychological things or souls to be biological entities.) More groundwork is needed before I can spell this position out in more detail.

¹¹ As I will explain later, I use 'entities' here in a heuristic sense. In particular, I make a distinction between *thick* entities (k-entities) and *thin* entities (n-entities), the former of which is a metaphysically robust entity of the sort typically discussed in metaphysics. The latter, n-entities, are understood as modally robust heuristics.

1.4. Conclusion

As I've said in the introduction, I believe pursuing the *evidence question* of personal identity first to be helpful in answering the other questions of personal identity. That is, rather than answering the personal-ontological question (i.e., "what are we?") or the persistence question (i.e., "how do we persist?") first, I believe that we should consider a broader question: "what evidence do we take to answer such questions?" Once we have done this, we can see how these different pieces of evidence relate to one another to come to some plausible conclusions as to what we are and how we persist.

In this chapter, I explained three arguments that have been made in favour of animalism and evaluated some of the objections that have been made to them. My goal was two-fold: first: I wanted to identify which objections pose the most threat to the animalist response to the personal-ontological question—to the animalist's conception of what we are. Second, I wanted to show that these arguments suggest things about our nature that can count as evidence for what we take ourselves to be. That is, animalists take certain assumptions we have about ourselves (such as that we were once fetuses and have evolved) as well as certain capacities of animals (such as that they can think) to be evidence for the fact that we are animals.

In the chapter that follows, I will conduct a similar evaluation but of arguments that have been made *against* animalism. As I will show, these arguments focus on certain mental and personal capacities that we take ourselves to have and thus focus on 'mental' or 'psychological' evidence for what we are. At the same time, I will show that certain arguments are problematic because they fail to refer to things that exist in the actual world. Thus, I will argue that such arguments shouldn't carry much weight in debates regarding what we are and, in doing so, I will set some standards for how to evaluate evidence that could be used to answer the personal-ontological question.

Chapter 2. Arguments against animalism: A Taxonomy

In the introduction of this work, I said that I would be taking what might be called an *evidence-first* approach to personal identity. That means that I am going to prioritise what evidence counts for our identity. Only once we have an idea of what counts as evidence of identity can we start building up to an understanding of our identity and persistence (recall from the introduction that I showed how identity claims and persistence are tightly linked.) We will also be able to begin to consider which kinds of evidence are better or worse in reaching this understanding. In this way, my project is a ‘bottom-up’ approach to identity—first, we articulate what properties we often refer to when we refer to ourselves. These properties may be bodily, psychological, biological, or perhaps even social. It is these properties that will underpin what will serve as evidence, and such evidence can be compiled in such a way as to tell a story about the kind of thing that we are—they offer us a theory of identity. This chapter is meant to provide the first part in constructing a plausible *evidence-first* foundation for identity. To this aim, I will be taking a look at some of the arguments for and against animalism and seeing what it is that these arguments can be shown to illuminate about us (i.e., human persons).

In sections 1 and 2, I will walk through some arguments that have been made against animalism and/or that were made in favour of mentalism (i.e., that we are essentially something mental or psychological.) I will be basing my exposition of these arguments using a taxonomy developed by Paul Snowdon. I use Snowdon’s taxonomy for two reasons: first, Snowdon’s taxonomy succinctly uncovers the common threads that link most (if not all) of the arguments in favour of mentalist conceptions of personal identity. The second reason I will base my exposition of this section on Snowdon’s taxonomy is that it highlights an interesting difference in the methodologies that have been utilised to understand the limits of what we are. This difference is one of where we focus our attention: do we focus on what Snowdon calls ‘real’ cases (i.e., cases in which we have real-world examples)? Or, do we focus on what Snowdon calls ‘imaginary’ cases (i.e., cases in which we don’t have real-world

examples to which to refer).¹² The preference between ‘real’ and ‘imaginary’ cases can, I think, be understood as stemming from two different approaches to metaphysics: what we might call *traditional* metaphysics, which tends to emphasise linguistic practices and conceptual analysis, and *scientific* or *naturalised* metaphysics, which tends to emphasise scientific evidence. The difference between these metaphysical traditions will be explored in the chapter following this one (i.e., chapter 3.)

2.1. A&~P

We can begin Snowdon’s taxonomy of anti-animalist arguments by considering cases in which at one point in time, there is an animal and associated person, but at a later time, there is only an animal. Snowdon refers to these cases as A&~P cases.¹³ A&~P cases come in three forms: *Eliminated Person* (EP) cases, *Different Person* (DP) cases, and *No Personal Unity* (NPU) cases.¹⁴ There is also a kind of case that is similar to, but distinct from, A&~P cases called *Animal Only* (AO) cases. AO cases are those in which there is an animal with which no person was ever associated. Call AO cases a category of *Lone Cases*, cases in which there only ever existed an animal or person (*Person Only* cases described later will also belong to this category.) I will briefly explain what these cases are as well as (where appropriate) briefly consider some of Snowdon’s criticisms of them. Several of his criticisms of A&~P cases are the same, and those I will leave to the end of the section to analyse all at once.

The first type of A&~P case we can call *Eliminated Person* (EP) cases.¹⁵ EP cases occur when there existed an animal and a person at one point but, at a later point, the person ceases to exist. Snowdon fleshes these cases out in two

¹² I’m refraining from calling these ‘imaginary’ cases ‘thought experiments’ here because there is an important difference between the two, namely, that ‘imaginary’ cases are such that they cannot, in principle, occur in the real world. ‘Thought experiments,’ on the other hand could be implemented in the real world (insofar as they are ‘useful’ in that they are constrained by experimentation.) This difference will be made clearer and also defended in the next chapter (chapter 2.)

¹³ A&~P cases, along with P&~A cases, belong to a larger category of dissociation cases that I refer to as ‘Former Association Cases.’

¹⁴ Although Snowdon does name some of these forms of A&~P cases, I’ve renamed them here for easier reference.

¹⁵ Snowdon 2014 refers to these as Type-1 cases (p. 12), or scenarios in which a ‘termination verdict’ is made (p. 126).

different (but similar ways), first being Shoemaker's account of a 'brain zap.' Shoemaker claims:

If 'philosophical amnesia' is taken to mean total and irretrievable loss of all memories of all kinds, then it, the claim that a person can survive such amnesia, is far more questionable. For what we are now imagining is something close to what has been called a 'brain zap'—the total destruction of all the effects of the person's past experiences, learning, reasoning, deliberation, and so on... Suppose that in a terrible accident a person suffers brain damage amounting to a total brain zap, and that somehow the surgeons manage to repair the brain in such a way that its possessor is able to start again... Eventually that body is the body of someone with the mental life of a mature human being... It is anything but obvious that this person would be the person who had the body prior to the accident. So if total amnesia means this sort of brain zap, it is far from uncontroversial—indeed it seems just false—that it is something a person could survive (Shoemaker 1984, p. 87).

In the 'brain zap' EP cases, we are meant to imagine an animal and associated person that has undergone some kind of damage such that the animal survives, but any psychological capacities that we would associate with the person are destroyed. Such cases are meant to pose a problem for animalism in that it is counter-intuitive to believe that the individual remains after such a zap, despite 'being there' with no psychological capacities it previously had. It's much more intuitive, proponents of these cases claim, that the person is eliminated in the process of the zap, and only the animal that that person was formerly associated with remains.¹⁶

The second kind of EP cases to which Snowdon refers are scenarios in which we commonly talk about persons going through mental loss prior to death (2014b, ch. 6.4). Such cases can occur when a loved one is in a permanent vegetative state (PVS) in which all of their higher-brain functions (i.e., the functions responsible for what we commonly refer to as

¹⁶ See Snowdon 2014, chapter 6.3 for Snowdon's response to Shoemaker's 'brain zap' cases, and chapter 6.4 for his response to the other termination cases.

consciousness) are no longer functioning, but the animal associated with the person is still alive. In such scenarios, it can be common to hear a loved one say something along the lines of “they (i.e., the deceased individual) are not really with us anymore.” Similarly, if someone dies after a period of being in a PVS, or if they die after some time of being in a state of extreme dementia, you may hear statements such as “they (i.e., the deceased individual) passed away recently, but they were gone way before that.”

Of course, there are different interpretations of the scenarios in which someone speaks of an individual in such a state. Perhaps the person uttering the words “my grandmother is still alive, but she is no longer with us” is speaking figuratively—as a way of saying something akin to “my grandmother is still here, but she isn’t in the right state to talk, remember, etc.” But, even if the utterer of these statements did take their words to be literally true, that doesn’t mean the beliefs are, in fact, true (Snowdon 2014b, p. 134).

A second type of A&~P case can be called *Different Person* (DP) cases¹⁷. Such cases occur when there is a single animal over time, but at different times there exist different persons. To illustrate this, imagine an animal (A) and a person that was initially associated with A (P1) and one (or more) ‘alternative’ persons that became associated with A at a later point in time (P2). DP case occurs when, during A’s life, it ‘houses’ these persons at different times: at T1 A houses P1, at T2 A houses P2, and at T3 A houses P1 again. Such cases, if possible, pose a problem to animalism because it would allow for cases in which two non-identical persons can be identical to the same animal.

As with the other A&~P cases, many of Snowdon’s objections to DP rely on either how he takes us to interact and refer to persons in our everyday discourse, or else to common intuitions that he believes most of us have regarding the nature of persons (see, e.g., 2014b, pp. 146-148). As I mentioned previously, I take these objections to be problematic (although I do sympathise with them). Although I will address these problems later, there are two interesting points that he makes that I feel are worth addressing: The first concerns Multiple Personality Disorder (MPD), a condition now referred to by

¹⁷ Snowdon refers to these as Type-2 cases (2014b, p. 13), or Multiple Personality Disorder (MPD) cases (2014b, ch. 7).

psychiatrists as Dissociative Identity Disorder. It has been argued that MPD is a real-world DP case. Snowdon states:

The point is that there are two independent debates. The first, a debate in psychiatry, is whether MPD is a genuine disease. The second, a debate in philosophy, is whether it would be correct to suppose that what we have in an MPD case as conventionally described is a genuine and real plurality of persons (2014b, p. 145).

This is to say, DP cases supposedly occur in real life. It is disputed by psychiatrists whether or not anything like MPD, as described and used by philosophers when discussing DP-type cases, actually exists (Snowdon 2014b, p. 144). Whether or not MPD does exist in the way philosophers use it doesn't really matter for our present purposes because those that use it in this way need only to show that such cases are possible for it to pose a problem for animalism.

A second interesting point that Snowdon makes follows from the first, namely, that MPD is a psychological disorder (although, as I mentioned earlier, it is now referred to as Dissociative Identity Disorder) from which sufferers can recover. Those that suggest MPD cases are DP cases must then be committed to at least one of several unintuitive and problematic positions. For instance, if each alternative person (i.e., any person that 'inhabits' the animal after the original person) has its own unique identity, then we can only interpret MPD cases as DP cases if we believe that there is no single individual that can be recovered from MPD (thus believing that MPD is incurable.) Even further than this, such a proponent would have to argue that that MPD isn't really a psychological disorder. If MPD is a disorder, then it implies that there is a single individual who classifies as suffering from the disorder who can likewise be tracked through time (Snowdon 2014b, p. 153).

Alternatively, such proponents could accept that MPD is a real psychological disorder that a single person can be cured of. If this is the case, then they must suggest that anyone trying to help a sufferer of MPD recover from the illness is thereby attempting to end the existence of one or more real

persons. As Snowdon puts it, “[t]herapy becomes akin to mass murder” (Snowdon 2014b, p. 154).

A third type of A&~P case that Snowdon refers to can be called *No Personal Unity* (NPU) cases. Such cases occur when there is a single animal (A) that ‘houses’ several different persons (e.g., P1, P2, and P3) at the same time, but there exists no unity between these persons. Thus, at T1 A houses P1, P2, and P3 despite P1, P2, and P3 having no connection with one another. I don’t have much to comment about NPU cases here as they will become very relevant later in chapter 6, where I discuss Dicephalic cases—a kind of conjoined twinning. Dicephalic cases occur in real life (see, e.g., Abby and Brittany Hensel) and are arguably a kind of real-world dissociative case.

Lastly, Snowdon refers to what he calls *Animal Only* (AO) cases, in which there exists an animal but at no point was there a person associated with it, and at no point will there ever be a person associated with it. The argument goes thus:

P1: If I am identical to an animal, then that animal couldn’t exist without my existing

P2: AO cases are possible cases in which the animal I’m (supposedly) identical to exists without my also existing

Conclusion: I am not identical to an animal

A purported example of an AO case would be a counterfactual scenario in which an animal (A)—rather being conceived, developed, and normally born such that I now call that animal (A) ‘T’—developed abnormally, such that it never developed the properties necessary to be a person. In such a counterfactual scenario, A was not able to develop the necessary properties required to be the person that I (in the actual world) refer to as ‘T’.

Those that endorse the psychological criterion of identity take AO cases to be problematic for animalists. If, as animalists claim, I am identical to an animal, then how do we make sense of the claim that I could have existed (as that animal) whilst having no psychological states that would allow me to identify myself as such? It has been pointed out, however, that AO cases could be interpreted differently: that I could have existed (as an animal) but in such a

way that I wasn't conscious and couldn't ever be conscious (someone born in a PVS may be a good example here.) As Snowdon aptly puts it, "The question is whether this is a scenario in which I did not exist at all, or it is a scenario in which I existed but did not attain consciousness?" (2014b, p. 136). If the scenario is such that I did not exist at all, then AO cases are possible (and thus, there is a problem with animalism). However, if the scenario is such that I existed but did not attain consciousness, then supposed AO cases are not problematic for animalism (i.e., AO cases would just be cases where there is an animal that is me, but where I never have and never will have conscious experiences.)

AO cases can be fleshed out in two ways: the first is that AO cases occur for some period of time in normal human development. According to this approach, a human animal that will at some point be associated with a person exists prior to that person—this can be explained as the biological animal developing as a foetus prior to the development of whatever parts or properties are necessary for a person to come into being. In the imagined counterfactual scenario, the foetus dies prior to acquiring mental capacities, or else is born with a defect such that it has never (nor will ever) develop such mental capacities (Snowdon 2014b, p. 137).

This approach to AO cases leads quickly to the Foetus Problem. Recall from the previous chapter that the Foetus Problem is a problem that neo-Lockeans are said to face by taking our identity conditions to be something essentially mental. If neo-Lockeans are right, the objection goes, then no human person was ever a foetus (because foetuses don't have the requisite mental capacities), a conclusion that is unintuitive and goes against our understanding of our development. As was also noted in that chapter, Baker (2000) has defended this view on the (unfounded) basis that foetuses don't have the requisite capacity for first-person perspective.

The second way one can approach AO cases is to take the animal and person to begin at the same time in normal development, with the AO case occurring in a counterfactual scenario in which some abnormal development leads to only the animal developing. Consider the example I noted earlier—a scenario in which a particular individual was born into a PVS. Such an

individual would likely still be considered an animal, but they would have no proper functioning parts to have ever counted as a person. Snowdon notes that this way of thinking is counter-intuitive, stating, “[w]e do not normally think that the identity of the item we have as a result of a certain process (in our example, conception) can depend on what subsequently happens” (p. 140).

As I mentioned at the beginning of this section, I am sympathetic to many of the points and conclusions that Snowdon makes and argues for regarding the possibility of A&~P cases. However, many of Snowdon’s responses to all of the above A&~P cases aren’t as dialectically strong as they could be due to the fact that he often structures the debate in such a way that he doesn’t have to argue against the metaphysical background that motivates the conclusions many anti-animalists come to. That is, Snowdon sets up his objections to proponents of A&~P cases in such a way that he turns the metaphysical discussion mentalists are having into a linguistic discussion. The change in the discussion is apparent when Snowdon writes of A&~P scenarios:

The most important thing, it seems to me, to remember when thinking about such scenarios is that the verdict that they are [not P] cases is not itself validated by the correctness of the claim (assuming it is correct) that the developments in the described cases involve the lapsing of application in them of the term ‘person’. The reason that this is not enough is that it cannot simply be assumed that the ordinary category of a person cannot cease to apply to continuing objects to which it has previously applied. The claim that is needed, then, is *not* that there is no longer a person in the scenario, but rather that there is no longer in the scenario *that thing which, at the start, was the person P* (2014b, p. 127, original emphasis).

Snowdon takes it that the extinction of a person in a scenario is not enough to show that such a scenario is one of A&~P. Doing this relies on the assumption that the term ‘person’ cannot be applied to objects that were once referred to as such. Rather, Snowdon believes that what we really need are ways to identify

the objects that we are referring to as ‘persons’ such that those ways cannot stop picking out those objects no matter how the envisioned A&~P cases develop.

Snowdon takes such objects to be identified by, for example, personal pronouns, proper names, and properties that the object in question cannot lose (Snowdon suggests such properties include ‘my father,’ ‘my sister,’ etc.). Once we consider A&~P cases using these terms, we can ask whether the objects to which those terms apply still exist at the end of the envisioned case. For example, if we imagine an A&~P case in which tomorrow my grandmother loses all of her psychological states but is still alive, we should ask whether the resulting individual is still my grandmother. The objects to which ‘person’ (in this case, my grandmother) is attributed is what we care about, and such questions (in this case, “is this still my grandmother?”) help us track those objects (Snowdon 2014b, pp. 127-128).

I agree with Snowdon that we ought to be tracking the objects that we care about and that biological organisms are those objects when it comes to issues regarding the identity of human persons (I’m an animalist, after all). However, Snowdon doesn’t properly consider the fact that non-animalists disagree with animalists as to what the objects of those interests are. This could be seen in at least two ways that both a) accept Snowdon’s own standards of picking out the objects to which ‘person’ is attributed as well as b) take seriously the mentalist’s view that we are essentially something psychological. First, mentalists commonly accept that we track objects by properties that they cannot lose, but they claim that such properties, at least when we are tracking persons, are essentially psychological. Snowdon suggests that such properties include ‘my grandmother,’ ‘my daughter,’ etc., but he has not given us a reason to believe that we don’t possess any essential properties that are psychological. He also hasn’t given us a reason to believe that an essential psychological property isn’t necessary for other properties such as ‘being my daughter’ to be something an object cannot lose (i.e., perhaps the property ‘being my daughter’ is a property certain objects cannot lose because such a property depends on a daughter necessarily being something psychological.)

There is a second way in which proponents of the psychological criterion accept Snowdon's own standards of picking out the objects to which 'person' is attributed whilst still claiming animalism is wrong. That is, mentalists argue that the object we are interested in—the object we call 'person'—is essentially something psychological. Snowdon (and other animalists) assume that these objects are organisms, but it is conceivable that proponents of the psychological approach are right—that such objects are actually souls that are embodied in animals, persons non-identically constituted by animals, brains that are enclosed in animals, etc.

Snowdon hasn't given us a reason to believe that the object we are interested in is something biological, merely that we commonly refer to something biological when discussing the identity of human persons—a common occurrence that may be unjustified. As we will see in the following section, there are scenarios where intuitions commonly take us to persist in virtue of something other than persisting as an organism.

2.2. P&~A cases

P&~A cases are cases where there is a person that continues to exist despite the animal ceasing to exist.¹⁸ Such cases, as Snowdon describes them, can be divided into those in which the person continues to exist in virtue of some physical link and/or process and those in which the person continues to exist without a physical link or process. The former can then be divided into three separate cases (which I will describe shortly), whereas the latter he refers to as Pure Person Transfer (PPT) cases.

A PPT case is one in which a person is associated with some animal at some time and associated with a different animal at a different time. In PPT cases, there is no physical link or process by which this change of body occurs—it just happens that the person was transferred from one animal to another. If possible, PPT cases would be a P&~A case because the person is transferred without the originally associated animal accompanying it.

¹⁸ P&~A cases, along with A&~P cases, belong to a larger category of dissociation cases that I refer to as 'Former Association Cases.'

Whether or not a PPT is even something that can be imagined will be discussed in the next chapter. Let's assume for the moment, however, that such a case is imaginable. That something can be imagined doesn't imply or even suggest that such a thing is possible (Snowdon 2014b, p. 192). If PPTs are imaginable, then the most that we can derive from such an imagined case is that they are imaginable, nothing more—yet, such cases are meant to show that we aren't animals. Following this, one can reject the claim that PPT cases are legitimate reasons to object to the animalist claim that we are identical to a biological organism.

Even if PPT cases are imaginable, they don't pose a threat to the animalist position. Even so, it's unclear to me how we are to imagine PPT cases (let alone entertain the possibility of them.) Snowdon has claimed that it's possible to imagine such a case, although it's not clear to me that his imagined scenario would count as a real PPT case. He states:

I can imagine that at one moment I am occupying the same space as my present animal body, and then suddenly occupying the same space as another animal body looking back at my previous body. I can imagine seeing the world from the new location. This task of imagination is not particularly difficult (Snowdon 2014b, p. 192).

Although I understand the kind of picture Snowdon is trying to paint with his example, the focus is on perspective rather than persons. I can imagine what the perspective would be like from any number of different places and angles (including imaginary ones!) Yet, there is more to a person than a simple perspective one has.

An even bigger problem with Snowdon's imagined scenario is that it doesn't take into account that a PPT is said to occur without any cause or other explanation as to how the transfer took place—the transfer merely happened. Snowdon recognises this problem and shows that proponents of such cases might insist that some non-physical structure grounds the transfer

of the person—a move that would not only imply some form of dualism but also “impugns the purity of PPT” (Snowdon 2014b, p. 193).

Snowdon’s response here still doesn’t address the real problem with imagining PPT cases, and I believe this problem is shown in the ‘impurity’ created in providing a PPT case that relies on some non-physical structure to ground the transfer of the person in such cases. This impurity, I suggest, is the result of going against the very idea of PPT cases: namely, such cases don’t take the nature of the transfer to be mysterious. Rather, PPT cases are those in which no explanation of the transfer is to be had at all! Given this aspect of PPT cases, the nature of the transfer itself is not mysterious (a mystery implies that there is an answer even if that answer is unable to be reached for, e.g., reasons regarding cognitive capacities.) Rather, the nature of PPT cases is non-existent. PPT cases propose that a person ‘housed in’ a human animal at one time can be transferred *without any cause or by any means* to a different body. This is why I’m not sure that it’s possible even to imagine such cases; it’s not clear to me how to imagine a transfer without any means of the transfer to take place. A magical spell, curse, brain transfer, soul relocation, etc. that causes a person to transfer from one body to another is something that is imaginable (even if they are impossible) because there is a means by which the transfer occurs (even if that means isn’t real). However, PPT cases seem incoherent in that any way of fleshing such a case out turns it into a different type of P&~A case.

Unlike PPT cases, the other three P&~A cases that Snowdon proposes would, if possible, undermine animalism are suggested to occur in virtue of some physical link or process. Non-Substantial Transfer (NST) cases, for instance, are said to occur when a person is transferred from one location to another whilst the animal that it had previously been associated with remains at the initial location. Take, for example, a scenario commonly seen in science fiction in which a person (call them P1) steps into a machine at some location (L1) that perfectly detects and records their mental states (call this record of mental states R1). R1 is then reproduced into a different body at a different location (L2), at which point the original R1 states of the initial animal of which P1 was associated are irreversibly destroyed. At L2, there is a body and an associated person with the R1 mental states (call this person P2). Those that

take the possibility of NST cases seriously believe that P2 is identical to P1; they believe the person transferred from L1 to L2 in virtue of R1 being replicated into P2 whilst R1 was destroyed in P1.

There is a point of clarification that is important here to understand NST cases correctly: NST cases are those in which no substance (such as matter) is transferred. To understand why NST cases cannot involve the transfer of substance, imagine if the body associated with P1 in the example above is broken into the individual particles that make up that body. These particles were then transported to L2, where they were immediately put back together in the exact same way as they were on L1. The modification made here would not have been an NST case, nor would it be a straightforward P&~A case. This is a result of it not being clear that the animal initially associated with P1 didn't transfer from L1 to L2 alongside them (via the substance that transferred). Given this, such a scenario is unclear on whether a person existed at any given point whilst an animal did not (that is, that there was a real P&~A case), or whether there was simply teleportation of matter itself from one location to another (Snowdon 2014b, p. 194).

With this clarification in mind, are NST cases possible? It's not clear to me that they are. First, even if we admit that P2 truly believes themselves to have been transferred from L1 to L2 (such that they are identical to P1), that doesn't mean that their beliefs about their identity are true (Snowdon 2014b, p. 193). As Snowdon point out, "[. . .] identity is objective, whereas a sense of identity is subjective. A thing's objective identity is not fixed by its subjective sense about, or convictions about, its identity" (Snowdon 2014b, p. 193). This is to say that just because a person (in this case P2) believes that they are P1, that subjective fact about P2 doesn't entail that they are *in fact* identical to P2—their belief may be mistaken.

There could very well be reasons to treat P2 as if they were identical to P1, perhaps for practical or ethical reasons. However, even if one were to endorse this normative claim, they wouldn't, therefore, have to endorse the metaphysical and descriptive claim about P2's identity; we could agree that P2 should be treated as if they were identical to P1 without actually taking P2 to be identical to P1 because we could agree that there may be reasons to treat

someone as someone else (Olson 1997a, p. 66). At the same time, it should be noted that there is an emotional pull that comes with supposed NST cases that could easily shape the intuitions people have towards them. It's an easy transitional trap to fall into: going from 'it feels like x is the case' to believing 'we ought to treat x as if it were the case', and then even further to ' x must be the case.' This can be seen as an emotional grip that NST cases can have on people, e.g., 'it seems like this is my child' quickly turns into 'I ought to treat this like it's my child', and then even further to 'this must be my child.'

It seems like Snowden may have fallen into this sort of intuition in his examples against NST cases. Snowden's aim is to cast doubt as to whether or not a person actually moves from one location to another in NST cases by showing scenarios where this is purported to happen, but where he assumes the reader will be suspicious of such an event (Snowdon 2014b, p. 194). For instance, Snowden asks us to imagine a scenario in which your child is infected with a virus that will completely and permanently erase their mental states. When this occurs, the doctor of the child tells you that there is a very good chance that the cognitive capacities of the animal originally associated with your child will recover such that it will be able to once again develop and learn. You could also decide to have the child put into a cloning machine with the resulting clone having perfectly replicated mental states as the original child pre-virus. Snowden expects that no person whose child went through such a predicament and was faced with these two choices would actually take the replica to be their child rather than the body lying in bed with a good chance of recovery (p. 194).

In a similar example, Snowden asks us to imagine that our daughter is going through an NST whilst, at the same time, we are holding their hand. Once the process is done, the individual body laying before us that was originally associated with our daughter is in obvious and incredible pain. In such an instance, he writes, "[. . .] I do not think that anyone could sensibly claim that it really seems very clear that your daughter is no longer before, that her hands are not the ones you are holding, and that her pain is not what you are witnessing" (Snowdon 2014b, p. 196).

Both of the pictures imagined above get their anti-NST appeal based on what the reader's intuition is regarding what the appropriate response would be. In the first case, the intuition is meant to suggest that the child who has a good chance of regaining cognitive capabilities is your child. In such a case, the intuition would then be that the clone of your child isn't really your child at all (even if it has all of the mental states of your child pre-virus). That is to say, Snowdon's story is meant to make the reader feel like an NST case never happened. Likewise, his second scenario is meant to make the reader feel like their daughter was in pain after the NST took place, therefore denying that the body at the other end of the transfer is not really their daughter. Once again, Snowdon's example is meant to make the reader rely on their intuition that the NST didn't result in their daughter being in another body (thus denying the plausibility of NST cases).

As I mentioned earlier, such cases rely on an intuition that is motivated by feeling something must be the case. In the same way that NST proponents could argue that the clone of their child is their child, and not the body lying before them with a good chance of cognitive recovery (i.e., that their child transferred from one body to the other during the cloning process) because it *feels* to them that the clone, having all of the pre-virus mental states, was their child. Or, perhaps Snowdon is wrong about the reader's feelings towards the example regarding their daughter—perhaps, the reader doesn't believe that the body lying before them *isn't* their daughter, a belief that causes them relief given the pain that the body is in. Rather, they could claim that their daughter is the one that is not in pain but the one that is having a conversation with them about how awful it would have been to be in such a painful state.

One issue with NST cases that have been previously addressed is that it's not clear where the person goes during the transition. It's assumed that it takes time for the person to replicate—for P1 to replicate into P2. Where is P1 (the person) between the transfer from the body associated with the person at L1 to the body associated with the person at L2? It can't be at the body at L1 since it has been destroyed; however, it can't be at the body at L2 since the replication would take time. The obvious response would seem to be that the person is located in whatever machine is doing the replication. Snowdon has

objected to this on the grounds that it's not clear how to make sense of that location (2014b, p. 195).

I don't understand why it's difficult to understand the person as being located in the machine. NST cases rely on a person being something that can be abstracted away from whatever substances constitute it and transferred as a record of mental states—a blueprint—that can then be used to replicate the person later on. If we take this view of personhood, then there doesn't appear to be anything strange about imagining a person being able to be stored in a machine. What would make this objection to NST cases stronger would be to show that a record or blueprint view of persons must be embodied in some relevant way such that a person couldn't possibly be stored in a machine that doesn't embody the person in some relevant way. As I will show in a later chapter, *structuralist* animalism could suggest such a move by taking persons to be a sub-structure of some substance-based entity (a biological organism in the case of human persons).

A second objection that Snowden suggests is a slight modification of the one above (see 2014b, p. 195). Imagine if, during the time it takes for R1 (the record of mental states) to replicate into the new body, there is a problem, and the replication ends early. If the replication ends 90% complete, then can it really be said that the person transferred from one location to another? Can P2 be identical to P1 if P2 is only 90% of P1?

I agree that this poses a problem, but I don't see how it is anything new or how it is any more or less problematic than any other case that questions the limits of changes a person can endure. Imagine a similar but different example in which I am hit on the head hard enough to lose some of my memory. Is the person post-hit still me? What if all of my adult memories are lost, and the resulting person only has the memories of me when I was a child? Is that person still me?

Snowdon's example of the 'blueprint' copying over at only 90% (or only 80%, or 75%, and so on) is just a reupholstering of an old and common philosophical question about what a person can endure. As such, it does pose a problem, but I don't see it as any different than one that a mentalist would

probably already have considered and would most likely have some response to.

Snowdon describes *Animal Replacement* (AR) cases as those in which a person survives through a process in which their associated animal body is slowly replaced by non-biological parts until there are no longer any original animal parts remaining (2014b, ch. 9.3). Such a case is said to be a possible P&~A case because the person has survived (e.g., as an android) whilst the animal has ceased to exist.

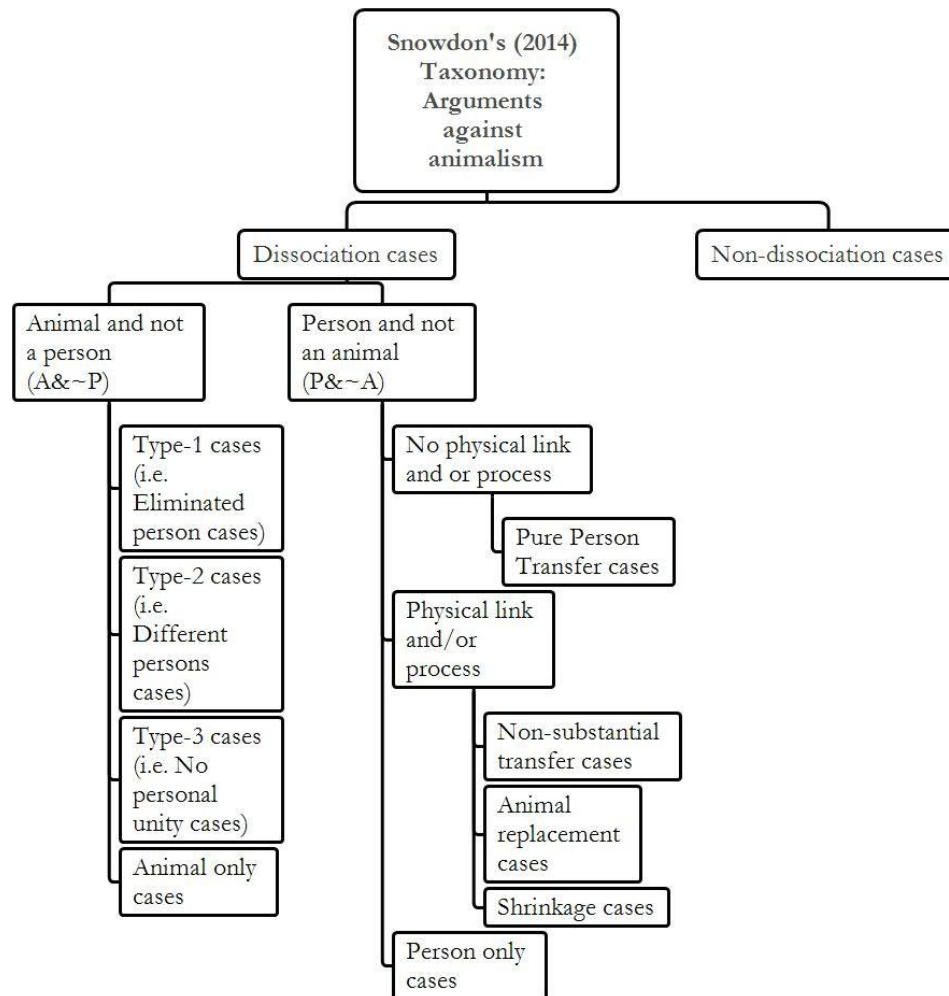
The first objection someone might make against the possibility of AR cases is that it's uncertain whether or not a person could actually survive a process in which their associated animal body is slowly but completely replaced by non-animal parts. It can be acknowledged that a person can survive the partial replacement of their associated animal's parts (such as in cases concerning prosthetic limbs), but that does not at all suggest that they could survive a whole replacement (Snowdon 2014b, p. 196). If a person could not survive such a procedure, then AR cases would not be possible P&~A cases.

Alternatively, we could question whether the person that is now associated with the android is, in any obvious sense, identical to the person that was previously associated with the now destroyed animal (Snowdon 2014b, p. 197). As noted above, just because someone has a particular belief about themselves doesn't entail that such a belief is true. It is plausible that the person now associated with the android believes that they were once an animal and that they survived the replacement process, but that they are wrong.

The above objections to AR cases rely on whether or not they are actual cases in which the person survives, but another form of worry one might have about such cases stems from the assumption that such cases really are such that there is no animal at the end of the replacement process. Snowdon spells this type of worry out in two ways: first, it could be argued that we are animals, but that we can remain in existence once the animal that we are ceases to exist. The second way in which Snowdon spells out this worry is by putting into question what conditions something must fulfil in order to be an animal.

There is reason to question whether the animal in AR cases was ever destroyed. If we could exist and no longer be an animal, then ‘animal’ would not be what Snowdon calls an *abiding sort*—a thing that has an *abiding property*. An *abiding property* is any property that an entity has at a given time that it cannot lack at any later time (Snowdon 2014b, pp. 17-18). Thus, if ‘being an animal’ is an abiding property, and we are animals, then we (and any other animal) couldn’t be an animal at one point in time and then be a non-animal at a later point. However, if ‘being an animal’ is not an abiding sort, then we could be animals now and then continue to exist at a later point as a non-animal.¹⁹ AR cases would not be possible P&~A cases if ‘animal’ is an abiding property because we could be an animal prior to the replacement procedure

Figure 1: Snowdon's (2014) taxonomy: arguments against animalism



¹⁹ The claim that we are animals at one point in time and could be something other than an animal at a later time follows from ‘non-essential animalism’ (Thornton 2016a), ‘weak animalism’ (Olson 2015), and (arguably) ‘new animalism’ (Olson 2015). The animalist positions will be discussed in more detail in the following chapter 6.

and then be whatever the resulting thing was (such as an android) at the end of the procedure.

On whether or not ‘being an animal’ is an abiding sort, I have little to comment on. In chapter 4, I will demarcate ‘strong’ and ‘weak’ animalism, where the former takes us to be animals fundamentally and essentially whilst the latter does not. Given that ‘strong’ animalism is the variety that is commonly under attack from anti-animalists, and given that ‘strong animalism’ would take ‘being an animal’ to be an abiding sort, I will (for present purposes) continue assuming that ‘being an animal’ is an abiding sort.

Snowdon also suggests that it may be the case that the animal survives the AR case in virtue of the resulting non-organic entity being identical to the organic animal prior to the process. If the animal does survive the process, then AR cases cannot be real P&~A cases because they wouldn’t be real ~A cases. Given that it’s not clear what counts as an animal, it’s not clear that an animal cannot be whatever the non-fleshy entity results at the end of the replacement process. To make such a claim is to exclude certain definitions of organismality (i.e., what it takes for something to be an organism), namely, any definition that counts entities with non-biological parts or mechanisms as organisms. Is there reason to assume that organisms couldn’t be made entirely of non-organic material?

To my knowledge, no one has put forward a definition of ‘organism’ that could accommodate a completely inorganic entity. In chapter 5, I will outline some of the prominent definitions of organismality proposed by biologists and philosophers of biology. It’s not surprising that all of the definitions concern known properties of organisms, all of which are organic. At the same time, it will be shown that there are reasons why defining organisms to be more inclusive would be useful and realistic to scientific practices. I am not claiming that we ought to include completely non-biological entities in the category of ‘organism,’ but I will argue that the boundaries of that category enclose entities we wouldn’t normally consider organisms (e.g., arguably corpses).

As Snowdon notes, the above concerns come about when one realises that two assumptions are being made about animals: a) ‘being an animal’ is an

abiding sort and b) that an animal cannot be made of non-organic material (Snowdon 2014b, p. 198). These assumptions are never acknowledged by those that endorse the possibility of AR cases and, as such, there is a weakness in utilising AR cases as examples of why animalism cannot be true. Given that, for practical reasons, I will be assuming that ‘being an animal’ is an abiding sort, I acknowledge that I am leaving this assumption undefended. However, I will be bolstering the assumption that animals cannot be made completely of non-organic parts later on. This might seem to strengthen the plausibility of AR cases. However, I will argue that AR cases are not possible because the kind of replacement scenario involved is not scientifically possible.

Shrinkage cases are a third kind of P&~A case that are said to occur when an animal loses a bulk of its parts such that it can no longer be judged to exist. At the same time, there are enough of the psychological-grounding parts associated with the animal remaining that one could claim that the person still exists (Snowdon 2014b, p. 15). The Shrinkage cases that are most considered in the literature are ‘brain transplant’ cases: cases in which a brain is successfully transplanted from the organism it currently resides in (organism1) into a different organism (organism2). Organism2 wakes up with all of the phenomenal properties (e.g., memory, beliefs, desires, etc.) that were associated with Organism1 prior to the surgery. This scenario is meant to uncover the intuition that we must be identical to the brain because, intuitively, it seems more like we must be organism2 (who thinks, acts, believes, etc. like we do) rather than organism1 (who is brainless on an operating table.)

I will save my comments on Shrinkage cases for the following chapter because I not only take such cases to be impossible but, contrary to Snowdon, I don’t even think such cases are imaginable in the way needed to generate metaphysical conclusions.²⁰ I mention Shrinkage cases here not only to include them in Snowdon’s taxonomy of arguments against animalism but to also show that they are similar to the other anti-animalist arguments in that they focus on the importance of our psychological properties.

²⁰ As I will argue in chapter 3, for something to be ‘imaginable’ in the sense that it can be used to draw scientific and metaphysical conclusions is for the imagined scenario to be properly constrained by experimentation.

Snowdon suggests that there could exist ‘Person Only’ (PO) cases. These cases are said to occur when there exists a person that has never been associated with an animal or any other substantial form. Snowdon does not cover PO cases in any detail as he takes belief in their existence to require an assumption that he is not interested in making, namely, some form of dualism. The thought here is that there could exist a thing that we are identical to, i.e., a *person*, that existed independently of any animal and only perhaps later did it come to be associated with an animal. Although a proponent of dualism could argue against animalism on the grounds of the possibility of PO cases, I will not engage with them here for similar reasons to Snowdon. PO cases would belong to the larger ‘Lone Cases’ category along with AO cases because in both scenarios there was only ever an animal or person.

Lastly, Snowdon considers arguments against animalism that do not rely on any of the above P&~A cases, nor do they rely on A&~P cases—such arguments he calls ‘non-dissociative’ arguments. Non-dissociative arguments are cases that don’t rely on apparent dissociations of animal and person (Snowdon 2014b, pp. 19-20). Interestingly, the examples of non-dissociative arguments that Snowdon provides happen to also be arguments that could be made against the three arguments in favour of animalism that I described in the previous chapter (e.g., the ‘Thinking Animals,’ ‘Foetus,’ and ‘Animal Ancestors’ arguments).

2.3. Conclusion

In this chapter, I’ve shown that Snowdon’s taxonomy of the arguments against animalism provides a useful tool for thinking about what anti-animalists take to be important about ourselves, namely, something mental (e.g., consciousness, first-person perspectives, etc.) This focus on the importance of psychological capacities stands in contrast to the importance animalists attribute to us that we saw in the previous chapter. Animalists believe that the properties important to our identity are our biological properties. Anti-animalists believe that the properties important to our identity to be our psychological properties.

Snowdon argues that mental capacities are not really what we care about above all else; rather, we care about whatever object is associated with

those mental capacities (in our case, human animals). A flaw in Snowdon's arguments is that he doesn't take seriously the metaphysical underpinnings of anti-animalist thought, namely, that a 'person' is not just a property that something has, but a thing that exists in its own right. Because of this, Snowdon's arguments can be said to lack dialectical force. Anyone that endorses animalism is already likely to accept that we should focus on the object (e.g., the animal) to which personhood is attributed. Likewise, anyone that denies animalism is likely to assume that a 'person' is something metaphysically distinct or significant—the very position that Snowdon easily dismisses.

In the following chapter, I will continue my discussion about the arguments against animalism. In particular, I will argue that Snowdon is too quick to dismiss the importance of the distinction between 'real' and 'imaginary' thought experiments. Once this distinction is made, the animalist can then help themselves to important tools that would allow them to readily dismiss some of the anti-animalist arguments for not only being impossible but also being unimaginable.

Chapter 3. A defence of ‘real’ cases

In the previous chapter, I provided and slightly remodelled a taxonomy created by Paul Snowdon (2014b). The resulting taxonomy organises the kinds of arguments that could be made against animalism into two broad categories, each of which could be divided further:

- Dissociative cases, i.e., arguments based on cases in which there was, at one point, an animal and associated person but that, at a later point, there exists only one or the other.
- Non-dissociative arguments, i.e., a broad category of arguments that don't fit into a schema that relies on an apparent disconnect or lack of continuity between an animal and/or a person.

Dissociative cases could be further broken down into two other groups I've called:

- Former Association cases, i.e., cases in which there was, at one point, an animal and associated person but that, at a later point, there exists only one or the other.
- Lone cases, i.e., cases in which there exists an animal or person that never had an association with an individual of the other kind.

Former Association cases could be further broken down into those in which there exists an animal but no associated person ($A \& \sim P$ cases) and those in which there exists a person but no associated animal ($P \& \sim A$). Lone cases could further be broken down into *Animal-Only* (AO) and *Person-Only* (PO) cases. Non-dissociated arguments can be broken down into further categories, each containing arguments that share specific traits. I'm sure there are a number of plausible and helpful ways to do this, although formulating them is beyond the scope of this project (although this would be an interesting and worthwhile endeavour.)²¹

²¹ Snowdon (2014b, p. 20) suggests one way of doing this would be to divide non-dissociative arguments into those that a) would, if sound, justify (or lead to) dissociative cases, and b) would, if sound, prove animalism false without any need for a dissociative case.

Although this taxonomy delivers a useful way to consider arguments against animalism, it isn't the only way to understand such arguments. Snowdon acknowledges himself that the arguments that are made against animalism could be sorted differently, offering as an example a different way to organise arguments stemming from dissociative cases in particular. Although Dissociative arguments have been organised into those that refer to what I've called Former Associative and Lone cases, I suggest an alternative taxonomy: cases that are 'real' and those that are 'imaginary.' If a case that is taken to exemplify a dissociative case exists out in the world, then it is said to be *real*. If such a case can only occur in a thought experiment, then it is said to be 'imaginary'.

This chapter concerns 'real' versus 'imaginary' cases. In particular, I will argue that such a distinction aids the animalist much more than it might appear because it allows animalists to avoid certain criticisms. In section 1, I will take a step back from the immediate topic of the chapter to argue that we ought to adopt some form of *scientific metaphysics*, especially when it concerns defending animalism. In fact, I will show that this approach has, to some degree, already been adopted by those in debates around personal identity (especially by those that propose animalism as a solution to the personal-ontological question, i.e., the question of personal identity that asks what kind of thing we are). I will argue that adopting such an approach gives those working in personal identity, especially animalists, a significant amount of un-hypothetical, real-world evidence to work with.

With a version of scientific metaphysics in hand, in section 2, I will be able to make better sense of the difference between how thought experiments are used by philosophers and scientists. Wilkes (1988) has done a great service in making this distinction clear. However, although Wilkes has argued against the use of thought experiments in philosophy due to their not having the proper constraints found in scientific thought experiments, I will argue that we can save philosophical thought experiments insofar as we apply the proper constraints to their use. It's ultimately the difference between the constraint-free 'traditional thought experiments' and the constrained 'scientific thought experiments' that will determine which apparent Dissociative cases are 'real' and which are 'imaginary'. 'Real cases are to be understood as those in which

the apparent dissociation of animal/person can be understood in terms of scientific thought experiments. If a Dissociative case cannot be understood in terms of a scientific thought experiment, then it is 'Imaginary' and is no use to metaphysics (although it may have a role to play in fiction).

In section 3, I will consider and ultimately reject Lynne Rudder Baker's 'Big Tent Metaphysics'—a way of doing metaphysics that can be seen as an objection to the kind of scientific metaphysics that I propose. According to 'Big Tent Metaphysics,' our metaphysics should be guided by things that we value. It is the things that we value, Baker argues, that should have ontological weight—the things that we value are, ontologically speaking, more significant than things that we don't value. According to such a position, persons are more ontologically significant to organisms because we value the properties of persons more than the properties of organisms. The tension between the scientific approach and the 'Big Tent' approach to metaphysics can be seen as due to the fact that each approach values evidence differently.

Good clear introduction – it might be good to say just a little more up front here about what you're going to be arguing – i.e., that some of the criticisms of animalism stem from the methodological toolkit of the traditional metaphysician and need not be taken too seriously by someone (e.g., a scientific metaphysician) who regards that toolkit as suspect.

3.1. Scientific metaphysics

In this section, I will give a broad explanation of what the *scientific* metaphysics program is and why its proponents believe it is more conducive to knowledge than *traditional* metaphysics. I will suggest that a worthwhile broad view of the relationship between metaphysics, epistemology, and science is one in which there is a reflective equilibrium between them. This relationship is one in which each domain provides different knowledge and tools to the others, which then can then be used to adjust or constrain the way in which each domain works. I will then show how naturalistic metaphysics has already been

utilised by the animalist but conclude that there is still much work to be done to flesh out a fully naturalised animalist picture.²²

It's difficult to define precisely what *scientific* or *naturalised* metaphysics is and how it differs from what many metaphysicians have done and continue to do. In the introductory chapter to *Scientific Metaphysics* (eds. Ross et al. 2013), a collection of original essays concerning the topic, Kincaid (2013) notes that the volume in question is:

[. . .] about the prospects for a naturalised metaphysics and its relation to traditional metaphysics. One overarching theme is that traditional metaphysics, especially in its current incarnation as analytic metaphysics, is a questionable enterprise because of its lack of scientific standing. The thesis is that any legitimate metaphysics and conceptual analysis must be tied into the results and practices of the sciences (p. 1).

With this broad depiction in place, we can see *naturalised* metaphysics as being in some relation to what I'll call *traditional* metaphysics, with the primary difference being that the former comports with science in some way that the latter does not.²³ Thus the two approaches can be said to differ in how metaphysics is meant to be founded and which methods are appropriate in this endeavour—*traditional* and *scientific* metaphysics differ in their metametaphysical perspective.²⁴ This relationship to science that *naturalised* metaphysics has is meant to make it legitimate, unlike the enterprise of *traditional* metaphysics, which is suspect.²⁵

²² Unless otherwise stated, I will be using the terms *naturalised* metaphysics and *scientific* metaphysics interchangeably although there is a possible worthwhile distinction to be made between them that isn't relevant here. Bryant (2020), for instance, takes *naturalised* metaphysics and the *inductive* metaphysics utilised to by Scholz (2018) to be distinct forms of *scientific* metaphysics.

²³ What I'm calling *traditional metaphysics* shares traits with, or has also been referred to as 'free range metaphysics' Bryant (2017, 2020), 'analytic metaphysics' (Kincaid 2013), 'neo-scholastic metaphysics' (Ladyman and Ross 2007), 'autonomous metaphysics' (Tahko 2015), and 'non-naturalistic metaphysics' (Maclaurin and Dyke 2012; Dyke and Maclaurin 2013).

²⁴ Here I'm relying on Tahko's (2015) definition of 'metametaphysics' as "[. . .] the study of the foundations and methodology of metaphysics" (p. 5).

²⁵ Some have argued that aspects of traditional metaphysics may be of instrumental use (see, e.g., French and McKenzie 2012, 2015).

Traditional metaphysics has been met with suspicion by its opponents for its defending claims that are factually false (Humphreys 2013, p. 56; Bryant 2017); giving inflated importance to appeals to intuition (Wilkes 1988; Ladyman and Ross 2007; Humphreys 2013; Bryant 2017); using conceptual analysis informally (Ladyman and Ross 2007; Humphreys 2013); assuming scale invariance (Humphreys 2013); utilising problematic philosophical idealisations (Wilkes 1988 can be regarded as making this point; Humphreys 2013); generating theories for which the constraints on the theories' content are not sufficiently robust (Bryant 2017); and for generally being epistemically inadequate (Bryant 2017). Although I will not be going through these criticisms, in turn, they (or specific cases of them) will be popping up throughout the rest of this work.

Sellars' (1962) distinction between the scientific and manifest images has been used to articulate the difference between scientific metaphysics and traditional metaphysics (Dennett 2013) as well as to defend scientism (Kornblith 2018).²⁶ The manifest image, according to Sellars, is the world in which we inhabit in our everyday lives—it's filled with people, everyday objects such as tables and cups of coffee, and the inevitable succumbing to existential angst. The scientific image, on the other hand, is the hidden world as science reveals it—a world filled with strange organisms, neurons, particles, caffeine molecules, and the inevitable succumbing to existential angst.

With Sellars' images in mind, Dennett argues that analytic metaphysics still has something to offer to our collective knowledge about the world. However, the aim of the traditional metaphysician needs to be 'rolled back' and should focus solely on the manifest image. Dennett sees the analytic metaphysician as playing the role of a sophisticated *naïve* (auto-) anthropologist who analyses what everyday people think about themselves and the world (Dennett 2013)(98-99). With this role in mind, the metaphysician *qua* (auto-) anthropologist can, for example, create a catalogue of various problems the metaphysician of the manifest image needs to deal with—a catalogue containing the various concepts that exist in the unrefined and often

²⁶ Scientism is, roughly, the view that scientific knowledge exhausts all knowledge. Although I don't discuss scientism in any detail in this project, it does play a role in how some scientific metaphysicians have formulated or defended their views (see, e.g., Ladyman and Ross 2007).

contradictory landscape of the manifest.²⁷ Once these unrefined folk concepts have been collected and catalogued, they can then be refined by the metaphysician into an organised and generally agreed-upon picture of the manifest image. It would be this (more-or-less) unified picture of the manifest image that philosophers would refer to when working with our best current science (Dennett 2013, p. 100).

Kornblith (2018) is more critical of the manifest image. He uses the differences in the first-person experiences of belief acquisition by deliberation and the third-person research investigations by psychology and cognitive science on the same kind of doxastic deliberation to illustrate how the images of the manifest and science can conflict. When we consider what happens during belief-forming deliberation, Kornblith states, we find that we are able to intervene in the mechanistic, non-deliberative processes that would normally produce our beliefs. When intervening in this fashion, we appear to have extra checks on the processes that produce our beliefs by making sure that the beliefs we are producing respond appropriately to our reasons. These extra checks make our beliefs more likely to be true. Similarly, the intervention we make on our belief-making processes during deliberation make us more aware of which considerations went into forming those beliefs. On this phenomenal account of doxastic deliberation, we are the authors of our beliefs and, as such, the reasons for those beliefs are available to us (Kornblith 2018, p. 132).

The picture of doxastic deliberation painted by the third-person research found in psychology and cognitive science differs considerably. Our ability to intervene in the mechanistic, non-deliberative processes that form our beliefs is merely illusory—both our deliberative and non-deliberative belief-forming processes are mechanistic in nature (Kornblith 2018, p. 136). Furthermore, research conducted by psychologists suggests that doxastic deliberation often plays the role of increasing our confidence in our pre-established beliefs, not in creating extra checks. As such, deliberating on our beliefs may actually decrease the reliability of such beliefs rather than increasing the likelihood that they are true (p. 137).

²⁷ Dennett suggests that this may be a worthwhile project for experimental philosophy (2013, p. 100).

Given the mechanistic nature of doxastic deliberation, Kornblith notes that much more is going on with the belief-forming processes than is apparent to us—there is a large gap between the causally relevant factors in play during the deliberative processes and those that the subject perceives there to be from a first-person perspective (Kornblith 2018, p. 137). As a result of the phenomenally hidden processes in play during our belief-forming deliberation, the reasons we hold beliefs that were formed deliberately are not transparent to us. In fact, a subject may believe that a factor plays some causally relevant role in their deliberated belief when, in fact, that factor plays no role (pp. 137-138).

These differences between the first-person and third-person accounts of doxastic deliberation lead Kornblith to argue that the manifest and scientific images have irreconcilable differences. When we consider this fact in addition to the history of cases in which science has undermined our everyday conception of the world, we should be hesitant to embrace common-sense concepts of the manifest. As such, Kornblith concludes that the manifest image should only include things that are endorsed by the scientific image (Kornblith 2018, pp. 142-143).

I'm not currently concerned with whether we should be optimistic about the usefulness of the manifest image (*à la* Dennett) or (following Kornblith) reject any part of it that isn't endorsed by the scientific image. What I want to shine a light on is that these opposing views highlight an interesting point about the manifest/scientific distinction, namely, that it seems plausible that any metaphysics concerning the manifest landscape is going to be unlike anything analytic metaphysicians are currently doing. If metaphysics is best understood as a sophisticated naïve (auto-) anthropology, then the purview of metaphysicians is not to uncover deep truths of reality. On the other hand, if metaphysicians are to work within the realm that science affords us, then we have reason to reconsider how we understand the many illusions of the manifest.

If the metaphysician has been persuaded that her work regards the scientific image, then it's still not obvious what exactly her job is because it's not obvious what the relationship is between scientific metaphysics and science itself. Ladyman and Ross (2007) suggest a very constrained relationship in that

the only role for a naturalised metaphysics, in their view, is to unify the sciences according to the Principle of Naturalistic Closure (PNC). According to the PNC:

Any new metaphysical claim that is to be taken seriously at time t should be motivated by, and only by, the service it would perform, if true, in showing how two or more specific scientific hypotheses, at least one of which is drawn from fundamental physics, jointly explain more than the sum of what is explained by the two hypotheses taken separately, where this is interpreted by reference to the following terminological stipulations: [. . .] (Ladyman and Ross 2007, p. 37).

The terminological stipulations that follow are in regards to how we are to understand the use of "scientific hypothesis," which isn't of importance here. For our current purposes, we only need to see that Ladyman and Ross are suggesting tight constraints for metaphysics (if the study is to be legitimate): not only would the metaphysical claim have to explain more, when combining two or more scientific hypotheses, than those theories can explain on their own, but at least one of those hypothesis has to be from the science of fundamental physics.

The importance that Ladyman and Ross put on fundamental physics adds a further constraint for naturalistic metaphysicians in the form of the 'Primacy of Physics Constraint' (PPC) (Ladyman and Ross 2007), according to which:

Special science hypotheses that conflict with fundamental physics, or such consensus as there is in fundamental physics, should be rejected for that reason alone. Fundamental physical hypotheses are not symmetrically hostage to the conclusions of the special sciences (Ladyman and Ross 2007, p. 44).

This asymmetric relationship between the physical and special sciences is meant to pick out a methodological 'rule' that is found in the history of science, namely, that those working in the special sciences shouldn't suggest

generalisation or causal relationships that go against the broad consensus of the physical sciences at that time (Ladyman and Ross 2007, p. 38). The PPC is committed to some form of physicalism and is meant to be compatible with even some weak forms of physicalism (Ladyman and Ross 2007, p. 39).

Again, a precise understanding of the PPC and Ladyman and Ross's arguments for its acceptance isn't necessary here. I only include it to show one suggestion of how metaphysics ought to be constrained. In the PNC, Ladyman and Ross argue that the only legitimate goal of metaphysics is to unify scientific hypotheses (at least one of which is from fundamental physics) such that there is more explanatory power than the two or more hypotheses produce on their own. In the PPC, Ladyman and Ross add a constraint to the hypotheses themselves by arguing that those in the special sciences ought to be rejected insofar as they conflict with the consensus found in fundamental physics.

The incredibly strict constraints that Ladyman and Ross place on metaphysics hasn't failed to meet (many) objectors. Melnyk (2013), for example, has criticised Ladyman and Ross for being too restrictive in the role that a naturalised metaphysics could play in our scientific understanding. There is no reason a naturalised metaphysics has to be restricted to the goal of unifying the sciences (Melnyk 2013, pp. 82-83), he argues, and there's reason to deny that science itself is exclusively authoritative in the way that Ladyman and Ross make it out to be (pp. 83-85).

There is also a positive claim Melnyk (2013) makes, and one that I think can lead to a fruitful framework for metaphysical/scientific relations. If a naturalised metaphysics were to utilise the methods of science, he suggests, it may correct problems in science (for instance, by pointing out that some part of science is imprecise or needlessly agnostic). Even further, a naturalised metaphysics could perhaps (when combined with some suitable naturalised epistemology) reveal certain scientific theories to be unfounded because they rely on faulty reasoning (2013, pp. 85-86)

As I noted before, a full breakdown of all of the internal debates about scientific metaphysics and/or its difference from traditional metaphysics isn't relevant to the aim of this chapter, which is primarily to argue that the 'real' and 'imagined' distinction in purported dissociative cases is a worthwhile one. The above exposition helps us better understand this distinction by offering us

a set of tools to determine what counts as ‘real’ and what counts as ‘imaginary.’ Before I can put those tools to use, however, I will finish up this subsection by referring to three desiderata of scientific metaphysics offered by Soto (2014). I think the three desiderata, along with some of the examples provided above, lead us to a framework in which we can best understand the role of scientific metaphysics.

Soto (2014) provides what he takes to be three desiderata with which, at minimum, philosophers pursuing scientific metaphysics should agree: an epistemic desideratum, a methodological desideratum, and an ontological desideratum. These three prerequisites of scientific metaphysics offer a general account of what such a metaphysics has to offer, and I will be referencing them throughout the rest of this project. As such, a brief overview will be helpful at the start.

Soto takes it that scientific metaphysicians have a different set of epistemic commitments than our ‘traditional’ colleagues, which leads him to formulate the epistemic requirement. He writes:

[. . .] scientific metaphysics rejects the appeal to some forms of a priori epistemic tools, such as intuition, conceptual analysis, and philosophical idealisations. By contrast, it accepts mathematical modelling and mathematical idealisation, empirical testing, statistical analysis of data, predictions, and manipulation, as more reliable epistemic tools (2014, pp. 121-122).

Whereas traditional metaphysics refers to intuitions, conceptual analysis, and philosophical idealisation to support their theories, a scientific metaphysician is more likely to point to the tools often used by scientists. Consider, for example, the Non-Substantial Transfer (NST) cases discussed in the previous chapter: a scenario in which a person is said to transfer from one animal to another. In one such case, an animal's mental capacities are perfectly recorded and then copied over to a different animal. Defenders of such an argument tell us that in such an imagined scenario, the intuition we ought to have is that the person transfers from one animal to another. From this intuition, they conclude that we ought to believe that we are the recorded mental capacities,

not the animal from which they were recorded. But, why make this leap from our intuition to our beliefs?

Animalists in the traditional metaphysical mould fare much better in this regard. Recall Snowdon's response to such NST scenarios. He tells us to imagine that the mental capacities copied from the initial animal are associated in some way with a loved one. In such a scenario, he suggests, the intuition that we should have is that our daughter is the initial animal—not the recorded mental capacities that have been recorded and are then copied over to a different animal. Similarly, to the proponent of NST cases, why should anyone take Snowdon's intuitions to tell us how the world actually is? What reason do we have to take Snowdon's intuitions to be more conducive to knowledge than the intuitions of those with whom he disagrees? The scientific metaphysician would claim that there is no such reason and that, therefore, we shouldn't use our intuitions to justify our beliefs. We certainly shouldn't think our intuitions lead us to knowledge.

If the scientific metaphysician doesn't have *a priori* tools at their disposal, what do we have? In the following chapters, I will refer to several methods that are conducive to knowledge: observations made by biologists of entities that push the boundaries of what it means to be an organism, mathematical models that biologists can use to better understand sex ratios, and experiments that have been conducted which help us better understand how we cognise the world around us. I will argue that these examples give us a better understanding of ourselves and the world.

The second prerequisite of scientific metaphysics follows naturally from the first, epistemic, desideratum: the methodology that scientific metaphysicians utilise in their investigations differs in some respects from those used by traditional metaphysicians. Soto writes:

[. . .] scientific metaphysics acknowledges that scientific methods are our best guide to the knowledge of reality. At a minimum, the methodological procedure employed in metaphysics must cohere with, and in no case contradict, scientific methodologies. Needless to say that both scientific and metaphysical theories should be assessed according

to similar criteria to decide whether they are to be provisionally accepted or outright rejected (Soto 2014, p. 122).

Because the scientific metaphysician uses different epistemic tools than the traditional metaphysician, they likewise rely on different methods to acquire knowledge. The epistemic tools used by the scientific metaphysician are those that are used by the scientist. As such, the methods by which the scientific metaphysician will also be closely aligned with the methods used by those working in the sciences. Consider the above example again: traditional metaphysicians take it that intuitions can tell us something about the world—that they can give us some kind of knowledge. As such, those metaphysicians often use methods that comport themselves with intuitions, such as thought experiments and other kinds of imagined scenarios. Such methods adhere to the view that intuitions lead us to knowledge because they help generate our intuitions.

Later on in this chapter, I will reject the idea that intuitions give us some kind of epistemic access to the world and, as such, scientific metaphysicians can't avail themselves of the same kind of methods (e.g., imagined scenarios) in the same way as their traditional colleagues. The kind of imagined scenarios that scientific metaphysicians *can* utilise will be discussed later on in this chapter.

Lastly, Soto suggests that philosophers pursuing scientific metaphysics should consider what they include in their ontology. To this end,

[. . .] scientific metaphysics recognises that our currently bona fide scientific theories are the best account that we have of the furniture of reality. There is no fundamental metaphysical realm. In particular, metaphysics should contribute to the understanding of our scientific worldview and in no case to inflate it with non-scientifically motivated spooky entities (Soto 2014, p. 122)

The desideratum described by Soto summarises the commitments had by naturalistic or scientific metaphysicians, even if there is still some disagreement as to how to best interpret them. This is important for my goal

of this chapter as well as the overall goal of this project in that, with these naturalistic requirements of metaphysics, I suggest we can undermine the very foundation of a lot of metaphysical claims that raise problems for the view that we aren't identical to biological organisms. Why do I make such a bold claim?

With the differing views of scientific metaphysicians, along with the desiderata provided by Soto, I take it that we can formulate a broad reflexive relationship between science, epistemology, and metaphysics (see figure 1). In particular, we can picture an ongoing conversation between naturalised metaphysics, science, and naturalised epistemology. During this ongoing conversation, the three areas learn from, adjust, and reflect on the information provided by each. In understanding the relationship broadly in this way, we can get a clearer picture of how each domain of study can benefit from each other by creating a reflective equilibrium in which each domain evaluates, incorporates, and revises the output of the others. For example, the sciences can be seen as providing necessary empirical evidence and scientific theories, which constrains how epistemology and metaphysics are practised. A naturalised epistemology offers a needed normative foundation to science and metaphysics in terms of epistemic adequacy of theories, methodologies, etc. Properly constrained metaphysical theories, ontologies, etc., can be provided by metaphysicians that, in turn, can be used to make sense of the metaphysical aspects of epistemic and scientific theories.

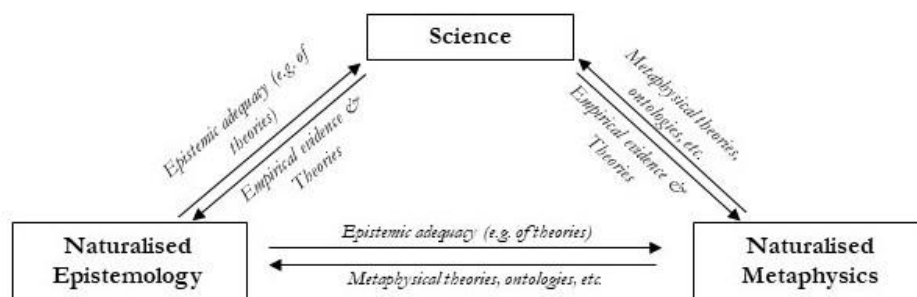
It's the reflexive constraints provided by metaphysics, epistemology, and the sciences that I take many anti-animalists (and some pro-animalist) positions to be lacking. That being said, the utilisation of something coming close to scientific metaphysics can already be found in the animalist literature in terms of occasional references to the biological sciences and the philosophy of biology. This shouldn't be surprising given that that the animals (or organisms, human animals, etc.) that animalists refer to are meant to be something biological.²⁸ In addition to this, one subject of enquiry in the philosophy of biology is how to understand the concepts such as 'organism.' As such, it should be obvious that philosophers of biology at least partly share and are interested in the same work that animalists are doing. Furthermore,

²⁸ A non-exhaustive list of sources that explicitly state this include Blatti (2014), Olson (1997a, 2015), and Liao (2006).

one form of philosophy of biology occurs when biology is appealed to in order to provide answers to traditional philosophical problems (Griffiths 2017, sect. 2). All of this is to suggest that animalism (in general) is at least partly an issue of philosophy of biology and (correctly) vulnerable to biological and other scientific criticisms.

This overlap between animalism and the philosophy of biology can be seen in, e.g., Blatti (2012, 2014) and Snowdon (2014b), who have both used arguments from biology to motivate animalism. According to Blatti's (2012) Animal Ancestors Argument (AAA), for instance, if one denies animalism, they must deny evolutionary theory (at least, as it concerns us). The argument here

Figure 2: Possible structure of science, epistemology, and metaphysics



is that if one denies animalism, then they must hold the view that we are not animals. If this is the case, then our parents were not animals. Thus their parents couldn't be animals, and so on. Therefore, Blatti concludes, denying animalism leads to the denial of evolutionary theory since one would deny that our distant ancestry includes animals. This price is too high, he argues, and as such we must accept animalism (p. 686). The AAA is arguably naturalistic in that it uses a theory in the biological sciences (in this case, the theory of evolution by natural selection) to argue that a metaphysical claim is true (in this case, that we are human animals).

Scientific knowledge has also been referred to by Olson (1997a) when claiming that the nature of organisms is for the biologist to determine (p. 126) but offers what he takes to be features we ought to expect any living organism to have: a metabolism (p. 127), teleology (pp. 127-128), and organised complexity (pp. 128-131). Although I will later (in chapter 5) show that organisms are much stranger than Olson may have anticipated, his acknowledgement that biology will tell us about our features (as human animals) is insightful and naturalistic in its outlook. The animalist can gain a

significant amount of insight into our nature, as well as fuel to motivate the animalist position if they pay closer attention to the philosophy of biology and biology. This insight, however, will go against some of the views commonly held by animalists. Despite this, I will show that the tension between the views held by the philosophers of biology and biologists on one side, and the animalists on the other, can be alleviated if animalists adopt a version of new animalism.

I've argued here that at least some of the work that the animalist has been doing is better suited for the philosopher of biology and biologist, although I don't claim that all of the work is best left to the scientists and philosophers thereof. Answers to questions such as "are we animals?" can (and have) been given without reliance on biology (as we've seen in chapter 1). Whether or not biology can provide anything that comes to bear on this question is another story and one that some [e.g., Blatti (2012, 2014) and Snowdon (2014b)] seem to take seriously. I will later suggest that the view that sees positions in biology as applying pressure to certain views of our metaphysical nature is helpful. I will also show that current debates in the philosophy of biology can put pressure on the animalist in such a way that suggests a form of "new animalism" to be a good candidate for describing what we are.

This is all to show that current discussion around animalism already benefits from a version of scientific metaphysics that gives at least some acknowledgement to the sciences. In this regard, I believe the animalist can venture further and utilise stronger scientific metaphysics to strengthen their position and undermine the traditional metaphysical tactics put forward by our anti-animalist objectors. In the section that follows, I will offer at least one way in which this can be done: we jettison philosophical thought experiments from metaphysical conversations that aren't properly constrained.

3.2. Thought experiments: scientific vs traditional metaphysics

In the previous section, I briefly explained what naturalised/scientific metaphysics was and how it differed from traditional metaphysics. I also offered some brief criticisms that naturalised metaphysicians have made of

analytic metaphysics, including how Bryant (2020) has argued against the latter due to its posited theories not being robustly constrained in the same way that scientific theories are. I refer to this complaint specifically because a similar complaint has been made by Wilkes (1988), who argues that thought experiments in philosophy are not constrained appropriately in the way that the thought experiments in science are. If Wilkes' criticisms are taken seriously, we have a way in which to critically assess the thought experiments utilised in so-called dissociation cases. If we were to assess these cases and the thought experiments that are behind them, then we can find out which, if any, are properly constrained and which are not. If a thought experiment involving a dissociation case lacks the necessary constraints, then we can dismiss the dissociation case as merely 'imaginary' (rather than 'real') and not take it as offering any metaphysical truth unless it can be made to meet the proper constraints.

In this section, I will run through the constraints Wilkes' sees scientific thought experiments as requiring and which philosophical thought experiments lack, thus creating what can be understood as the factors that feature in the 'real'/'imaginary' distinction in apparent dissociation cases. I will explain these constraints fairly broadly at first, as I will later offer some rebuttals of Snowdon's criticisms against Wilkes' scientific/philosophical distinction in thought experiments which will highlight more specific aspects of Wilkes' thoughts on constraints. As I will show, many of Snowdon's criticisms are specifically addressed by Wilkes. Once I've defended the 'real'/'imaginary' distinction from Snowdon's criticisms, I will show which dissociated cases can be considered 'real,' and which 'imaginary.' 'Imaginary' cases can be disregarded as offering no metaphysical problem to animalism in the same way that stories of magical cures offer no metaphysical problem to germ theory. If an apparent dissociation case is deemed 'real,' then the onus is on the animalist to show that such a case isn't really one of dissociation.

The first problem that philosophical thought experiments have, according to Wilkes, is that they do not state what the relevant background assumptions are. She writes:

The experimenter—any experimenter, in thought or in actuality—needs to give us the background conditions against which he sets his experiment. If he does not, the results of his experiment will be inconclusive. The reason for that is simple and obvious: experiments, typically, set out to show what difference some factor makes; in order to test this, other relevant conditions must be held constant, and the problematic factor juggled against that constant background. If several factors were all fluctuating, then we would not know which of them (or which combination of them) to hold responsible for the outcome (Wilkes 1988, p. 7).

Thus, Wilkes suggests that we adopt what Brown (1986) calls ‘thesis 1’, namely:

Thesis I: The burden of any thought experiment rests on the establishment (in the imagination) of a phenomenon. Once the phenomenon is established, the inference to a theory is fairly unproblematic: that is, the jump from data to theory is relatively small (p. 4).

[. . .] if we got the phenomenon right then the theory followed more or less automatically (Brown 1986, p. 13).

Consider the thought experiment, which imagines a world in which human persons were able to split like amoebae. Wilkes suggests that, in order for the thought experiment to adequately describe the relevant background, we would need to know whether or not the splitting was predictable, controllable, preventable, how often it occurred, etc. Also important to Wilkes is the relevant social background against which these occurrences took place: does the society have the institution of marriage, and how does it deal with splitting people? Does it have universities, and if so, how do they deal with the splitting of its students/faculty/staff/etc.? Do pregnant women split? (Wilkes 1988, p. 11).

The person/amoeba thought experiment, if fully fleshed out with all of the relevant background assumptions, is mysterious and incomprehensible, and

it's not even clear what the 'we' is in such an experiment when asked what *we* would say about our intuitions in such cases. Even if solutions to Wilkes' questions were filled in—if, for example, we were to state that the society in this thought experiment had the institution of marriage, that it deals with splitting people in the same way that our world deals with childbirth, etc.—such a world would be incredibly dissimilar to our own. It's for this reason that Wilkes suggests that:

[I]n a world where we split like amoeba, everything else is going to be so unimaginably different that we do not know what concepts will remain 'fixed,' part of the background; we have not filled out the relevant details of this 'possible world,' except that we know it cannot be much like ours. But if we cannot know that, then we cannot assess, or derive conclusions from, the thought experiment (Wilkes 1988, p. 12).

The person/amoeba thought experiment is meant to pump the intuitions we have about our persons, but in order to imagine a world in which we could exhibit such behaviour, we must first imagine a world that is so radically unlike our own that we cannot rely on our current understanding of persons. In imagining such a world, we lose any semblance of the thing we are supposed to be trying to understand—the explanandum in such a situation has thus changed. As such, any explanations will be of something other than what we want. Otherwise, what is it that we are actually learning?

Another problem Wilkes finds with philosophical thought experiments is that the notion of imagination that is often used in philosophical thought experiments is different from that which is used in scientific thought experiments. She writes:

In science, [. . .] because of the firm backing theories, our 'intuitions' (if we rather misleadingly call them that) are usually unproblematic. But when we are dealing with the rich and riotous chaos of common-sense concepts, we are dealing with terms that generally do not pick out natural kinds, and so there is no body of explicit theory or shared and

agreed generalisations about them; we are rather dealing with implicit and partial, rough and ready, common-sense assumptions. Hence the importance of intuitions grows in direct proportion to its precariousness. We must deploy it; for we must [. . .] have some way of agreeing about the relevant background to the thought experiment in question. But when is intuition reliable?" (Wilkes 1988, p. 16).

In scientific thought experiments, scientists are likely to have the same intuitions about a thought experiment insofar as they share the same relevant theory. The likelihood of this shared intuition comes from the clearly established conditions of the imagined scenario, along with whatever background theory is being held. The shared intuition that is presumed to be had by such scientists comes naturally after some simple inference or deduction, and as such, Wilkes questions whether it's fair to refer to these thoughts as "intuitions" at all (Wilkes 1988, p. 15).

The imagination that is involved in scientific thought experiments is constrained by background conditions and held theory. Compare this to the less constrained imagination used in philosophical thought experiments in which common-sense concepts are often utilised. These common-sense concepts lack any theory or agreed-upon generalisations because such concepts don't pick out natural kinds.²⁹

The terms to which our scientific thought experiments refer are picking out natural kind terms. The terms to which philosophical thought experiments refer, on the other hand, are common sense, and thus the entities that they pick out lack any established generalisation. At the same time, however, we need intuitions to find agreed upon background assumptions to be held in thought experiments. The importance of intuitions (despite how they can occasionally lead us astray) creates a problem: when we should trust those intuitions and when shouldn't we? Regarding this problem, Wilkes takes it that we can support some of our intuitions with the current scientific knowledge that we already have on hand, but we shouldn't let our imagination run wild. She writes:

²⁹ In general, Wilkes takes it that common-sense isn't in the business of discovering or exploring natural kinds, whereas a major part of the sciences is concerned with this aim (1988, p. 13).

[. . .] what is fine in literary fantasy (where the ambition is to entertain) is not necessarily enough to ‘establish a phenomenon’ (from which the ambition is to draw conclusions.)

So, we should look rather to the ‘theoretical’, or ‘in principle’ possibility of the *relevant* background conditions—the conditions we need to specify before we can be sure both that the imagined scenario is adequately described, and that the inference from the imagined state of affairs to the conclusion can be made. This would be the test of validity for a thought experiment. This we can characterise as a matter of what could or could not happen given our backing scientific knowledge: what our theories allow to be possible or not (Wilkes 1988, p. 18).

Wilkes uses George Seddon’s (1972) example of iron floating on water to illustrate how a theory can tell us what is possible or not. Once we have a backing theory of metals to provide some relevant information—such as ‘iron’ is a natural kind with the specific gravity ranging from 7.3 to 7.8—and other relevant theories (e.g., buoyancy, density, etc.), we can conclude that it’s not possible for iron to float on water. This conclusion follows from the fact that water has a specific gravity of 1, and only things that have a specific gravity less than that of water can float (Wilkes 1988, p. 18).

Broadly, Wilkes’ holds that there is an important difference in the thought experiments used in science and those used in philosophy which makes such experiments useful in the former but not the latter. The relevant background conditions of any thought experiment used in science are clear and held constant so that the variable of interest can be tested. Thought experiments in science also use terms that refer to natural kinds, and thus there is less work to be done by the imagination of the scientist, who can constrain their thought experiments to what is possible given the background conditions of their imagined scenario along with whatever theory is being held. Thought experiments used in philosophy, on the other hand, do not lay out clear background assumptions that are to remain constant, nor do the terms in such experiments refer to natural kinds. As a result, it’s not clear what the variable in

question is being tested against or whether there is any agreed upon generalisation about the variable itself!

There are more fine-grained distinctions and points made by Wilkes that are important to the position she is fleshing out. Rather than list them, however, I will instead address them in how they relate to criticisms made by (Snowdon 2014b). Snowdon's objections, I believe, are a result of misunderstandings that he has regarding her position and, in highlighting some of the finer details in her view, we can defend Wilkes' portrayal of thought experiments in philosophy as well as the 'real' vs 'imagined' distinction in apparent dissociation cases.

Snowdon takes issue with Wilkes' understanding of "thought experiment" in that he takes her to mean that thought experiments are imaginary and thus cannot be realised in the real world (Snowdon 2014b, pp. 217-218). Snowdon does cite Wilkes in describing thought experiments in this way (particularly Wilkes 1988, p. 2), but he doesn't note that Wilkes immediately clarifies this point by stating that she takes 'thought experiments' to be either 'useful' or not, and to also be distinct from two other kinds of experiments that take place in thought. As such, Wilkes clearly doesn't define 'thought experiment' as "any experiment that takes place in thought" but in a narrower sense: "any experiment such that the experiment itself can only exist in thought." A 'thought experiment' in Wilkes' view is distinct from what she (and Brown 1986) refer to as 'merely imagined' experiments—experiments which *could* be done in reality but, for whatever reason or other, have only *in fact* been done in thought. She also finds them distinct from experiments 'which take place in thought'—experiments that are done to determine whether certain sentences are grammatical or not.

A closer look at the kinds of experiments that take place in thought would be useful here. First, 'thought experiments' come in two kinds: those that are useful and those that are not. *Useful* thought experiments are constrained by experimentation on Wilkes' view. A thought experiment that isn't constrained by experimentation is *not* useful. For a thought experiment to be constrained by experimentation is to be constrained by the kinds of things

noted above: relevant background conditions, in-principle possibility, etc.³⁰

Whether useful or not, thought experiments are done in the imagination and cannot occur in the real world.

Similarly, ‘experiments which take place in thought’ are constrained by experimentation and are limited to the mind; however, Wilkes takes such experiments to be different from ‘thought experiments’ because they are “real experiments and not imaginary ones” (Wilkes 1988, p. 3). The difference Wilkes’ makes between ‘real experiments’ and ‘imagined experiments’ here isn’t clear, although she presumably follows Brown in taking ‘experiments that take place in thought’ to be those “where thinking is the *object*, not the *method*, of the experiment” (Brown 1986, p. 3).

‘Merely imagined’ experiments are those that are imagined and constrained by experimentation but are not limited to the mind; such experiments could be done in the real world. Wilkes’ admits that ‘merely imagined’ experiments frequently occur in moral philosophy. For example, the famous trolley problem is an experiment that is merely imagined—an experimenter *could* put an individual in a position where they need to decide whether to save a single life or many lives. Similarly, Brown (1986, p. 3) and Wilkes (1988, p. 3) use an experiment Galileo merely imagined to illustrate what a merely imagined experiment in science looks like. In this experiment, Galileo imagined what would happen if a cannonball was dropped at the same height as a musket ball. In imagining this, Galileo showed that, if Aristotelian mechanics were right, a less heavy ball would have to fall both faster and slower than a heavier one. This revealed an inconsistency in Aristotelian mechanics. This illustrates a ‘merely imagined’ experiment because Galileo could have (although probably didn’t) actually drop a cannonball and a musket ball from the same height.

Brown’s and Wilkes’ distinctions between the three kinds of experiments that take place in thought can be seen as being determined by three different criteria: first, whether or not the experiment is, in principle, limited to thought (i.e., whether or not the experiment is, in principle, unable

³⁰ Of course, we can agree with Wilkes regarding the need for experimental constraints on thought experiments (at least when it comes to them being useful to metaphysics and science) but disagree with her on what precisely those experimental constraints entail. Here I’m referring to the constraints that she proposes, but whether these particular constraints are necessary and/or sufficient is beyond the scope of this project.

to be performed outside of thought); second, whether or not the scenario is appropriately constrained by experimentation; and third, whether thinking is the object or the method of experimentation (see table 1). The problem with Snowdon's objections to Wilkes' position is that they don't consider the different criteria provided by Wilkes. As I've already shown, Snowdon initially believes Wilkes is wrong to think that thought experiments cannot be actualised in the world. However, this objection ignores her distinction between 'thought experiments' and experiments that are 'merely imagined.' As such, Wilkes doesn't deny (as Snowdon claims she does) that some experiments that occur in thought can be actualised in the world; she just denies that 'thought experiments' are such experiments.

Snowdon is also sceptical of Wilkes' contention that many thought experiments in philosophy are objectionable, but those in the sciences are not. He states that "[. . .] according to her, thought experiments, per se, are not suspect. She must suppose that something goes wrong *in philosophy* (and perhaps elsewhere) when envisaged, but impossible, cases are used in arguments" (2014b, p. 218). Snowdon takes Wilkes' position to be based on the idea that it's not clear what background assumptions are being relied on in philosophical thought experiments such that they suggest a particular conclusion and, as such, that no conclusion can be drawn from these thought experiments. Snowdon objects to this idea, stating that it's not clear that there is any truth to the claim that thought experiments in philosophy lack clear background assumptions.

Snowdon objects to Wilkes' suggestion that thought experiments used in personal identity debates lack clear background assumptions (call this the *Background Objection*). Snowdon suggests that a 'background assumption' could mean one of three things. The first meaning would be whatever assumption is in play that enables a particular conclusion given a particular imagined scenario. That is, when the experimenter is considering a particular imagined scenario, they will often claim that, if actualised in the real world, a particular conclusion would follow given some theory (i.e., the background assumption). If the derived conclusion is false, then the assumed theory (and thus the background assumption) must be false (p. 219).

Table 1: Wilkes' (1988) kinds of thought experiments

| | Limited to thought (in principle) | Appropriately constrained by experimentation | Thinking the object or method of experimentation |
|---|-----------------------------------|--|--|
| Thought experiments (useful) | Yes | Yes | Method |
| Thought experiments (not useful) | Yes | No | Method |
| Merely imagined experiments | No | Yes | Method |
| Experiments which take place in thought | Yes | Yes | Object |

Although Snowdon doesn't provide an example of such a case, it's easy to fill in the variables. For example: If my brain were to be transplanted from my current body (Body-1) into another, brainless, body (body-2) such that body-2 had all of the mental faculties that were associated with body-1 (which is kept alive by some fantastic machine) (this is the imagined scenario) then, according to animalism (i.e., the theory of personal identity and the background assumption), we would be identical to body-1 (now brainless, but still alive) and not with body-2 (i.e., the conclusion of the argument). Such a conclusion must be false and, therefore, animalism (the background assumption) must likewise be false.

This example suggests that philosophical thought experiments do, contrary to Wilkes, have background assumptions (at least ones understood in this first meaning of 'background assumption'). As such, Snowdon argues that Wilkes is wrong to say that thought experiments in philosophy always lack such an assumption.

The second way of interpreting the 'background' of the experiment is that the background is the envisaged scenario itself. On this account, to reuse the above example, the background assumption is the scenario involving the transplant of my brain from my current body to a new, brainless body such that the new body has all of the mental faculties of the previous body. It would be implausible for us? to adopt this interpretation of 'background assumption' (in our interpretation of Wilkes) because there would be many cases of philosophical thought experiments with clear background assumptions (we just 'read them' off of the envisioned scenario!) (Snowdon 2014b, p. 219).

Lastly, the ‘background assumptions’ could be interpreted as meaning whatever background *brings about* the envisaged scenario. If this understanding of background assumption is to be taken, then we must know not only by what means I found myself getting my brain transplanted into a new body, but perhaps even why I agreed to such an operation, where the surgeons got the other body, what medical experiments were done to suggest the operation could be undertaken, etc. As Snowdon notes, such information is often not provided in thought experiments, occasionally only gestured towards, he states, “The best that could be done would be to say: let us assume that, *somehow or other*, A [where A is the envisioned scenario]” (p. 219). The problem with ‘background assumptions’ in this sense is that it seems unavoidable in all thought experiments, not just ones in philosophy.

The issue with the *Background Objection* is that it ignores some important facets of Wilkes’ point. First, none of the potential interpretations of ‘background assumptions’ that Snowdon has offered are sensitive to the importance of such a background being fixed with natural kind concepts. That is, of course, philosophical thought experiments have background assumptions in the sense that a particular conclusion will follow given a theory and background (if we accept the first interpretation), or in the sense that there is an envisioned background scenario (if we accept the second interpretation). However, although we can accept that these interpretations have background assumptions in a vague sense, both interpretations rely on common-sense concepts and assumptions that make it unclear if the conclusions that follow from such thought experiments are possible in anything like the real world. In the brain-transplant scenario, for example, it’s not clear whether the background assumption includes a generalised account of personhood, memories, beliefs, etc., or whether such concepts are necessarily embodied (i.e., if personhood, memories, etc. are embodied, then any transplant from one body to another, could plausibly affect those capacities, complicating the possibility of the thought experiment.)

The second problem with the *Background Objection* is that it ignores Wilkes’ point that some background assumptions are going to be more relevant than others. This is particularly a problem with the third interpretation of ‘background assumption’ suggested by Snowdon, in which we need a full

explanation of how the envisioned scenario came about. Of course, such a fully fleshed out background isn't needed! How Galileo imagined he arrived at the location where he imagined he dropped a cannonball and musket ball is irrelevant to the thought experiment in the same way that it's irrelevant for the brain transplant case to know how the surgeon arrived at the operating room. What *is* relevant in such situations are those things that actively affect the experiment, such as whether or not a brain transplant is possible, whether memories or other mental capacities are necessarily embodied, etc. Such assumptions are relevant in that they will affect what follows from the thought experiment: again, if mental capacities are necessarily embodied in a certain way, then any scenario in which they are incorrectly embodied is going to conclude differently than if they were embodied correctly (or, if mental capacities don't need to be embodied at all.)

Snowdon's last objection to Wilkes' view can be called the *Possibility Objection*. According to the *Possibility Objection*, Wilkes is wrong to suggest that our intuitions or judgements about scenarios become more dubious or uncertain the further they are from reality. Snowdon offers two reasons to reject this point: first, it's simply not true that we cannot make judgements about envisioned cases simply because they are unlike real situations. For example, a train that consists of 10,000 carriages will never exist, yet we could clearly apply a description to such a train (i.e., "a very long train") (Snowdon 2014b, p. 220).

The second reason we ought to reject Wilkes' view about the relationship between our judgements and the reality (or lack thereof) of a given scenario is that such a suggestion conflicts with our normal view of language. On the normal view of language, Snowdon claims, we interpret sentences in such a way as to determine them as true or false depending on the *possibilities* they express. Given this, it doesn't matter if a sentence expresses an *actuality* for that sentence to be interpreted as containing something true (or false) (Snowdon 2014b, p. 220).

The *Possibility Objection* misses two important points, namely, that not all thought experiments are the same (i.e., an imagined scenario may be envisioned as part of a useful thought experiment, as a merely imagined experiment, as an experiment that takes place in thought, etc.), and that (at

least on Wilkes' view) some envisioned scenarios that aren't real lead to dubious judgements precisely because they aren't possible. Let's begin with the first point (i.e., that not all imagined scenarios are the same): Snowdon is right to say that a train consisting of 10,000 carriages has (probably) never existed, but that we can reasonably describe a scenario in which one did. Wilkes would agree to all of this but still deny that such an envisioned scenario had to be a part of a thought experiment (useful or not). This is because such a train could (presumably) exist and, as such, the scenario itself isn't, in principle, limited to thought. Such a scenario could be the background of a 'merely imagined' experiment, and thus such a non-actual scenario wouldn't pose a problem to her view.

What about non-actual scenarios that *are* limited to thought (i.e., scenarios that can't, in principle, exist in the real world)? Such scenarios also don't pose a problem to Wilkes' view insofar as the scenario itself is properly constrained by experimentation: that such a scenario is the background of either a useful thought experiment or an experiment that takes place in thought (i.e., an experiment in which thinking is the object, not the method, of the experiment.)

The second point that Snowdon doesn't account for in the *Possibility Objection* is that, in Wilkes' view, some scenarios are not real simply because such scenarios are not possible. Recall the point made by Seddon (1972) and reiterated by Wilkes (1988) that theories can help us determine which situations are possible and which are not. A scenario in which an iron bar floats on water is not possible, in their view, precisely because our best theory of metal (and buoyancy, etc.) don't allow for such a scenario to occur. Thus, Wilkes and Seddon have no need to reject Snowdon's point that a sentence can be interpreted as expressing something true or false depending on the possibilities they express. Seddon explicitly states that we can *imagine* such a scenario; we can *talk* about bars of iron floating (such talk is meaningful), but that such a scenario is, nonetheless, impossible (Seddon 1972, p. 481).

As I've shown, Snowdon's criticisms of Wilkes are unfounded because they don't actually refer to any position that Wilkes expresses in her view. As such, he has not successfully defended philosophical thought experiments from Wilkes' criticisms, and the 'real' vs 'imagined' distinction remains a

plausible and worthwhile way of determining which apparent dissociative cases are of genuine concern. In the section that follows, I will face a final potential problem with scientific metaphysics (and thus the foundation of the ‘real’ vs ‘imaginary’ distinction I’ve defended here.)

3.3. An alternative to ‘traditional’ and ‘scientific’ metaphysics

Thus far, I’ve shown that Snowdon’s taxonomy of arguments against animalism helps illuminate a difference between metaphysical methodologies—methods that differ between what I’ve been calling ‘traditional’ and ‘scientific’ metaphysics. Scientific metaphysics, which A&~P cases could be said to be based on, are based on phenomena that are actually confirmed to exist in the world (even if such cases are sometimes unfamiliar or modified in some way as to be unrecognisable). Traditional metaphysics, such as those used in P&~A cases rely on hypothetical thought experiments. I’ve shown that, contrary to Snowdon, there is good reason to object to at least some of the methods used by traditional metaphysics, specifically methods that rely on thought experiments that aren’t constrained by experimentation (thus making them not useful). By objecting to the use of thought experiments that aren’t useful, we are able to weaken the appeal to P&~A cases on the basis that the background assumptions are too unstable to accurately claim any valuable intuition from them.

As shown above, Snowdon objected to Wilkes’ arguments against a certain kind of thought experiment. I also showed that Snowdon’s objections were based on him conflating various distinct kinds of thought experiments to which Wilkes refers. A full analysis of all of the objections to scientific metaphysics and its methodologies and restrictions cannot be considered here, but there is a rival metametaphysical position that I should spend some time discussing.

Baker has offered an account that could plausibly serve as an argument for why we ought to take constituted entities to be more ontologically significant than the entities that constitute them. It could be argued that such ontological significance is a result of what Baker calls *Big-Tent Metaphysics*. She writes:

According to Big-Tent Metaphysics, there exist many different kinds of things; each kind of thing has a nature, and the nature of any kind of thing includes what distinguishes that kind from the other kind and what is most significant and most distinctive about that kind. [. . .]

Big-Tent Metaphysics looks to metaphysics of Fs to tell us the *nature* of F's, what is *distinctive* or unique about Fs, and what is *significant* about Fs. What we consider to be real should not be independent of what we consider to be important. Else, why bother with metaphysics? (Baker 2008a, p. 10).

Baker is formulating an interesting metametaphysical position by way of Big-Tent metaphysics (i.e., Big-Tent Metaphysics is making a prescriptive claim about how metaphysics *itself* ought to be done, thus making it meta). There are two metametaphysical claims being made here: first, metaphysics shouldn't just tell us about the nature of reality, but it should seek to include in reality things that are distinctive or significant to human beings[?] in some way. Second, metaphysics shouldn't be independent of what we take to be important. Regarding this latter claim, I take Baker to mean that there ought to be some kind of normative dimension to our metaphysical claims in at least two regards: (1) that there is a necessary, and thus an important relationship between claims about reality and claims about value, which leads to, (2) our ontology should only include things that we take to have value.³¹

As we can see, Big-Tent Metaphysics and scientific metaphysics offer different sets of standards by which we are to conduct our metaphysical investigations. Of course, proponents of scientific metaphysics may debate amongst themselves as to how we ought to best do metaphysics (if at all). I assume the same can be said about Big-Tent Metaphysics. Evidently, there are some notable differences between the two approaches. For instance, proponents of Big-Tent Metaphysics take there to be an important normative dimension to our metaphysical claims; proponents of scientific metaphysics do

³¹ Olson (2008) takes Baker to be making the same claim, although he attributes to her the more radical claim that “[a]ll value carries ontological significance” (2008, p. 34). Baker (2008b) emphatically denies that she holds this radical view (p. 45), although she doesn't provide any evidence to the contrary, nor does she explain how we are to interpret her Big-Tent Metaphysics in a way that avoids this conclusion.

not take this normative dimension to be important. Proponents of Big-Tent Metaphysics claim that our ontology should contain things that have value; proponents of scientific metaphysics do not. Proponents of scientific metaphysics believe metaphysics should somehow conform to, accommodate, or structure our scientific knowledge—a criterion Big-Tent metaphysicians don't necessarily have to consider. This suggests that the two different metametaphysical positions can easily clash (e.g., as in cases where what we value cannot be understood in scientific terms or in cases where the entities of science aren't valued.)

The clash between what we apparently value and what science apparently tells us is illustrated by one of Baker's issues with animalism. Baker takes animalism to be problematic, in part, because it doesn't capture what makes us unique: the first-person perspective. Thus, she describes:

Olson's conception of life in terms of organisms is both too broad and too narrow to be adequate for understanding human life. It is too broad since it does not make a place for what is distinctive about human lives. [. . .] It is too narrow since it defines human life wholly in terms of its biological aspects (Baker 2008a, p. 11).

Olson's view that we are biological organisms is problematic, from Baker's standpoint, because it doesn't take into consideration the non-biological aspects of our nature—including aspects that Baker deems distinctive. She continues:

[. . .] biological life is only one aspect of personal life. In a strict and philosophical sense, your life is a person life that includes your success and failures, and loves and losses, as well as your high cholesterol. To equate human life, in a strict and philosophical sense, with biological life severely truncates what we intend to talk about strictly and philosophically. A wholly biological conception of your life is simply not adequate (Baker 2008a, p. 12).

To Baker, animalism fails to take into account important aspects of what we are (e.g., our capacity for a first-person perspective) and thus fails to be an adequate account of what we are.

I find the idea of Big-Tent Metaphysics interesting, even if problematic. There are numerous problems with such a metametaphysical view, for instance, the fact that the resulting ontology would include a lot of things (Olson 2008 notes this about Baker's ontology, p. 35). But even if someone accepted or desired such a bountiful ontology, there still hasn't been an argument for why we should want to embrace Big-Tent Metaphysics (or similar metametaphysical positions). In fact, Big-Tent Metaphysics is arguably trying to conflate differing kinds of truths. Snowdon has noted this problem in his response to Big-Tent Metaphysics, stating, “[t]he answer to Baker’s question—why do metaphysics if it does not explain value?—is that we have an interest in truths which are not to do with value” (Snowdon 2014b, p. 244). Snowdon is hitting on an important distinction here between kinds of truth and the importance of not conflating them into a single kind. Some truths concern value, e.g., the claim that all humans are created equal, whereas other truths have little or nothing to do with value, e.g., gold has the atomic number 79.

If these differing kinds of truths (i.e., truths that do and do not concern value) are conflated, then it's not clear how metaphysics is meant to move forward because, despite Baker's contention that not all value has ontological significance, it's not clear *which* value has ontological significance. In this respect, Big-Tent Metaphysics only offer us a vague aim; that is, it is vague in telling us what 'value' is when it suggests that 'metaphysics should be about things that we value.' As a consequence of this vagueness in its aim, Big-Tent Metaphysics is vague in what it can be included in our ontology: do we value currency in the right way for 'currency' to be included in our ontology? Do I value the pen next to me, the one with an empty ink cartridge, enough for it to be included in our ontology? What if it was my favourite pen? Should such a thing matter when discussing what is included in our ontology?

Even if we had an idea of which value has ontological significance, it would be problematic at best if we allowed our ontology to be sufficiently permissive to include everything that has value. This problematic constraint seems to be what Olson is getting at in his claim about the role of metaphysics:

Metaphysics, as I see it, is in the business of discovering metaphysical truth. The kinds and categories that figure in metaphysical truths *might* match up with the kinds and categories that are important outside of metaphysics. But again, I see no reason to suppose that they have to. In fact it would seem to be very bad for metaphysics if it were constrained to say something about the categories that figure outside of metaphysics. A metaphysical theory shouldn't be rejected just because it treats all organisms alike, any more than a physical theory should be rejected if it treats all massive objects alike. Metaphysics shouldn't try to tell the whole story of everything, any more than physics should (Olson 2008, pp. 35-36).

The important point here is that, according to Big-Tent Metaphysics, there is a necessary relation between metaphysics (one sub-discipline of study) and value (a different sub-discipline of study) such that metaphysics recognises the ontological status of things that we value.

In regards to animalism specifically, Baker contends that we value aspects of ourselves beyond the fact that we are biological organisms (consider again the two quotes by Baker provided above in which she says that animalism doesn't provide an adequate ontology because it doesn't consider the non-biological aspects of ourselves.) But, why should we include 'persons' in our ontology even if we accept that persons are valuable to us? As Snowdon points out:

The problem here is that on anyone's view a full and proper account of someone's life, in the normal sense, will of course include the rich and fascinating psychological life of that individual. There is no implication from that evident fact to the conclusion that these important aspects of our lives ought to be regarded as types of features which are essential for our existence (Snowdon 244).

Neither Snowdon, Olson, nor I reject the mental lives that most human animals have, nor do we claim that such mental lives are not valuable. The real

concern that we have with Baker's Big-Tent Metaphysics on this matter is whether we should include such things—no matter how valuable they may be to us—into our ontology. There just doesn't seem to be any reason to think that they should.

The Big-Tent Metaphysics that Baker proposes is an interesting metametaphysical project, but not one that has been presented in a persuasive or plausible way. The project is vague in its aims as well as what entities it could plausibly include in our ontology. It could easily allow for plentiful ontology (which would be an issue for those of us who want our ontology to include as few entities as possible). Lastly, it conflates two kinds of truth (i.e., metaphysical truth and truths concerning value) without any justification. Big-Tent Metaphysics appears implausible until someone can defend these positions.

3.4. Conclusion

I argued that endorsing a scientific metaphysics that reject certain kinds of thought experiments—thought experiments that are not constrained by experimentation—provides us with a means to reject certain thought experiments used to support anti-animalist claims, as well as certain anti-animalist intuitions in general. I also responded to some objections that Snowdon has posed against rejecting thought experiments that aren't constrained by experimentation, showing them to stem from a conflation of distinct kinds of thought experiments.

A possible metametaphysical alternative to scientific metaphysics, Baker's Big-Tent Metaphysics, was critically examined. I suggested that, although Big-Tent Metaphysics may sound appealing, it fails to be a plausible alternative because, amongst other things, it is incredibly vague in its aims and ontology. Similarly, the ontology of Big-Tent Metaphysics could easily result in a very abundant ontology.

In the chapter that follows, I will show that endorsing scientific metaphysics is a double-edged sword for the animalist. That is, although utilising the methodologies that come with it helps us respond to anti-animalist criticisms, scientific metaphysics also makes certain animalist assumptions

problematic. An important animalist assumption that will be discussed is biological essentialism—the claim that biological kinds have essences that determine their membership of the kind. If we reject the reality of biological essences, as I will suggest we should, then animalists are faced with the problem of explaining what determines our membership in the kind ‘biological individuals’ of the species *Homo sapiens*.)

Chapter 4. Animalism naturalised

Despite animalism's contention that we are animals, its proponents have paid very little attention to results and discussions taking place in biology and philosophy of biology regarding the topic of animals, organisms, etc.³² As we will see, questions such as 'what is an animal?' or 'what is an organism?' are often given by the animalist to the biologist to decide an answer (e.g., Olson 1997a). Nevertheless, animalists have continued to offer and argue for and against certain persistence conditions, properties, etc., of animals, organisms, and human animals. When doing this, they often use *a priori* reasoning or outdated science that lead them to conclusions about the nature of animals, organisms, and human animals that are seen as problematic by the biologist and philosopher of biology. There is an obvious disconnect here: if we are animals (as the animalist suggests), and if little attention is paid to the work of those who concern themselves with the nature of animals (i.e., biologists and philosophers of biology), how can the animalist possibly begin to correctly understand the very object of their enquiry?

In this chapter, I will start bridging the gap between animalism and biology/philosophy of biology and thus create a more secure foundation for discussion to take place. To do this, I will start by explicating what animalism (in its basic form) states and to what kind of question the position is an answer. In section 2, I will map out two ways in which animalism has been divided into varieties. I will argue that a similarity between these maps supports the view that two separate tasks are being pursued by animalists. These tasks will motivate section 3, in which I argue that the questions proponents of animalism ask (*after* animalism in its basic form is assumed) are problems for

³² Dupré (2014) and Wilson (1999, ch. 6) are two attempts made by philosophers of biology to connect their positions to problems in personal identity. The former will be discussed later in this chapter. Interestingly, the latter never addresses animalism by name, nor does the author cite any literature regarding it.

philosophy of biology rooted in a *scientific* metaphysics. In the same section, I will show that taking an inadequate account of biology and philosophy of biology has led the animalist into problems by a) being unclear about the nature of the very things we are supposed, by animalists, to be, and b) assuming that the received view in philosophy of biology and biology is that biological taxa are natural kinds. In section 4, I will show that, with a better understanding of biology and philosophy of biology, an account that states we get our metaphysical nature in virtue of being animals will face problems that the traditional animalist has not considered. Despite this, I will show that animalism ought not to be rejected outright, but that a form of animalism (i.e., *new animalism*) that was previously discounted by Olson (2015) turns out to be more tenable than initially thought.

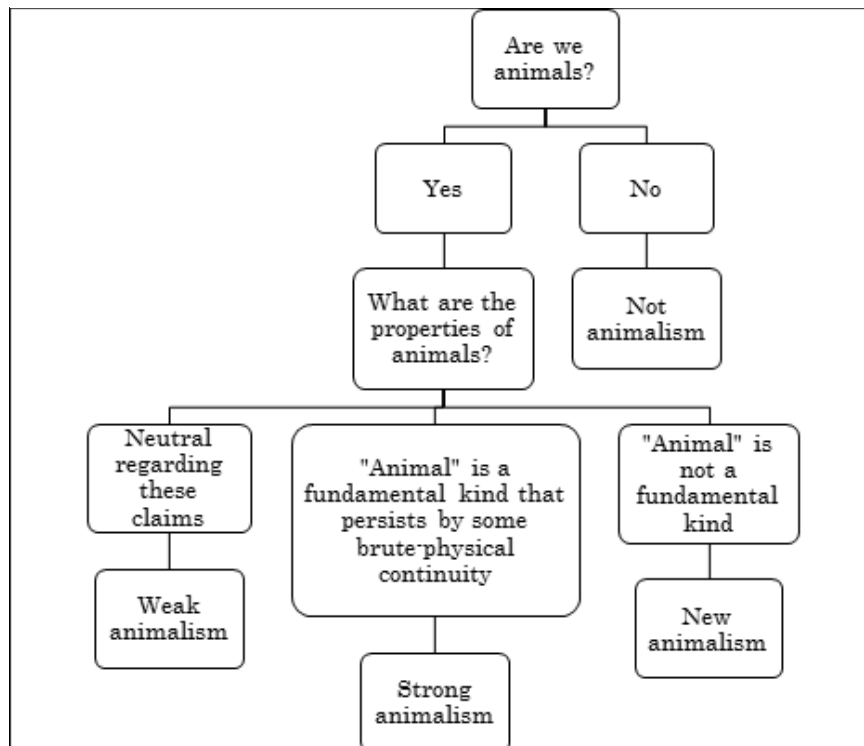
4.1. Varieties of animalism

Two attempts that have been made to divide animalism into varieties come from Olson (2015) (see fig. 1) and Thornton (2016b) (see fig. 2). Both make the animalist's claim that we are animals, and this claim marks the beginning of their categorisation of the varieties of animalism. Olson uses the phrase "we are animals" in the way described above and calls this position "weak animalism", 'weak' in that it remains neutral regarding any further claims about the nature of animals (Olson 2015, p. 101). "Weak animalism" conjoined with further claims regarding the nature of animals (their status as a fundamental kind, their persistence conditions, etc.) is categorised as "strong animalism" (Olson 2015, p. 98). Strong animalism is the variety of animalism that the main objections are aimed at (Olson 2015, p. 98) because, "[w]ithout the further claims, few of the contentious consequences of animalism would follow, and the question of whether we are animals or non-animals would lose much of its interest. We may even wonder whether there is any reason to reject weak animalism" (p. 99). Despite wondering why anyone would reject weak animalism, Olson states, many philosophers have rejected the view based on it being incompatible with other metaphysical views of our identity, such as our

being things constituted by animals, bundles of perceptions, or immaterial substances (p. 99).

“New animalism” is a possible variety of animalism that Olson imagines, but he states that he is unsure if anyone has ever actually accepted the view (Olson 2015, p. 102). New animalism accepts weak animalism but

Figure 3: Olson’s varieties of animalism



rejects one or more of the further claims accepted by strong animalism (p. 101). One version of new animalism (the version that Olson states “comes most readily to mind” (2015, p. 102)) allows that at least some form of psychological continuity is sufficient for our persistence, human animals are not animals essentially, and “animal” and “organism” aren’t fundamental kinds (p. 102). To say a thing is a kind F “fundamentally”, Olson suggests, is to say two things: first, “the thing is F (in the ordinary sense of ‘is’)” (Olson 2015, p. 95) and second, “that being F is a special sort of property, namely a fundamental kind — roughly one that determines the metaphysical nature of the things that have it, including their identity conditions” (p. 95).

If new animalism denies that “animal” is a fundamental kind, Olson states, “[t]he metaphysical nature of human animals would not follow from their being animals; they would have a fundamentally different nature from

other animals, or at least from some other animals: oysters, for instance” (pp. 102-103).

Olson comments that the thought of new animalism is hopeful in that it would please everyone:

The opponents of animalism will be happy because it lacks the implications they object to. And the animalists will be happy because it avoids the dualism of mind and life. It would have all the virtues of animalism without its drawbacks (Olson 2015, p. 101).

Despite this, Olson does not see this version of new animalism (the version in which some form of psychological continuity is sufficient for our persistence) as a plausible one, although he does suggest that other versions of new animalism may have more going for them (Olson 2015, p. 106).

To see how *new animalism* creates problems in how we understand persistence, we can refer to the *Brain Transplant* case. Imagine if my cerebrum was put into someone else’s body (such that the body would “contain” my psychology), and the cerebrum-less animal was still alive, the animalist would argue that I am identical with the now cerebrum-less animal, not with the new body with my cerebrum. The *new animalist* (at least the version Olson discusses here), however, would argue that we would go with the transplanted cerebrum since the new animalist believes psychology to be sufficient for our persistence. Once the cerebrum was transplanted we would be identical with the new body containing the cerebrum (Olson 2015, p. 102). Olson argues, however, that this view looks unprincipled:

Why would an animal go with its cerebrum but not with its liver, or heart, or left hand? If anything, an animal looks *less* likely go with its transplanted cerebrum than with its transplanted liver, as it needs a liver to remain alive but not a cerebrum: a human being can survive for years

with a non-functioning cerebrum (as in vegetative cases), but liver failure soon causes death by blood poisoning (Olson 2015, p. 103).

Another argument against this version of new animalism is that it views some form of psychological continuity as being sufficient for our persistence (Olson 2015, p. 103). Yet Olson points out that human animals can persist without psychological continuity (such as in cases of irreversible vegetative state and ordinary prenatal development). In these instances, Olson claims, there isn't any psychology, so how does a human animal persist in these circumstances? He suggests that it seems like some brute-physical continuity ought to constitute the persistence conditions for both a normal, adult male and an empty-headed animal that would exist if its cerebrum were removed:

That is, whatever enables a human animal to survive without any psychological continuity as a foetus or a human in a vegetative state ought to enable it to survive the loss of its cerebrum if that organ were transplanted. But then new animalism would imply that in such a case you would be both the recipient of that organ and the empty-headed animal left behind. Since these are clearly distinct, one thing would be numerically identical to two, which is impossible (Olson 2015, p. 103).

One thing would (impossibly) be identical to two in this situation because of the (seemingly) opposing views that the proponent of this version of new animalism hold: a) that we are animals and b) that some form of psychological continuity is sufficient for our persistence. If my brain were put into a new body, then I would go along with my brain. However, the animal from which my brain was removed is still alive in this scenario, so I would be identical with the animal as well.

Olson insists that there are many problems the proponent of this version of new animalism would have to face. By denying that "animal" is a fundamental kind, he argues, new animalism is assuming human animals get their metaphysical nature by virtue of being people or thinking beings, not

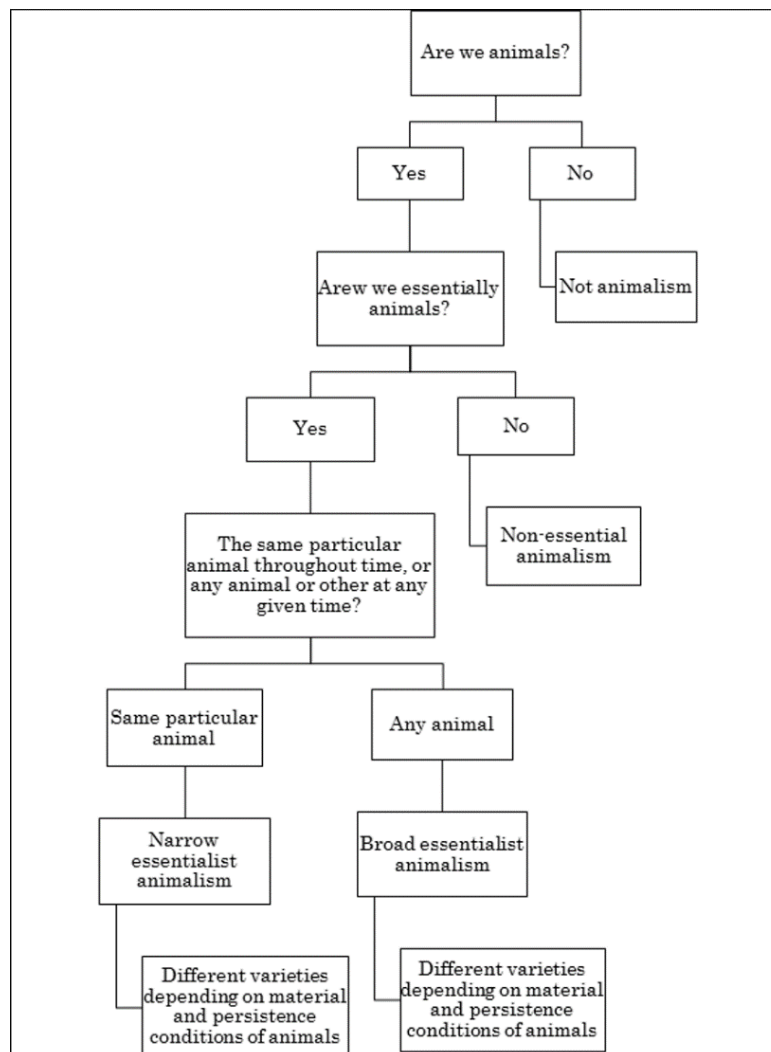
animals or organisms (Olson 2015, p. 105). He writes, “[t]o free ourselves from these dogmas, we need to unlearn everything we thought we knew about what it takes for human animals to persist and what determines how many there are” (pp. 105-106). He goes on to say that the proponent of this version of new animalism would have to provide a metaphysics of organisms that make sense of the weird cases (such as an individual being identical with two or more things) produced by the view. Only then, he argues, can the view be taken seriously (p. 106).

In chapter 7, I will show that work being done in biology and philosophy of biology can be used to motivate a version of new animalism (which I call *structural animalism*). This is in part due to the widely held view of biologists and philosophers of biology that biological taxa are not natural kinds. The version of new animalism I propose combines “weak animalism” with the rejection of the view that animals are fundamental kinds whilst maintaining that we are necessarily animals. In chapter 7, I will show that the version of new animalism I propose accepts that no animal has psychological states *essentially* (which distinguishes my version of new animalism from Olson’s version described above).

As I mentioned above, Thornton (2016b) begins her categorisation from the animalist’s assumption that we are animals. In generating her taxonomy of the varieties of animalism, she relies on the alternative answers to three questions: the *essentiality question* (i.e., are humans *essentially* animals?), the *persistence question* (i.e., what are the persistence conditions of animals?), and the *matter question* (i.e., what are animals made of?). The essentiality question is independent of the persistence and matter question. The persistence and matter questions are, unlike the essentiality question, dependent on one another in that a particular answer to one can affect the possible choices available to the other (p. 516). Thornton gives an example for this by noting that if one’s answer to the matter question denies that animals could have prostheses as parts, then their answer to the persistence question could not allow an animal to survive the replacement of all their organic parts with artificial parts (p. 516).

Beginning with the essentiality question, we ask, “are we essentially animals?” Thornton states that an affirmative answer to this question could entail that wherever and whenever I exist, that I am an animal—I cannot exist as anything except an animal. There is, however, an ambiguity with this expression ‘wherever and whenever I exist, I am an animal’, she suggests, in that it could mean either ‘wherever and whenever I exist, I am *some* animal or another’, or ‘wherever and whenever I exist, I am this one *particular* animal’ (Thornton 2016b, pp. 517-518). The first way of understanding the expression gives rise to what Thornton calls *Broad Essentialist Animalism* in that it allows for the same person to be identical to different animals; that is, insofar as an individual is an animal at two different points in time, whether or not that animal is the same is irrelevant. The second understanding of the question ‘wherever and whenever I exist, I am an animal’ she calls *Narrow Essentialist*

Figure 4: Thornton's varieties of animalism



Animalism because the view specifies exactly which animal one has to be (which is the animal the individual currently is) (p. 518).

Narrow Essentialist Animalism is the view most commonly held in debates concerning our persistence (Thornton 2016b, p. 518). Broad Essentialist Animalism, Thornton notes, “is not popularly defended or even explicitly taken seriously in the debate about how we persist” (p. 519). She attributes this lack of seriousness to two reasons: the first reason is that Broad Essentialist Animalism requires relative identity:

[. . .] substitute ‘the animal that is A at t1’ for x, ‘the animal that is A at t2’ for y, ‘person’ for F, and ‘animal’ for G. If identity is relative, it is possible that the animal that is A at t1 is the same person as the animal that is A at t2 but not the same animal as the animal that is A at t2 (p. 518).

According to Thornton’s example, relative identity allows for Broad Essentialist Animalism because it allows two persons to be the same person, but for those same persons to be different animals. As it stands, however, Thornton notes that relative identity is an unpopular view of identity, and due to Broad Essentialist Animalism’s dependence on it, it is not taken seriously (p. 519). The second reason for the lack of seriousness towards Broad Essentialist Animalism, according to Thornton, is the fact that Broad Essentialist Animalism does not afford a criterion for our continuity over time—it does not answer the question: *how do we persist?* (p. 519).

Rather than affirming that we are essentially animals, one could deny that we are. These “non-essentialist” varieties of animalism, Thornton acknowledges, would be rejected as forms of animalism by some. Despite this, she suggests we count them as forms of animalism for two reasons: the first is that these versions are consistent with a straightforward interpretation of the claim ‘human persons are animals’, which is a claim shared by all varieties of animalism. Secondly, other animalists (e.g., Olson (2015)) seem to take non-essentialist views to be either a variety of animalism or animalism itself (Thornton 2016b, p. 520).

Once we have answered the essentiality question, we can then ask the persistence and matter questions. Answering the *matter question* is important because the persistence conditions of an animal can depend on one's answer to it (Thornton 2016b, p. 521). Answering the *persistence question* is important because none of the essentialist varieties of animalism that Thornton has laid out *entails* the persistence conditions of animals (Thornton 2016b, p. 520). She notes, however, that this indeterminacy is not exclusive to essentialist animalism:

Rather, it is a feature of any essentialist view that is not maximally precise. Consider, for example, the proposition that a human person is essentially a thing that persists through a given length of time if and only if it has the same brain throughout that time. That proposition does not entail anything very particular about which sorts of medical operations, for example, a human person can survive. The reason is that that proposition is indeterminate with respect to which operations a brain can survive as the same brain. More generally, that proposition does not entail what the persistence conditions of brains are (Thornton 2016b, pp. 520-521).

Much like the brain in Thornton's example, the essentialist view of animalism does not determine the persistence conditions for human persons because it fails to offer the persistence conditions of animals. For a variety of animalism to provide a human person's persistence conditions, Thornton argues, the variety of animalism must be essentialist, and it must afford the persistence conditions of animals (Thornton 2016b, p. 521).

Thornton's taxonomy of the varieties of animalism has three main branches with different varieties stemming from each, based on how one answers the persistence and matter questions: Broad Essentialist Animalism and all of its varieties; Narrow Essentialist Animalism and all of its varieties; and Non-essentialist Animalism. Thornton notes that the number of varieties in the taxonomy will depend not only on the number of answers to the three questions (i.e., the essentialist, persistence, and matter questions) but on

restrictions created by the answers to the persistence and matter questions. There are also sub-varieties that have to be taken into consideration based on how general the answers to the questions are (Thornton 2016b, p. 517).³³

In comparing Olson’s varieties of animalism and Thornton’s varieties of animalism, we can see some striking similarities. For instance, both Olson and Thornton recognise a version of “weak animalism”—a position that states we are animals but doesn’t elaborate on exactly how that statement is meant to be fleshed out or what the properties of “animals” are. Olson does this by labelling the position as such, and Thornton refers to it as animalism “in its basic form” (Thornton 2016b, p. 515).

What I want to draw attention to, however, is that Olson and Thornton both recognise a version of animalism in which one believes that we are animals, but not so *essentially* or *fundamentally*. Olson refers to this view as *new animalism* and Thornton refers to it as *non-essentialist animalism*. Interestingly, both philosophers form these respective views under the assumption that to be an animal *necessarily*, is to be an animal in some way *essentially*. This assumption is one that I want to argue against, and I will do so later (in chapter 7) by way of *structural animalism*.

Structural animalism, as mentioned above, is a form of new animalism. Unlike the form of new animalism conceived of by Olson, however, *structural animalism* rejects the view that we are essentially animals *and* the view that we are essentially psychological beings (see table 2). Structural animalism is a position that accepts that we are necessarily animals but is able to do so without the metaphysical baggage of fundamental kinds and essences, especially in biology.

4.2. Defending “new animalism”

As noted earlier (in section 2.1), Olson (2015) assumes that “animal” is a fundamental kind such that human animals get their metaphysical nature in virtue of being an animal or organism and not by being persons or thinking

³³ Thornton gives the example of a variety of animalism which takes ‘organic matter’ to be the answer to the matter question. This variety of animalism would be a sub-varieties of a variety of animalism that offers a broad ‘material’ answer to the question (Thornton 2016b, p. 517).

beings. In fact, this is precisely what he insists proponents of his imagined “new animalism” deny (p. 105). The problem with this view is that the received view in both philosophy of biology and biology is that biological taxa do not have essences (Ereshefsky 2010, p. 674). A “taxon” is “any unit used in the science of biological classification, or taxonomy” (“Taxon” Encyclopædia Britannica *Taxon*, web.), and is arranged in a hierarchy which includes kingdom (at the top) to sub-species (at the bottom) (“Taxon” Encyclopædia Britannica *Taxon*, web.). The view that biological taxa do not have essences has implications for the notion that species are natural kinds.³⁴ As Bird and Tobin (2017) state,

Despite its long history and intuitive appeal, the conception of species as natural kinds is difficult to sustain while also maintaining a traditional view of what a natural kind requires: a set of intrinsic natural properties that are individually necessary and jointly sufficient for a particular to be a member of the kind (sect. 2.1.1).

Why is this the case? Historically, species were seen as paradigm cases of natural kinds, with higher taxa (such as the kingdom) being mere conventional divisions, not ontological ones (Bird and Tobin 2017, sect. 2.1), so why the change for the species concept?

To understand why species are not seen as natural kinds according to contemporary philosophy of biology and biology, we must first understand the relationship between essences and kinds. Bird and Tobin (2017) indicate two distinct claims that are made regarding the relationship:

The first claim is that the kind a particular belongs to is essential to that particular: if *a* belongs to kind *K*, then it is an essential property of *a* that it belongs to *K*. The second claim is that the kinds themselves have

³⁴ Okasha (2002) and others have argued that species-specific essences are possible if the essences include relational properties of organisms, a view that has been criticised by Ereshefsky (2010).

essential properties: for each kind K there is some property Φ of the kind such that it is essential to K that $\Phi(K)$ (sect. 1.3).

The first claim (that if a particular belongs to a kind, then it essentially belongs to that kind) is a claim of individual essentialism (IE). The second claim (that kinds themselves have essential properties) is a claim about essences of kind (EK). Bird and Tobin go on to explain the logical relationship between the two claims: one can deny the second claim (EK) whilst consistently holding the first claim (IE). However, they state that it may be difficult to motivate the first claim without reason to believe the second: “[w]ould one think that some object’s nature requires it to belong to kind K without thinking that there is some distinctive (essential) property characteristic of all K s?” (Bird and Tobin 2017, sect. 1.3). Similarly, EK does not imply IE (sect. 1.3).

One argument that is made against EK is that if natural kinds are immutable, then species cannot be natural kinds given that they evolve (Sober 2000, p. 149). (see also, Hull 1965, p. 320; Sober 2000). Sober (2000) notes that this argument doesn’t undermine the idea that species have essences, though, given that “[e]ssentialists regard species as perennial categories that individual organisms occupy” (p. 150). The result of regarding species this way would be that an ancestor and its descendants can be in two categories—one species can give rise to a different species whilst each species having their own essence (p. 150).

Sober (2000) offers another argument against essentialism that he believes fails. According to this argument, if essentialism requires precise and non-arbitrary boundaries between natural kinds, then the fact that species evolve gradually over time poses a problem since there is no precise and non-arbitrary line by which to distinguish the original from the new species (p. 150). The problem with this argument, according to Sober, is that it is based on a view of the speciation process that is no longer seen as standard (p. 150). The view that speciation can occur *anagenetically* has been rejected by systematists, who now hold the view that speciation requires *cladogenesis* (p. 150). The difference between anagenesis and cladogenesis is with the existence or not of branching processes. In *anagenesis*, speciation occurs when a species has its

characteristics changed over time. Eventually, these changes would add up and something that ought to be considered a new species comes into existence (Sober 2000, p. 12). In *cladogenesis*, speciation occurs when selection causes certain members of a species to undergo a change in traits creating a divergence in the species and creating two or more daughter species (p. 13). If cladogenesis is necessary for speciation to occur, Sober argues, then a line can be drawn between the original and the new species. Although the line will not be precise, he states, it can be argued that the line is precise *enough* (Sober 2000, p. 151).

Before I spell out what Sober (2000) believes to be the best argument against natural kind essentialism in biology, there is a point that ought to be addressed. Bird and Tobin (2017) note that there is a considerable amount of variation in both morphology and genetic makeup within a species, meaning there is no genetic material or sequence of genes that all and only members of a particular species possess (Bird and Tobin 2017, sect. 2.1.1). Thus, even if the essentialist endorses Sober's counter-arguments, they would still have to show precisely what the essences of a species are if they aren't to be found in genetic and/or morphological similarity.

Sober argues that the reason essentialism is a mistaken view of biological species is that biologists treat species as *historical entities*, not natural kinds (Sober 2000, p. 151). That is, with the exception of pheneticists, phenotypic and genetic similarities are not seen to define species (p. 151). As a result, biologists would not consider two organisms that are identical both phenotypically and genetically to be members of the same species insofar as they are not descended from the same species. Here, Sober gives two examples: one in which a tiger, normally carnivorous and striped, is born with a mutation that causes it to lack these traits, and the other concerning a Martian tiger that shares all the traits with a tiger here on earth. According to Sober, a biologist would consider the first mutated tiger to be a tiger given that it is descended from tigers (that the mutated tiger lacks the traits of a tiger is irrelevant). The Martian tiger, although sharing all the characteristics with Earth tigers, would not be a tiger because it was not descended from tigers (p. 151).

EK is not the only position that is problematic. Recall that IE is the position that claims that the kind of which an individual belongs is essential to that individual. For instance, if we assume that species are natural kinds (which, as shown above, we have good reason to deny), and my pet, Marvin, belongs to the species *Aterix albiventris* (the four-toed hedgehog), then for IE to be the case, it must be an essential property of Marvin to belong to the kind/species *A. albiventris*.

LaPorte (1997) offers what I take to be a good argument against this position. According to LaPorte, even if natural kind essences exist, it does not follow that organisms essentially belong to their respective kinds. An organism would only belong to its kind *essentially* if “[. . .] every member of any natural kind possessed its kind’s defining structure in every possible world in which that *member* exists” (LaPorte 1997, p. 97, original emphasis). My pet, Marvin, then, would only *essentially* belong to the species *A. albiventris* if he belongs to that species in *every* possible world in which he exists.

LaPorte argues that organisms do not essentially belong to the species of which they belong by showing that the three most prominent and promising approaches to determining the boundaries of species sacrifice essential membership (or non-membership) of organisms to their species (LaPorte 1997, p. 101). The approaches to determining the boundaries of species are the *interbreeding approach*, which views species as groups of organisms that are reproductively isolated from other groups (LaPorte 1997, p. 101); the *ecological approach*, which characterises species based on a unique ecological niche (p. 101); and the *cladistics approach*, which views species as “a lineage of organisms between two speciation events” (LaPorte 1997, p. 102)

Essential membership (or non-membership) of organisms to their species is sacrificed if either the interbreeding approach or ecological approach are correct, LaPorte argues, given that these two approaches distinguish species on contingently possessed features of organisms (LaPorte 1997, p. 101). Given this, organisms divided into species using these approaches could have fallen into a different species (p. 102). To motivate this, LaPorte has us imagine a large population of organisms that has a small population splinter off and inhabit a new ecological niche. This new ecological niche forces the splintered population to adopt new ways of living, and the two species would eventually

become reproductively isolated from one another. According to both the ecological approach and the interbreeding approach, then, the two populations are distinct species (LaPorte 1997, p. 101). That is, according to the ecological approach, the splinter species cannot be a part of the larger species since they inhabit a different ecological niche. Likewise, the splinter species cannot be a part of the larger species given that its members are reproductively isolated from it. However, LaPorte points out that this is entirely a contingent matter: if the smaller population didn't splinter off from the larger, or if the two populations failed to become reproductively isolated, then the two species would have remained a single species (pp. 101-102).

The cladistics approach also sacrifices essential membership (or non-membership) of organisms to their species because whether or not members belong to one species rather than others is dependent on contingent events external to those members (p. 104). This is due to the cladist's view that a species becomes extinct once a new side species branches from it. This extinction occurs regardless of whether or not the lineage changes such that the earlier members and later members are distinct (i.e., if the earlier members and later members are indistinguishable from one another, they would still be two separate species as long as a side species branched from the earlier). As such, a member of a particular species could have been a member of an ancestral species if a branching from the ancestral species had never occurred (LaPorte 1997, p. 103).

Another argument against individual essences has been made by Dupré (2014). He argues that approaching a view of individual essences where "individual essence" refers to "[. . .] the property or properties of the individual that must be maintained if the individual is to survive" (p. 8) is also difficult to maintain. It is difficult to maintain, he argues, because human organisms have different properties over their lifespans, during which the matter composing the organism is continuously being recycled and replaced (p. 8). He then enquires why we ought to give priority to biological properties over psychological or any other properties when determining the identity of the individual. To assume that biological properties have priority when determining the identity of individuals, he states, "[. . .] sounds suspiciously like a dogmatic reductionism; its motivation, at any rate, is problematic" (p. 8).

In response to Dupré, the animalist may point to the arguments afforded by Olson (1997a) and others (as shown in chapter 1 of this thesis) for why we ought to give biological properties (whatever they are determined to be) priority over psychological or any other properties (for instance, psychological properties seem to be neither necessary nor sufficient for the persistence of human animals (Olson 1997a, p. 73), which may be a reason to prioritize biological properties over psychological properties). Even if this move is made, though, the animalist would still have the problems mentioned earlier (e.g., the need to explain where our essences come from if they are not genetic nor morphological, or the need to make sense of the seeming contingency of our status as *H. sapiens*, etc.) I'm not suggesting that such problems cannot be overcome, but they are problems that need to be acknowledged. Either way, it seems like there are good reasons to believe that taxa (including kingdoms and species) are not natural kinds, and even if they are, there are good reasons to reject the view that members belong to them essentially. In the next sub-section, I will show why getting our metaphysical nature in virtue of being *organisms* is also problematic.

Thus far, I have shown that there are reasons to deny species and other taxa as natural kinds, that the higher taxa in biology (such as the taxon *kingdom*) has been historically seen as a conventional division, and that even if species *are* natural kinds, there are still reasons to deny that we belong essentially to the species *H. sapiens*. Because of this, if we get our metaphysical nature from either being an “animal” or a “human animal”, then it seems unlikely that our metaphysical nature is a fundamental one. Still, the animalist may argue that our metaphysical nature comes from our being *organisms*, not animals or human animals. As I will show in this sub-section, however, holding this view will also cause problems for the traditional animalist.

Common sense may tell us that humans are organisms, but Dietert (2016), Gill et al. (2006), and Salvucci (2012) have suggested that it is more accurate to describe humans as superorganisms. A “superorganism” is an organism that is composed of many organisms (“Organism” New World Encyclopedia *Organism*, web.). The suggestion that we are superorganisms stems from research concerning the symbiotic relationship between humans and their intestinal microbiota. 300-500 different species of bacteria have evolved and

adapted to live in the intestines of humans (Guarner and Malagelada 2003, p. 512), and these microflorae have an important metabolic function (amongst others) that include recovering metabolic energy for the host (p. 513). Furthermore, the distal gut microbiome of humans contains an estimated ≥ 100 times the number of genes as the human genome, which affords humans functions that we have not had to acquire via evolution (Bäckhed et al. 2005, p. 1915). This has led Gill et al. (2006) to suggest “[. . .] a superorganismal view of our genetic landscape should include genes embedded in our human genome and the genes in our affiliated microbiome, whereas a comprehensive view of our metabolome would encompass the metabolic networks based in our microbial communities” (p. 1355).

I see no reason why animalism is incompatible with understanding the kind of thing that we are as *superorganisms* rather than *organisms*. In fact, given the importance of certain parts—parts that help the animal live (such as the liver)—Olson (2015) prioritises over parts that do not (such as the cerebrum), we might say that our microflorae are more important to us than our cerebrum!³⁵ This importance stems from the important function that our microflora play in our metabolic process. All the same, if us-as-superorganisms is the most appropriate way of understanding ourselves, then the animalist would have to find a way to incorporate this information into their description of what it means to be the kind of thing that we are. If this turns out to be the case—if we are, in fact, superorganisms—then our metaphysical nature would be that of a superorganism, not merely an organism. This could affect (apart from other things) our persistence conditions since we would be “tied up” with other organisms. Thus, if that connection were lost, so would our persistence. If we are *organisms*, on the other hand, then this connection is not required.

Alternatively, if it turns out that we are not superorganisms but, indeed, *organisms*, then the traditional animalist would still have to face the challenge posed by the view that there are degrees of organismality. The view here is that determining when an entity qualifies as being an organism is vague (see Clarke and Okasha (2013)). Okasha (2006), for instance, argues that if we accept that

³⁵ I’m referring, here, to Olson’s suggestion that a person is more likely to go with their transplanted liver than their transplanted cerebrum due to the former being needed for the animal to survive (2015, p. 103).

the existence of the hierarchical organisation in biology *itself* must have been produced by evolution, then the existence of grey areas within the hierarchy are guaranteed (p. 130):

For example, multicelled organisms evolved from single-celled ancestors, through a series of intermediate stages. Whatever we take to be the defining feature of true multicellularity, it is practically certain that those features evolved gradually. So even if we knew all the intermediate stages, we could not identify a sharp cut-off point signalling the advent of the first multicelled creatures. Clearly, the same goes for entities at other hierarchical levels too (Okasha 2006, p. 130).

What does this vagueness mean for the animalist? If we take ourselves to have our metaphysical nature by being organisms, and organisms come in degrees, then it must be the case that our metaphysical nature comes in degrees. This can be seen as problematic if the animalist wants our metaphysical nature to be something whose boundaries are clear.

In this chapter, I have shown that animalism has traditionally been unclear in its use of certain concepts (in particular “animal”, “organism”, and “human animal”). In particular, I have shown that it’s unclear from what, precisely, the animalist claims we get our metaphysical nature in virtue of being. It matters, I have shown, because although all three concepts may apply to us, our essential characteristics change depending on which concept or concepts we get our metaphysical nature. Despite this, I have shown that a biological understanding of these concepts puts pressure on the animalist’s claim that we are essentially or fundamentally any of them.

Does this rejection mean disaster for animalism? I do not think so. In fact, I think that the credibility of, and prospects for, animalism may increase with this view. I think this because animalism would be consistent with our best science and adaptable to different positions currently being discussed regarding the nature of organisms. By acknowledging the rejection of essentialism in biology, new forms of animalism can be put on the table and

critically discussed. Positions of new animalism where “weak animalism” is accepted but “animal” as a fundamental kind is rejected, for instance, are given a chance to show what they can and cannot say about our nature. This may make animalism more complex (for instance, whether or not our nature includes clear boundaries is put into question), but that ought to be regarded as a good thing as it opens the doors to new and potentially novel views about our metaphysical nature (for instance, “where *ought* we conceptualise our boundaries to be?” would be an important question for the animalist).

I am not the only person to suggest that the implications of animalism are greater and messier than traditionally observed. Dupré (2014), for instance, states:

[. . .] in supposing that humans are a kind of animal, the implications of this observation are far less clear than is often supposed. Not only is it problematic to say just what an animal, qua individual organism, is, but there are respects in which humans are quite exceptional animals. With regard to personal identity I take the animalist perspective to problematize rather than solve the traditional question (Dupré 2014, p. 21).

The animalist position may problematize the traditional question, as Dupré argues, but that does not mean that it is a failed position. Dupré (2014) is one of the few animalists that has attempted to see what animalism can say about our persistence, given an understanding of contemporary biology and philosophy of biology. He calls his view *processual animalism*. According to Dupré, biological entities, instead of being enduring substances, are better understood as processes (Dupré 2013; 2014, p. 15). This processual view of biology, coupled with his hesitation about prioritising biological properties when determining the identity of an individual, ultimately leads him to be sceptical concerning personal identity (Dupré 2014).

The details of Dupré’s positions regarding processual animalism and process ontology will be discussed and criticised in later chapters, but to give a brief overview: he suggests that the animalist position and the Lockean position (i.e., the position that looks for some form of psychological continuity

(Dupré 2014, p. 18)) can be reconciled if we view the Lockean position as providing motivation for, and the animalist position as providing a means of applying, the concept of personal identity (Dupré 2014, p. 19). The price of such a reconciliation, Dupré suggests, “is the acknowledgement that there is no unequivocal material reality that objectively determines the existence of individual persons” (2014, p. 19).

Once again, I am not suggesting that Dupré’s position is the correct one, only that it is a possible way of reconciling animalism and contemporary philosophy of biology, and biology itself, when undertaking the secondary task of animalism. What I see as other and better alternatives to the problems will be discussed in later chapters. As it stands, however, animalism will have a better foundation (as well as afford more biologically plausible results) if we accept that the secondary task of animalism is a task for philosophy of biology. If such a position is rejected or ignored, animalists face the possibility of being unclear, rejecting positions (such as new animalism) too quickly, or embracing positions that are either difficult to defend given our current knowledge of biology (or are altogether incompatible with it).

4.3. Conclusion

In this chapter, I have mapped out two attempts at organising varieties of animalism and how they assume our necessarily being an animal in some way depends on our essentially being animals or “animal” being a fundamental kind. I’ve briefly stated that *structural animalism*, the view of animalism I’m defending, is able to claim this necessity whilst rejecting our essentially being animals or “animal” being a fundamental kind.

In the following chapter (chapter 5), I will explore attempts at responding to the problem of biological individuality. As I will show, a biological understanding of individuality poses problems for both the metaphysician and philosopher of biology.

Table 2: Comparing animalist positions

| | Weak Animalism | Strong Animalism | New Animalism (Olson's version) | Structural Animalism | Neo-Lockean views |
|---|-----------------------|-------------------------|--|---------------------------------|------------------------------|
| <i>Animal is a fundamental kind</i> | No answer | Yes | No | No | N/A |
| <i>We are animals</i> | Yes | Yes | Yes | Yes | Unclear |
| <i>We are essentially animals</i> | No answer | Yes | No | No | No |
| <i>We are essentially psychological beings</i> | No answer | No | Not clear | No | Yes |
| <i>We are necessarily animals</i> | No answer | Yes | Not clear | Yes | No |
| <i>We are necessarily psychological beings</i> | No answer | No | Not clear | No | Yes |
| <i>Our continuity is the same as an animals</i> | No answer | Yes | No | N/A | No |
| <i>Our continuity is that of our "psychology"</i> | No answer | No | Yes | N/A | Yes |

Chapter 5. A meta-problem of biological individuality

In chapter 1, I outlined what I have called *traditional animalism*—a form of animalism, one rooted in speculative metaphysics, that has been promoted by several people up until this point. In chapter 3, I suggested that animalism would be better suited on a *naturalised* metaphysical foundation. The resulting *naturalised animalism*, I argued, would replace its traditional predecessor as a solution to the problem of our identity that would be able to account for our best current understanding of biology and the philosophy thereof. But, what does our best current understanding of biology and philosophy biology tell us about organisms?

In 2008, Pepper and Herron pointed out that no operational definition had been given to the organism concept (p. 622). This is particularly interesting given how often the concept has been discussed (Pepper and Herron 2008, p. 622), especially as a key concept in the life sciences and theories of the ‘life’ concept (Wolfe 2014, p. 151).

It may come as a surprise that the term ‘organism’ has shifted in meaning since its earliest English usage in the 4th edition of John Evelyn’s *Sylva* in 1706 (originally being published in 1664 with no use of the word) (Cheung 2006, p. 622). Despite no clear meaning, the ontological status (Wolfe 2014), meaning (Pepper and Herron 2008; West and Kiers 2009; Pradeu 2010), and importance (Wilson 2000; Pepper and Herron 2008; Clarke 2010) of the organism concept has been debated.

The word ‘organism’ has gone through several conceptual shifts throughout its history (Cheung 2006), often being used in and for a variety of different ways that go beyond the biological to the normative and social (Wolfe 2014). According to Cheung (2006), the origin of the word ‘organism’ seems to appear around the end of the tenth or eleventh century, where it is used in an

undated and untitled text (p. 320) to represent an apparatus that distils liquids (p. 321). It is used again (this time in the plural, and only once) in a text written between 1126 and 1132 by Gerhoh of Reichersberg where it's used for a “(disharmonic) polyphony of human voices, to criticise metaphorically the reformation of the church, notably the world status of clerics” (p. 231). Thus, Cheung (2006) describes the noun *organismus* as, seemingly, a nonce word (p. 321) that is related to the Latin verb *organizare*, meaning ‘to play an instrument or ‘to singe in more than one voice’. He points out that the verb has no equivalent in classical Greek, and the word ‘organism’ is not known to occur again until the seventeenth century (p. 322).

This historical interlude isn't merely to show that the organism concept is of historical interest (rather than just being one of philosophical or scientific interest) but to highlight a potential similarity to the argument made by Ferner (2016) that I referred to in chapter 1. Recall that Ferner argues that the metaphysical conclusions Wiggins draws from his analysis of the term ‘person’ are problematic in that his conceptual analysis is drawn from an unjustified cultural bias regarding our everyday thoughts about ‘persons.’ It's important to note that a distinct but similar issue arises when the topic is shifted from ‘persons’ to ‘organisms’ in that the concept ‘organism’ has shifted over time (rather than changed depending on culture, as is the case with ‘persons.’) As I will show, the concept ‘organism’ is contentious in contemporary debates. Given that the concept has changed over time, it's unlikely that any conceptual analysis from history will help philosophers determine the metaphysics of organismality. Considering this, philosophers ought to be wary of pre-theoretical assumptions regarding organisms in (because these assumptions have changed throughout history) the same way that Ferner suggests they should avoid any pre-theoretical assumptions regarding persons (because these assumptions differ from culture to culture).

There are three aims of this chapter: the first (in section 1) is to explicate some accounts of biological individuality that have been formulated by biologists and philosophers of biology. As I will show, there is a real problem with providing an account of biological individuality because it's not clear what a biological individual is. The second aim of this chapter (in section 2) is to look at a metaphysical problem that is shared by all of these accounts.

We can call this overarching problem the *existential problem* of biological individuality, which has been highlighted by Eric Olson (2021). According to the *existential problem*, the usual *definitional accounts* of biological individuality provided by biologists and philosophers of biology presuppose the principle of material plenitude—a principle which states that every region of space-time that contains matter is also occupied by a material thing (Olson 2021, p. 76). This presupposition, it is claimed, is one that an adequate account of organismality ought to avoid making in virtue of it being a presupposition (that is, the principle of material plenitude may or may not be true, but it's not something that an adequate theory of biological individuality ought to assume). The last aim of this chapter (in section 3) is to argue that any existential solution to the problem of biological individuality will not be adequate because such a solution would still presuppose a definition of biological individuality (and thus lead right back to the same problem such a solution was meant to solve).

5.1. The *definitional* problem

Since Pepper and Herron's claim that no operational definition of organismality has been afforded, many candidate definitions have been suggested. Clarke (2010) shows us that there are at least thirteen different candidate definitions that have been afforded, including reproduction, life cycle, genetics, sex, developmental bottlenecks, policing mechanisms, spatial boundaries or contiguity, immune response, functional integration, metabolic autonomy, cooperation and/or conflict, adaptations, etc. (pp. 315-316). Furthermore, these definitions are not always compatible with one another (p. 320).

As I mentioned above, at a meta-level, all of the candidate definitions have something in common—even if they aren't compatible in terms of definitional applicability. Before this similarity is discussed, it's important to first examine some of the criteria in more detail. As I will show in section 3, understanding the various criteria is helpful in choosing how to move forward for what I call the *meta-problem of biological individuality*.

1. *The Genetics View*

Those that adopt a genetics-based definition of determining biological individuality view genotype as being the deciding factor. According to this view, genotypes determine individuality in one of three ways: one way this can occur is if an individual can have a unique genotype that marks it as different from other individuals of its species. A second way occurs when the genotype is homogeneous. The reasoning behind the genetic homogeneity criterion is that it explains why selection works at the level of individuals. Because selection works at this level, and because heritable material isn't contained in every cell, the belief is that individuals must be whatever units are genetically homogenous (Santelices 1999, p. 152).

To illustrate this, consider a field of dandelions. One's immediate intuition would probably suggest that a field of dandelions is not a single organism. Similarly, according to the spatial boundaries/contiguity definition, according to which a biological individual must be physically cohesive and physically localised, the field of dandelions are not a single organism. However, what about a definition motivated by genetic identity whereby an individual is determined by its genome? Here things become trickier. Janzen (1977) has suggested that such a field ought to be considered a single *evolutionary individual*, an individual bearing reproductive fitness and is a candidate for being a unit of selection. *Evolutionary individuals* differ from *non-evolutionary individuals* which, insofar as an individual dandelion is concerned, is "that small green thing that grows on a small bare spot in your lawn" (p. 586).

Janzen's argument is based on the assumptions that 1) a general *non-evolutionary* dandelion will produce, via apomixes, a plant that is genetically identical to it, and 2) occasionally a *non-evolutionary* dandelion reproduces a seed via fertilization from a dandelion belonging to a different *evolutionary individual*. With these assumptions in mind, Janzen argues that the *evolutionary individual* dandelion is an organism that lives a very long time and "is composed of parts that are moving around ("seed" produced by apomixes), growing (juvenile plants), dividing into new parts (flowering plants), and dying (all ages and morphs)" (Janzen 1977, p. 586). Janzen's account of the *evolutionary individual*

gives us reason to think that an organism can, contrary to our immediate intuition, be dispersed through time and space.

The existence of clonal organisms provides reason to question whether the genetic uniqueness and genetic homogeneity criteria of individuality are invariant, however. In clonal organisms, autoreplication results in units that are genetically identical and that can grow and propagate in differing environments. This means that the same genome can exist in more than one environment at the same time (in cases where the clonal units are separated). In such cases, the genotype would have a different probability of survival and propagation in each environment (Santelices 1999, p. 152). In brief, clonal organisms present cases in which, contrary to the genetic uniqueness criterion, there exist more than one biological individual with the same genome.

Similarly, genes that have changed during the ontogeny of clonal organisms are known to be heritable. The genes of unitary organisms can also undergo changes during ontogeny, however, this happens less often, and the changes are not heritable. This suggests that genetic homogeneity is also variable in biological individuals (especially clonal organisms) (Santelices 1999, p. 152)

A third way in which genetics can determine biological accounts of individuality is to combine the above two accounts (that is, genetic uniqueness and genetic homogeneity). Santelices (1999) offers such a view by combining the two genetic views with the autonomy and physiological unity view of biological individuality. He notes, “[g]iven that all the attributes of individuality can be present or absent, they can no longer be thought of as absolute, invariable character” (p. 153). Santelices thus combines the different attributes together as separate axis on a 2x2x2 matrix, creating eight possible combinations of potential biological individuals based on whether the attributes are present or not (p. 153, see esp. box 1).

2. The Evolutionary View

A definition of biological individuality that is taken more seriously by biologists and philosophers is in terms of the role that the individual plays in

the process of evolution by natural selection. According to those who hold the evolutionary view of biological individuality, an *evolutionary individual* (EI) is such in virtue of being a biological object that the process of natural selection treats as an individual.

Although I've been using the terms 'biological individual' and 'organisms' interchangeably throughout this thesis, the terms come apart in this case as an individual organism is understood as only one kind of EI. This distinction has been taken seriously since the Major Transitions literature, which made us aware that some organisms are composed of other individuals (i.e., cells)—making such organisms higher-level individuals. Given this insight, it is clear that group selection is possible (e.g., *groups* of cells that form higher-level organisms, such as humans, can be selected in virtue of the higher-level organisms being selected). Determining what the properties of an EI include is, then, determining which properties are required by groups such that they can be selected for in the same way as a higher-level organism (such as humans) (Clarke 2016, p. 894).

3. *Metabolic View*

Peter Godfrey-Smith has claimed that “[o]rganisms are essentially persisters, systems that use energy to resist the forces of decay...” (2013, p. 25). This claim, in its broadest form, is central to the *metabolic* view of organisms. The idea is that an individual organism is something composed of various parts that are able to organise and work together in such a way that they can continue to go on as a unified whole. Focusing on the persistence of organisms is to focus on their ontogeny (rather than phylogeny)—to focus on their spatiotemporal careers (Smith 2017, p. 2).

Recently, Subrena Smith has developed a metabolic account of organisms that puts into focus the kind of background conditions that are necessary for organisms to persist. According to Smith, organisms are *constitutively embedded* in their worlds. She writes:

[O]ne cannot *in fact* disengage organisms from their environments. Organisms are *constitutively embedded* in their worlds. They are *organisms-in-the-world* rather than just organisms in the world. This principle means having a commitment to the inseparability of organisms and environments, both internal and external, as well as to a commitment to theorizing about them as beings that are inseparable from their worlds” (Smith 2017, pp. 7-8)

Organisms, according to Smith, can be conceptually differentiated from their environments, but they cannot actually be understood outside of their environments. As such, any theory of organisms *must* include a story about the necessary role of the environment.

The importance of the inseparability of organisms and their environment follows from an understanding of the metabolic picture. Smith clarifies exactly what kind of organisation is needed for there to be organisms, that is, that there is development in the phenotype such that there are distinctive parts that each serve a particular function. Once these individual parts become integrated and organised in the right way, they allow the whole to persist *as a whole* (2017, p. 6).

There is an important factor that comes into play once it has been accepted that an organism is to be understood in this way (i.e., as a biological system in which the phenotype has been differentiated into functionally discreet parts that have integrated to sustain the biological system as a whole). Considering that it is through developmental processes that systems can develop functionally discreet parts and that the same is true of the integration of those parts, the context in which these developments take place is a necessary factor for organisms to develop. She argues:

Because persistence requires development, if organisms are “essentially” persisters, then to understand what organismality comes to, one needs to approach it from the standpoint of development, conceived of as

involving the wide array of factors that make and sustain organisms (Smith 2017, p. 6).

Smith refers to these factors as “contexts for development,” and emphasizes that “context” here refers to the *external* to the surface membrane of the organism, that is, “an external world is a necessary condition for the development of *any* kind of living system” (Smith 2017, p. 16). This is the key move for Smith’s argument because it’s the necessary role of the environment in the development of the organism that makes organisms constitutively embedded in the world. Without the environment, there is no development and therefore no persistence. Without persistence, there are no organisms.

4. *The Immunological View*

Lastly, one could opt to define a biological individual in terms of immunology. Immunology can determine biological individuality by finding a criterion of immunogenicity—that is, immunology is in the business of determining what abnormally strong patterns expressed by entities in the organism lead to the immune system rejecting them. Immune reactions occur between immune receptors and antigenic patterns. These reactions can lead to an immune response/immune activation, and when this occurs, it can result in either “lytic activity” (i.e., activity by which the target is destroyed) or “down regulatory activity” (i.e., activity by which the destruction of the target is prevented.) Entities that are present in the organism express molecular patterns that are under permanent surveillance by the immune system. When these molecular patterns are abnormally strong, the immune system rejects them (Pradeu 2010, p. 253).

Given that the acceptance or rejection of entities within the organism is determined by the immune system, Thomas Pradeu has claimed that: “[. . .] the immune system is certainly not the same thing as the organism, but it is a sub-system of the organism, the activity of which leads to the discrimination between what is a part of the organisms and what is not” (2010, p. 253).

Two criteria of immunogenicity that have been suggested are the *self-nonsel criterion* and the *continuity criterion*. According to proponents of the *self-nonsel criterion*, the role of the immune system in any particular individual is to know its own identity and discern what components belong to itself and those that do not. With the ability to discern which things belong to “self” and which things belong to “nonself,” the immune system is able to defend the former from the latter by eliminating any foreign bodies (Pradeu 2012, pp. 5-6).

Although the self-nonsel criterion of immunogenicity was the proposed view by immunologists for sixty years, it has recently been criticised (Pradeu 2010, pp. 255-256; see also, Pradeu 2012) on the grounds that it cannot adequately account for *autoreactivity* and *immune tolerance*. *Autoreactivity* occurs when immune interactions and/or immune-activating mechanisms occur with self constituents. This occurs, for example, because lymphocytes need to be continuously stimulated by endogenous antigenic patterns. *Immune tolerance* occurs when there is a presence of foreign entities (i.e., entities belonging to “nonself”) and there is no immune response (even in cases where there is immune interaction with the foreign entities.) Immune tolerance has been shown to be very common, with examples of it including hosted bacteria by multicellular organisms as well as foetuses that are not rejected by their mothers (Pradeu 2010, p. 256).

In place of the self-nonsel criterion, Thomas Pradeu has proposed the *continuity criterion* of immunogenicity. According to the *continuity criterion*, it’s not the origin of the molecular pattern that is important in determining whether or not there is an immune response (contrary to the self-nonsel criterion), but that the molecular pattern is unusual in some strong way, such strongly unusual molecular patterns are “discontinuous” (Pradeu 2010, p. 256)

The continuity criterion accounts for autoreactivity in that the immune receptors interact at a medium-strength level when dealing with the body’s normal constituents. It’s only in “discontinuous” cases (i.e., when the molecular pattern is unusual in some strong way) that the receptors interact strongly (Pradeu 2010, p. 257).

The continuity criterion also accounts for immune tolerance by *induction of continuity* (Pradeu 2010, p. 257). The second immune response is usually more

rapid and efficient than the first when responding to unusual antigens. At the same time, however, *induction of tolerance by induction of continuity* occurs when the second response of the immune system is weaker when reacting to a usual antigen. In these cases, small amounts of antigen are gradually introduced with no proinflammatory signals (these are called “non-immunogenic conditions.”) A tolerance to an antigen is formed when the antigen is repeatedly presented to these non-immunogenic conditions (Pradeu 2010, pp. 256-257).

Pradeu takes immunology, in conjunction with what he calls *physiological* accounts of individuation, to afford us a working definition of organismality. Proponents of *physiological* accounts of individuation (broadly) argue that an organism “is a coherent, functionally integrated whole, undergoing continuous change and made of causally interconnected elements” (Pradeu 2010, p. 252). Considering this, the *metabolic definition* of organismality discussed earlier is an example of a physiological account of individuation. Physiological accounts of individuation are not satisfactory on their own, Pradeu argues, because “functional integration” is too vague and too close to phenomenal views of individuation to offer an adequate account of individuation (Pradeu 2010, p. 252). Furthermore, functional integration is too local to give us an account of individuality, meaning that two distinct subsystems within a single organism can be quasi-independent (Pradeu 2010, p. 258)—something that Pradeu believes an adequate account of organismality should avoid.

This is where Pradeu takes immunology to make a critical contribution to physiological accounts. Whereas functional integration is local, immune interactions concern the whole organism because they are systemic—that is, the immune system influences all of the tissues and cells of the organism. In addition to this, Pradeu takes the role of immune interactions in accepting or rejecting constituents in the organism to mean that such interactions afford us a criterion of inclusion (Pradeu 2010, p. 258). All of this considered, Pradeu defines an organism as:

[. . .] a functionally integrated whole, made up of heterogeneous constituents that are locally interconnected by strong biochemical

interactions and controlled by systemic immune interactions that repeat constantly at the same medium intensity (Pradeu 2010, p. 258).

Now that some potential options have been explained in some detail, one may enquire as to why it's so difficult to determine what is and is not a biological individual. Similarly, it's not clear whether or not a single criterion is sufficient or if multiple definitions are needed depending on the scientific context.

Clarke and Okasha (2013) have suggested two potential characterisations of the problem of biological individuality: vagueness and criteria. According to the vagueness characterisation of the problem, it is difficult to determine what is and is not an organism because there are certain borderline cases that resist being neatly put into either category. This suggests that the predicate 'organism' is vague, and as such, it is difficult to reach an agreement on what counts as, and how to define, a biological individual (pp. 60-61).

Another characterisation is that the criteria themselves are to blame. This position takes the issue to be with how biologists use the term 'biological individual' in a multitude of different ways (illustrated above) and how these terms do not always overlap in any universal way (also illustrated above). As such, it's difficult to determine what criteria are essential to biological individuals and which are not (Clarke and Okasha 2013, p. 62). Importantly, Clarke and Okasha see the *vagueness problem* and *multiple criteria problem* as being logically distinct aspects of the problem of biological individuality (p. 66). They write:

The [vagueness problem] regards borderline cases, which resist easy classification, as giving rise to the problems; this is quite different from the idea that multiple nonequivalent criteria are the root cause. For the "multiple criteria" problem would still exist even if each of the criteria for being a species or an organism was not vague, and thus did not admit borderline cases. Conversely, even if all biologists could agree on a single

defining criterion, for species or organisms, we could still end up with borderline cases if that consensus criterion were vague, so there could still be a problem (Clarke and Okasha 2013, p. 66).

The “multiple criteria” problem is the problem most relevant to this chapter (the problem of vagueness in biological individuality will be discussed in the following chapter), and there are two (broad) ways of responding to this problem: one can be a *monist* regarding biological individuality, or one can be a *pluralist*.³⁶

According to *monists*, there is either a single criterion of biological individuality or two or more criteria are unified by a single mechanism (Pradeu 2016, p. 763). Those that hold an *evolutionary* account of individuality, for instance, are monists in that they take evolution to be the mechanism by which all criteria of biological individuality are realised.

Pluralists about biological individuality argue that different questions and contexts give rise to different criteria of individuality (Pradeu 2016, p. 763). An extreme form of pluralism can be found in John Dupré’s *promiscuous realism*, according to which there are countless ways in which nature can be “carved at the joints.” Of course, this form of pluralism is meant to be ontological (Dupré 1993, p. 18); however, it would apply to the case of biological individuality in that there would be many legitimate ways in which one could conceptualise “biological individual.”³⁷

Wilson (1999) has offered a less radical pluralism by limiting the kinds of biological individuality to six (1999, p. 60):

1. Particulars: If a biological entity is neither a universal nor a class then it is a *particular* individual.

³⁶ Pradeu (2016) notes that the *monist/pluralist* debate also focuses on whether a single discipline or multiple disciplines should establish the concept “biological individual.” This focus of the debate will be discussed further in the following two chapters. How the forensic sciences can shine light on the metaphysics of biological individuality will be explored in detail in chapter 6.

³⁷ *Promiscuous realism* will be discussed in more detail in the following chapter.

2. Historical: If a biological entity is composed of parts that are spatiotemporally continuous then the entity is a *historical* individual.
3. Functional: *Functional* individuals are those biological entities that are functional units composed of parts that are causally integrated.
4. Genetic: Biological entities are *genetic* individuals insofar as their parts share a common genotype.
5. Developmental: If a biological entity is the product of some developmental processes then it is a *developmental* individual.
6. Unit of evolution: A unit of evolution is a biological entity that plays some important function in the process of evolution.

Once qualified in this way, Wilson argues that we can see them as distinct from one another, and thus any combination of biological individuals can extend to any single biological entity.³⁸ Importantly, once the problem of individuality is qualified in this way, the question “is some entity x and individual?” becomes ambiguous to answer (Wilson 1999, p. 59). It is only once the kind of individual being referred to becomes clarified that the question can be answered (e.g., “is entity x a developmental individual?”)

The kinds of biological individuality that Wilson defends here aren’t as important as the metaphysics that he uses to motivate them. As I will show in section 3, there is a problem (acknowledged by Wilson) in adopting a pluralism in which the same matter composes multiple substantial kinds *insofar as the overlapping matter which composes these natural kinds entails identity*. Before this issue can be addressed, I first need to explicate Olson’s problem with the *definitional* accounts that have been shown above.

5.2. The *existential* problem

This problem arises when accounts of organismality are afforded by philosophers of biology and biologists that are either metaphysically unsophisticated or else based on a problematic or controversial metaphysical

³⁸ Wilson believes the “higher animal” is special in that all six kinds of biological individuality coextend to them (1999, p. 59).

thesis. Recently, for example, Olson (2021, especially pp. 74-76) has shown that the very way in which the question ‘what is an organism’ has been answered results in the acceptance of a metaphysics that tacitly endorses two metaphysical theses: unrestricted composition and temporal parts.

To begin with, Olson states that the problem of biological individuality has to do with how life divides into distinct units; that is, the problem can be understood as the challenge faced when determining the boundaries of an organism or the boundaries that separate one organism from another. He notes that these boundaries do not have to be precise, but they must exist. In answering the problem of biological individuality, we can answer questions about the spatial boundaries of organisms (e.g., their size, location, etc.) as well as their temporal boundaries (e.g., when they begin and end) (Olson 2021, p. 64).

Furthermore, the problem of biological individuality can include the problem of what parts an organism has, what it takes for something (potentially another organism) to be a part of a larger organism. He notes that this latter problem is not one that is concerned with boundaries as we could know which parts compose an organism but still not know anything further of the boundary of the organism (other than that the parts are included in said boundary). Vice-versa, knowing the boundaries of organisms doesn’t tell us what organisms there are within those boundaries since we don’t know if a larger organism is composed of smaller organisms who partake in the same boundary (Olson 2021, pp. 64-65).

Given all of this, Olson suggests that what it takes to answer the problem of biological individuality will tell us what determines how many biological individuals there are and what distinguishes them from one another. However, he states that what philosophers of biology take to answer the problem of biological identity is a completion of the formula (call it the *definitional formula*) “*x* is an organism *iff*...*x*...” (Olson 2021, p. 67). This, he states:

[...] is puzzling. How could an account of what it is to be an organism tell us what determines an organism’s location or boundaries, or how

many there are or what distinguishes one from another? An account of what it is to be an F does not generally tell us what determines the spatiotemporal locations of Fs (Olson 2021, p. 68).

He continues:

No proposition about how many organisms there are follows logically from a proposition about what it is to be an organism together with propositions about non-organisms (the ‘underlying facts’). That to be an organism is to be F can tell us nothing about what organisms there are unless we know something about what Fs there are: what material things with biological properties are candidates, so to speak, for being organisms. A definition of ‘organism’ cannot solve the problem of biological individuality without a principle about the existence of the candidates to which it is to be applied. And the definition itself cannot provide such a principle (Olson 2021, p. 69).

What Olson is arguing here is that the standard *definitional* account of biological individuality fail insofar as they do not offer an account of the very *thing* the definition is meant to apply to. The philosopher of biology is stating, “this thing is *x*”, and, in response, the metaphysician says, “what *thing*?” Olson does suggest how *definitional* accounts of biological individuality can make sense of the *thing* of which they are defining, but this can only be done by presupposing two contentious metaphysical theses: temporal parts and unrestricted composition.

A temporal part is a part of something that “[...] takes up ‘all of that thing’ whenever the part exists” (Olson 2021, p. 74). Thus, one of the engines (call it “engine ζ ”) of the RMS Titanic was not a temporal part of the ship (even though it was a part of the ship) because engine ζ didn’t take up the entirety of the ship at any given point of its existence. One way of visualising temporal parts is to imagine a film strip. If the entirety of the Titanic’s career were stretch through space and time as a reel of film, each individual image of the strip would be a single “instant” in time of the career of the ship. Each of those instances would be a temporal part of the Titanic (with the “whole”

Titanic the entire reel of film) because each instant in time would take up the entirety of the ship *at that time*.

Olson summarises temporal parthood thus: “ x is a part of y at time t iff the temporal part of x located at t (exactly located then) is a part of the temporal part of y located at t ” (Olson 2021, p. 74). Accordingly, engine z of the Titanic is a non-temporal part of the Titanic at time t (at the very instant of t) if the temporal part of engine z is a part of the temporal part of Titanic at time t .

Temporal parts aren’t the only contentious metaphysical claim that definitional theories assume. ‘Unrestricted composition’ is the view that “[. . .] for any things whatever, there is something composed of them: a sum” (Olson 2021, p. 75). Olson argues that definitional accounts presuppose unrestricted composition because it’s the only metaphysical view that guarantees an object exists that is composed of, e.g., cells (2021, p. 75). He writes:

Debates over biological individuality are about classification: about assessing individuals to sorts. That follows from stating the problem as how to define ‘organism’. Questions about what individuals there are—about which homogeneous cells or cell-stages compose anything, for example—do not arise. This can only be because the debate presupposes a ‘generous’ account of composition: one implying that any entities that anyone might take to compose an organism or other biological individual compose something or other. And the only such account that has ever been proposed is unrestricted composition (Olson 2021, p. 75).

As we can see, *definitional* solutions to the problem of biological individuality presuppose unrestricted composition (along with temporal parts). Importantly, these presuppositions occur because the solutions are definitional in nature. Questions of parthood don’t factor into definitional accounts, and, as a result, any such account will presuppose the metaphysical claim that guarantees parts will come together to compose the object that is denoted by said definition.

Definitional solutions to the problem of biological individuality presuppose the *principle of material plenitude*—the principle that, at any point in space-time, there is an object insofar as that space-time region is filled with

matter. The principle follows from a conjunction of unrestricted composition and a temporal parts ontology (Olson 2021, p. 76). Olson writes:

[...] no claim about what it is to be an organism (together with statements about atoms, cells, and the like) can entail a claim about what organisms there are or how many. To reach a conclusion about what organisms there are from the premise that all and only organisms are F, we need to know what Fs there are. We need an account of the ‘candidates’ to which the definition can be applied. The principle of plenitude supplies this. But any such account will be independent of a definition of ‘organism’. It follows that no definition can be a theory of biological individuality by itself, but at best in conjunction with a metaphysical principle about what material things there are (Olson 2021, p. 76).

A crude way of summarising the differences between what the philosophers of biology are doing on the one hand, and metaphysicians like Olson on the other, can be stated thus: philosophers of biology look at an object and attempt to determine what it means for that object to be an organism rather than a non-organism. The metaphysician wants to know what it takes for there to even *be* an object such that one can figure out whether or not it has the properties attributed to organisms. Because of this difference, the metaphysician is focused on part/whole relations, relations that philosophers of biology overlook. In overlooking the part/whole relations in biology, biologists and philosophers of biology presuppose the principle of material plenitude in order to formulate definitions of biological individuality.

The question posed by the problem of biological individuality is normally formulated as such, “what is it to be an organism rather than a non-organism?” The question, when formulated in this way, can only be answered with a definition: a definition tells us when there is an organism, and thus we can use the said definition to determine which biological entities fit that definition. Olson suggests a more suitable way of formulating the question, namely, “in what cases is there an organism rather than a non-organism.” This formulation doesn’t presuppose the existence of an organism and can be

solved by completing what he the *existential statement* to the problem of biological individuality (Olson 2021, p. 80):

$(\forall y)(\exists x)$ x is an organism and the y s compose x *iff*...the y s...

Written in this way, Olson suggests that the problem of biological individuality avoids the problems outlined above: it does not presuppose any metaphysical commitments, and it does not imply that an organism must be an organism throughout the entirety of its existence (2021, 80).

How are we meant to fill in the factors—the y s and x s—to make a sensible and biologically informed existential statement? One plausible solution is to modify the pre-existing definitional accounts provided in the literature to fit the *existential statement* Olson has provided.

Take, for instance, the *evolutionary definition* of biological individuality, according to which, roughly, an EI is an object that is acted upon by, or has the capacity to participate in, selection. We might modify this definition to fit into the existential statement by substituting the y in the statement for ‘lower-level individuals’, such as “cells.” In this way, we might get some akin to the following:

Evolutionary Existential Statement (EES): $(\forall y)(\exists x)$ x is an organism and the y s compose x *iff* the y s, as a group, have the capacity to participate in selection.

Such a definition would seemingly avoid the problems Olson addresses in the standard *definitional* accounts. The statement, as it currently is, does not suppose that any of the y s—the cells—have the capacity to, as a group, participate in selection. As such, the statement does not presuppose that there exists an organism.

Of course, one may object that the existence of the cells still presupposes the existence of some EI, i.e., the cells themselves! We can rectify this by going through the statement again until we get to some variable, y , that is not an EI, and replacing “organism” in the statement with “EI”—an EI in this case that would be the first (a “prime-EI”):³⁹

If someone is concerned with the ontogeny of a particular biological system (that is, they make a clear distinction between, and are concerned with, *organisms* rather than *biological individuals*), then the EES may not be useful because it implies a hierarchical view of biological individuality in that the ‘organism’ is only one kind of biological individual (other kinds include genes, genomes, cells, etc.). This view of biological individuality requires us to revise our ontology because the folk-conception of biological individuality is just false (Pradeu 2010, p. 251) (e.g., recall Janzen’s illustrations between the EI dandelion and the ‘green thing’ in his garden). More importantly, the EES doesn’t seem to have a way to distinguish the kinds of spatio-temporal careers that the animalist is interested in (e.g., organisms) and those that they are not interested in (e.g., genes, cells, etc.).

Perhaps, then, an existential statement based on the metabolic account of organisms might be preferred. Considering that the account Subrena Smith offers specifies that “persistence” refers to an *ontogenetic* rather than a *phylogenetic* notion (Smith 2017, p. 2), such an account would be able to provide the animalist with the kind of biological individual of which the animalist is concerned. I suggest the following as a start:

Metabolic Existential Statement (MES): $(\forall s)(\exists x)$ x is an organism and the s s compose x iff the s s are in a context of development such that they develop functionally distinct parts that integrate so as to use energy to resist the breakdown.

³⁹ Of course, given the nature of natural selection, one would expect what counts as a “prime EI” to be vague. How best to determine such an EI is left for further discussion.

The MES is vague enough to allow for different accounts of what it means for *ys* to develop distinct parts as well as what it means for them to resist breaking down. The statement also includes the necessary factor of organisms being constitutively embedded in the world. Furthermore, the statement is remarkably similar to the view that it's a "life" that is essential to the composition and persistence of organisms. A view that (following Locke's account of the persistence of animals) many animalists hold! Take, for instance, Olson's claim that

What it takes for us to survive is the same throughout our careers: we persist, as other animals do, just in case our biological *lives* continue. At any point in my career I survive if and only if my vital functions—those complex biochemical and mechanical activities of my atoms by virtue of which they compose a living organisms—are preserved (1997b, p. 106).

Or, more formally, van Inwagen's principle *Life'*:

If an organism exists at a certain moment, then it exists whenever and wherever—and only when and only where—the event that is its life at that moment is occurring; more exactly, if the activity of the *xs* at t_1 constitutes a life, and the activities of the *ys* at t_2 constitute a life, then the organism that the *xs* compose at t_1 is the organism that the *ys* compose at t_2 if and only if the life constituted by the activity of the *xs* at t_1 , is the life constituted by the activity of the by the activity of the *ys* at t_2 (van Inwagen 1990, p. 145).

Olson and van Inwagen (as well as many other animalists) adopt a view that, in its broadest form, takes "life" to be essential to the composition and persistence of living entities. If we understand metabolic processes to be a fine-grained understanding of what a "life" is, then the MES, i.e.,

$(\forall s)(\exists x) x$ is an organism and the ys compose x *iff* the ys are in a context of development such that they develop functionally distinct parts that integrate as to use energy to resist the breakdown,

is just a more complex and scientifically accommodated version of the statement

$(\forall s)(\exists x) x$ is an organism and the ys compose x *iff* the ys constitute the same life.

In this sense, the MES of biological individuality is the closest statement to the traditional animalist's account of biological individuality.

Yet, the MES *is* more complex and scientifically accommodating, and with this comes a marked difference from the *same life* statement mentioned above. That is, in its present form, the *same life* statement doesn't tell us much. This has been pointed out by Wilson, who accuses Locke and van Inwagen of not providing enough detail in their account of a "life." He writes:

[Locke and van Inwagen] have not provided a comprehensive description of living individuality. Assuming that we could articulate necessary and sufficient conditions for being alive (and no one has), we still do not know whether a particular mass of living tissue is a living being. It may be, but it could also be several living things or a part of a more comprehensive life (1999, p. 4).

As Wilson points out, Locke's and van Inwagen's concept of life isn't articulated in any great detail, including what the necessary and sufficient conditions are for a particular biological system to be alive. However, Wilson takes it that even *if* we had such conditions, we still wouldn't know whether or

not something that satisfies those conditions are parts of a larger whole or the larger whole itself. This later claim, it seems, may not be accurate.

If we take Smith's account of organism as an adequate account of what it takes for a biological system to be an individual then it seems, contrary to Wilson, that we *can* in fact know when there are parts of organisms or whole organisms once we have the necessary and sufficient conditions of "life." The necessary and sufficient conditions, in this case, include a context of development (i.e., the organism has to be constitutively embedded in the world), a phenotype to develop distinct functional parts, and for these parts to integrate in such a way that they take in energy from the environment allowing them to persist *as a whole*. Once these conditions are met then determining an organism from a non-organism (e.g., an organism from a biological individual) becomes unproblematic.

To see this, take the example of honey bees. Honey bees are eusocial insects that form a colony, with each individual bee carrying out a particular colony-level task to aid in the persistence of the colony (Smith 2017, p. 9). For example, when airflow in the hive is restricted, honey bees will regulate the airflow by making the hive itself "inhale" and "exhale" air. To do this, the hive's worker bees fan in and out of the hive (pp. 9-10).

Another way in which honey bees work together in order for the colony to survive is by regulating the temperature of the colony (i.e., thermoregulation). The hives of honey bees need to maintain a temperature of around ninety-three degrees Fahrenheit. When the temperature of the hive falls below this level, worker bees increase the temperature of the hive by vibrating their wings around the brood nest as a means of producing heat. When the temperature of the hive goes above the optimum temperature, worker bees decrease the temperature of the hive by spreading out, fanning, or evaporating water throughout the hive. Honey bees will evacuate the hive as a last resort if the temperature of the hive cannot be regulated. This phenomenon is particularly interesting because individual bees are ectotherms (i.e., their body heat is regulated internally.) As the evidence above suggests, however, honey bee colonies function as endotherms (i.e., thermoregulation takes place, at least in part, externally) (Smith 2017, p. 9).

As a final example, Smith refers to Moritz and Fuchs as a way of illustrating the importance of the colony on the development of the individual (Smith 2017, p. 10). Moritz and Fuchs describe the development of honey bees thus:

The development of an individual honey bee does not differ much from that of any other holometabolic insect in principle, yet there are dramatic biotic constraints which govern the development of a honey bee. Most evident is the developmental pathway from egg to adult which can only occur in the presence of large numbers of other bees. The large body of workers is instrumental for brood rearing. They provide the combs where the queen deposits the eggs. They feed and foster the larvae and maintain the correct temperature for brood development. They also provide a nest site which is of crucial importance for temperature control and protection of the stores and the brood against predators. *Thus, the successful completion of the above developmental cycle depends intricately on the presence of an intact colony comprised of a nest cavity, combs and a large number of other bees* (Moritz and Fuchs 1998, p. 9, my emphasis).

Given the importance of the colony as a whole on the development of the individual honey bee, it's clear that the 'constitutional embeddedness' condition of Smith's metabolic theory is fulfilled. As Smith notes, however, it's not just the individual bee that goes through a life cycle, but the whole colony. She writes:

"[...] it begins with a single queen, grows, and eventually reproduces. When the hive reaches maximum capacity, more than half of the worker bees and the queen leave the hive to find a new one, and the remaining worker and the new queen (or queen-to-be cells) then reconstitute the hive" (Smith 2017, p. 10).

Viewing the colony in this way, one can see that a particular organism begins, grows, and goes out of existence (by it splitting into two distinct colonies). This suggests that the last condition of Smith’s metabolic account is satisfied—that the functional integration of the parts (in this case, the individual honey bees) provides the ability for the persistence of the group as a whole.

A honey bee colony provides us with a nice example of how we can determine parts from wholes in biology given the necessary and sufficient conditions of “life.” The answer is unambiguous considering these conditions: Honey bee colonies are functionally integrated (e.g., the various roles worker bees provide to the hive as a whole), constitutively embedded (e.g., the development of an individual honey bee is dependent on the colony as a whole), and as such the colony persists *as a whole*. Thus, as Smith notes, “[a]ny particular honey bee is clearly an individual organism, but to understand some things about honey bees, one needs to treat their colonies as whole organisms too” (Smith 2017, p. 10). Yet, beyond the practical reasons for conceptualising a honey bee colony as an organism in its own right, an ontological status is determined. That is, the individual bee is an organism but is also part of a larger organism—the honey bee colony.

A consequence of including the necessary and sufficient conditions of “life” in the MES is that it opens up the possibility of the *extended organism thesis*. The *extended organism* is a possibility conceived of by Olson (2011) in his rejection of Clark and Chalmers’ (1998) *extended mind* and *extended self thesis*. According to the *extended mind thesis*, cognitive capacities can be offloaded to external devices (such as a notebook or mobile phone). A possible consequence of this thesis is that the self can, at least in part, be offloaded to these devices as well (this assumes some important relationship between the self and the mind, and thus some form of Neo-Lockean theory of the self). Of course, Olson rejects Neo-Lockean theories of the self (he is an animalist, after all), and argues that one of the only ways the self can extend is if organisms (i.e., what we are identical with) extend into their environment—call this the *extended organism thesis*.

Olson suggests that the extended organism thesis goes against the usual view of an organism’s boundaries:

The usual view is that an animal's boundary lies roughly at the skin, because that is the extend of the self-maintaining biochemical process that make it a living thing—what Locke called its *life* [...] Its metabolism, its immune system, and its capacity for growth and repair extend to the skin and no further (Olson 2011, p. 489).

Reference to some version of a “life” existential statement or, more charitably, an MES is noticeable here. Also noticeable is the standard acceptance that an organism's boundaries are skin deep—a standard that is mistaken if the extended organism thesis is true. According to the extended organism thesis, an organism *can* extend beyond its skin. An example of when this extension may occur includes when organisms get prosthetic limbs, wear eye lenses, wear clothes, etc. It's not just that there are organisms that happen to wear these things, according to this account, but that these items become *a part of* the organism on an ontological level. An organism that doesn't have a leg can have a leg by attaching a prosthetic leg to itself.

Olson rejects the extended organism thesis on the grounds that if there is an organism that gets bigger by assimilating parts of its external environment, then there must also be an organism that exists prior to this addition. He calls this pre-addition organism the ‘core organism’ and the organism post-addition the ‘extended organism.’ For the extended self thesis to be true, for human persons to be extended into their environment, then we must be identical to the ‘extended organism’, not the ‘core organism.’ This, Olson argues, is problematic because it's in virtue of the ‘core organism’ existing that makes the claim “no organism gains in size by adding external parts” true. The consequence of this is that, if the extended self thesis were true, human persons cannot be identical with ‘core organisms’ but rather ‘extended organisms’ (Olson 2011, p. 490).

In Carlyle (2016), I argued against Olson's rejection of the extended organism thesis (and thus extended self thesis) by arguing that at least some animals seem to extend into the world in order to survive. But, if the MES is

correct, then it's not simply that some animals extend into their environment, but *all* organisms extend into their environment by being constitutively embedded in their environment. Olson, in this regard, can be said to have over-emphasised our ability to distinguish the organism from its environment beyond our mere conceptual ability to do so. That is, he offered a theory of organismality that did not take into consideration the constitutively embeddedness of organisms-in-the-world.

Insofar as one adopts a *metabolic* or "life" criterion of biological individuality, the constitutively embeddedness of organisms suggests that organisms are, to some degree, extended. This picture of organisms is in tension with traditional animalism. Considering this, such views may not be as appealing to animalists as they initially seemed. The ability for an organism to grow in size by adding parts poses one potential problem for the animalist adopting the MES, but even if animalists accept this consequence, there are still problems with accepting it that will be addressed later on in this chapter as well as chapters 5 and 6 (namely, it makes organisms, and thus ourselves, functional kinds as well as the potential consequence that we were never foetuses).

Considering Pradeu's definition of an organism, an *Immunological Existential Statement* may be the following:

Immunological Existential Statement (IES): $(y_s)(\exists x) x$ is an organism and the y_s compose x iff the y_s are heterogenous, interconnected by biochemical reactions, and a systemic immune interaction is constantly controlling the y_s .

Like the EES and the MES, the IES doesn't presuppose the principle of plenitude because it doesn't presuppose the existence of organisms. Rather, like the other existential statements described above, this statement tells us under what conditions an organism (or, if it should be qualified, an *immunological* organism) exists.

Similar to its definitional variant, the IES is more specific than the MES, and in this way, it potentially avoids the consequence of the constitutively embeddedness of organisms-in-the-world. As a result, the IES also avoids the radical conclusion that *all* organisms extend into their environment. However, despite avoiding a radical form of the extended organism thesis, IES does allow for *some* organisms to be extended (such as a foetus extending to its mother and vice-versa). In fact, some degree of the extended organism thesis will be true *by definition* for any existential definition that includes heterogeneous parts!

Given the above existential statements, one may be inclined to think the current problem has been solved—we are able to maintain a metaphysical picture of the world that is at once metaphysically open (i.e., doesn't assume the principle of plenitude) and scientifically knowledgeable (i.e., the metaphysics stems from contemporary positions in biology). This is, unfortunately, not the case. This is because it's still not clear where to start our *existential* solution after we have the initial formula. Call this the *Questionable Beginnings* problem. Recall that the initial formula, as provided by Olson, is the following:

$$(\forall y)(\exists x) x \text{ is an organism and the } y\text{s compose } x \text{ iff...the } y\text{s...}$$

Above, I provided a possible solution by filling the variables in by modifying definitions found in contemporary philosophy of biology. Thus, I arrived at the following (to use the MES) as an example:

$$(\forall y)(\exists x) x \text{ is an organism and the } y\text{s compose } x \text{ iff the } y\text{s are in a context of development such that they develop functionally distinct parts that integrate so as to use energy to resist the breakdown.}$$

But why choose “metabolic process?” Why not the EES, i.e., “the *y*s form a unit that is a variable in the unit of selection?” Or, any other variable?

I chose the above example because it was biological informed. This is understandable given that I'm committed to offering an existential solution that can accommodate biology. But here in lies a problem: any biologically informed *existential* solution to the problem of biological individuality will ultimately be based on a *definitional* solution, thus start with a solution that presupposes the principle of material plenitude—the exact thing that an existential solution to the problem of biological identity was meant to avoid.

If philosophers of biology and metaphysicians aren't supposed to pick out their variables from biological definitions, then where are we to start? The answer to this question is not clear, and some general principle is required for deciding which variables would be acceptable and which aren't, and these principles would (if keeping in line with the naturalism defended in chapter 3) need to be grounded in our contemporary scientific understanding (which seems implausible given the nature of the problem itself.) This problem is what I will call the *meta*-problem of biological individuality.

5.3. The *meta*-problem of biological individuality

In section 1, I explicated several candidate definitions for biological individuality and that all of these candidate definitions are what Olson refers to as 'definitional solutions' of biological individuality. In section 2, I gave an overview of Olson's objection to definitional solutions as adequate responses to the problem of biological individuality. It was shown that, to Olson, definitional solutions fail to adequately respond to the problem of biological individuality because they presuppose a contentious ontology—the principle of plenitude. The kind of solution that is needed is, according to Olson, is an 'existential' statement—one that tells us under which situations something composes something else.

What exactly do I mean by the *meta*-problem of biological individuality? This, it seems, is precisely the problem that Olson appears to be affording a response to with his 'existential' statement of the problem. He states, "My concern is not how to solve the problem, but how to state it. What would count as a solution? What exactly is the question that theories of biological individuality are supposed to answer?" (2021). These are the questions that

Olson, and myself, are concerned with at the moment. Such questions are at a level above the original problem (thus “meta”). Whereas responses to the problem of biological individuality are meant to answer the question ‘what is a biological individual,’ responses to the *meta*-problem of biological individuality are meant to answer questions like ‘what would an adequate response to the problem look like such that it can accommodate both a metaphysical and scientific account of organismality?’

Thus far, we have two options on the table: *definitional* solutions and *existential* solutions. Both options come with pros and cons. If we decide *definitional* solutions are to be preferred, then we are afforded useful criteria of individuality for biologists to utilise. This comes at a cost, however, as we (at least seemingly) presuppose the principle of plenitude. If, on the other hand, we adopt *existential* solutions to the problem of biological individuality, an ontology of biological individuals is left open. The cost of an *existential* solution, however, is that it becomes unclear where we ought to get our variables from to fill in the existential statement. We run the risk of presupposing what counts as a biological individual with whatever definitional solution we adopt (which seems like a perfect case of putting the cart before the horse).

A potential solution to this problem is to deny the existence of the entities (at least in terms of their being substances) from the very beginning. Olson’s problem with *definitional* solutions stems from the assumption that there exist such things as biological individuals that are composed of other things (e.g., cells, mereological simples, etc.) At the same time (and as noted above), any solution to the *existential* problem can only begin by modifying an already existing definitional solution. The problem is unavoidable insofar as we assume that there are such *things* as biological individuals. As such, I suggest we take seriously the idea that some form of compositional nihilism (one more radical than that of van Inwagen, in that there are *no* compositions, not even in living “entities”) as true, and that such a position can be used to make a fruitful contribution to the metaphysics of biology.

Olson has argued against this solution on the basis that it either implies (1) there are no organisms (as organisms are composite), (2) Immaterialism

(2007, p. 224), or (3) organisms are mereologically simple (2007, p. 224, fn. 223). However, this doesn't seem to be the case. A fourth implication that Olson doesn't consider is that a non-substance-based ontology might be true. More specifically, a non-substance-based ontology that is able to make sense of the modal properties of biological phenomena whilst at the same time avoiding some of the pitfalls that come with the adoption of substantial kinds.

In the following chapter, I will argue that one plausible alternative to a substance ontology is a structural ontology where organisms don't exist as composite objects, but they *do* exist as instantiations of modally resilient biological structures. This move is comparable to that of Wilson's *real patterns* approach to natural kinds; however, it will be shown that a move from this to substantial kinds is not necessary.

5.4. Conclusion

This chapter has covered the difference between definitional accounts of biological individuality and existential accounts of biological individuality. *Definitional* accounts attempt to articulate the difference between organisms and non-organisms. In doing so, they overlook part/whole relations and thus presuppose the principle of material plenitude.

Chapter 6. Structural biology

In the previous chapter, I explained what the problem of biological individuality is and how different biologists and philosophers have dealt with it. It was also argued that there is a deadlock between two parts of the debate: the *definitional* accounts of biological individuality and the *existential* account. The philosophers of biology require a definitional account of biological individuality—an account that defines the necessary and sufficient properties of biological individuality. An account of this kind does not answer the *existential* problem. Metaphysicians (such as Olson 2021) require an *existential* account of biological individuality—an account that elucidates under what conditions a biological object exists. The *existential* account of biological individuality does not admit the levels of biological individuality produced by evolution. A solution to the impasse, I suggested, would be to develop a metaphysical account that was able to cut through the problems of both sides, that is, an account that offers an ontological account of individuality *and* explain the vagueness found in biology. I suggest that a position articulated already in the philosophy of science offers such an account: Ontic Structural Realism (OSR).

Although OSR has typically been used in the philosophy of physics, I am not the first person to suggest applying it to the problems in biology. Steven French, for instance, has noted that, despite its seeming orientation towards more mathematically inclined sciences, OSR could (in principle) be motivated elsewhere:

[. . .] in its focus on mathematical equations, this position seems to be oriented towards the more mathematical sciences, such as physics.

What about biology, or even psychology, where there is far less

mathematization? Can structural realism find a place in these fields too? One answer is a blunt 'yes', since the notion of structure is broad enough that one can argue that maths is just one way of representing it. However, there is a lot more work to be done in developing structural realism in a biological context, say (French 2016, p. 161)

The purpose of this chapter is to make more progress in this development: to show how it could be applied in a biological context (specifically regarding the nature of organisms). To this aim, the chapter is divided as follows: in section 1, I will provide a brief overview of what OSR is and what it is meant to do in the philosophy of science. As will be shown, laws in science are important in uncovering modally resilient structures; as such, section 2 will be a defence of laws, or law-like generalisations, in biology. Section 3 will bring all of this together to demonstrate how one could apply OSR to biological individuals. A possible objection will be raised and responded to in section 4, concluding the chapter.

6.1. Structural realism

In chapter 3, I argued that we should take the theories provided by our best current science as providing insight into the nature of reality. This naturalistic stance—that our best scientific theories tell us what reality is really like (in both its observable and non-observable aspects)—is known as scientific *realism*. When one claims to be a scientific *realist*, they are making a claim about the unobservable entities posited by our best current science. Specifically, they are making the claim that we ought to believe in the existence of these unobservable entities. *Anti-realists*, on the other hand, believe that we shouldn't believe in the existence of these unobservable entities, but only in the observable ones (unobservable 'entities' have at best an instrumental usage or tell us how the world could be). *Structural realism* is an attempt to formulate a form of realism that can reconcile the strongest arguments for realism and anti-realism: the *no-miracles argument* and the *pessimistic-meta induction*.

Scientific realists often cited the *no-miracles argument* as a standard argument for their position. As the argument goes, science is incredibly successful, and the best (if not only) way to explain this success is if our best scientific theories are true, approximately true, or the things referred to by scientists exist mind-independently (Chakravartty 2017, sect. 2.1). The alternative, it seems, would be that some miracle routinely takes place such that science is able to continuously advance, or as Smart (1963) formulates the problem:

If the phenomenalism about theoretical entities is correct we must believe in a *cosmic coincidence*. That is, if this is so, statements about electrons, etc., are of only instrumental value: they simply enable us to predict phenomena on the level of galvanometers and cloud chambers. They do nothing to remove the *surprising character* of these phenomena. Admittedly the physicist will not be surprised in the sense that he will find these phenomena arising in unexpected ways: his theory will have instrumental value in preventing this sort of surprise. But, if he is reflective, he ought still to find it surprising that the world should be such as to contain these odd and ontologically disconnected phenomena: i.e., the phenomena are connected only by means of a purely instrumental theory. Is it not odd that the phenomena of the world should be such as to make a purely instrumental theory true? On the other hand, if we interpret a theory in a realist way, then we have no need for such a cosmic coincidence: it is not surprising that galvanometers and cloud chambers behave in the sort of way they do, for if there really are electronics, etc., this is just what we should expect. A lot of surprising facts no longer seem surprising (Smart 1963, p. 39)

The *no-miracles argument* is persuasive because it explains why our science is so successful—the best theories postulated by our best current science are true (or approximately true).

Furthermore, the *no-miracles argument* is naturalistic in the sense that realists that employ it are utilising the same kind of reasoning that scientists use when it comes to scientific theories.⁴⁰ That is, realists (in reference to the *no-miracles argument*) are arguing that the best explanation for the success of science is a realist explanation; therefore, we should accept realism as true. Similarly, scientists (in reference to some theory T) argue that the best explanation for some phenomena is T; therefore, we should accept T as true (French 2016, p. 134).

Contra realists, anti-realists have argued that the history of science is full of scientific entities and theories that were successful in their time but were later rejected. Laudan (1981), for example, has noted the following:

- The crystalline spheres of ancient and medieval astronomy;
- The humoral theory of medicine;
- The effluvial theory of static electricity;
- ‘catastrophist’ geology, with its commitment to a universal (Noachian) deluge;
- The phlogiston theory of chemistry;
- The caloric theory of heat;
- The vibratory theory of heat;
- The vital force theories of physiology;
- The electromagnetic aether;
- The optical aether;
- The theory of circular inertia;
- Theories of spontaneous generation (Laudan 1981, p. 33)

He goes on to say that the list could be extended *ad nauseam* (1981, p. 33).

⁴⁰ This assumes that the *no-miracles argument* offers an inference to the best explanation, which is disputable (see, for example, Saatsi 2017, p. 176).

Poincaré (1905 [1952]) referred to this pattern of scientific theories going from successful to rejected as the ‘bankruptcy of science’, stating:

[t]he ephemeral nature of scientific theories takes by surprise the man of the world. Their brief period of prosperity ended, he sees them abandoned one after another; he sees ruins piles upon ruins; he predicts that the theories in fashion to-day will in a short time succumb in their turn, and he concludes that they are absolutely in vain (Poincaré 1905 [1952], p. 160).

Although Poincaré would say that the scepticism motivated by the bankruptcy of science is superficial (p. 160), anti-realists have been motivated by the large number of rejected scientific theories. Why, they argue, should we consider our current scientific entities as being any different than the theories that were rejected throughout history? Given that our best current theories are similar in kind to those that came before it, and given that those theories were eventually rejected, the anti-realist argues that we should expect our best current theories to be rejected as well (and thus, not be realists about them). This objection is referred to as the *pessimistic meta-induction*—‘Pessimistic’ because it argues that we should not be realists about our best current theories, and ‘meta’ because it doesn’t work at the level of science itself (in contrast to the *no-miracles argument*), but at the historical level above it (French 2016, p. 135)

It has been said (e.g., Worrall 1989, p. 101; Ladyman 1998, p. 409) that the *no-miracles* argument and the *pessimistic meta-induction* are both compelling, but because of this, there is an immediate problem: the two arguments pull us in opposite directions (the *no-miracles* argument towards scientific realism and the *pessimistic meta-induction* towards scientific anti-realism). Rather than argue against one or the other, Worrall (1989) held that a satisfactory position in the realism/anti-realism debate would be able to reconcile the two arguments.

Inspired by Poincaré (1905 [1952]), Worrall (1989) introduced *structural realism* into contemporary philosophy of science. This form of realism states that what we ought to be committed to (i.e., what we should be realists about)

is the *structure* of our best scientific theories, not the entities postulated by them. If we are realists about structure, Worrall argued, we can account for the overwhelming success of science (and thus satisfy the *no-miracles argument*) and, at the same time, we are able to accommodate the history of science, and its rejected theories (and thus positively respond to the *pessimistic meta-induction*). In this way, *structural realism* gives us the ‘best of both worlds’ by reconciling the prominent argument of scientific realism with that of scientific anti-realism.

To motivate this position, Worrall refers to the shift in optics from Fresnel’s theory to Maxwell’s, stating:

There was an important element of continuity in the shift from Fresnel to Maxwell—and this was much more than a simple question of carrying over the successful empirical content into the new theory. At the same time it was rather less than a carrying over of the full theoretical content or full theoretical mechanisms (even in “approximate” form) ... There was continuity or accumulation in the shift, but the continuity is one of form or structure, not of content (Worrall 1989, p. 117).

Furthermore, he notes that the claim of a structural shift from one theory to another was already made and defended by Poincaré (see 1905 [1952], pp. 160-161).

Developing structural realism further, Ladyman (1998) has distinguished *ontic structural realism* (OSR) and *epistemic structural realism* (ESR), and later crudely (although helpfully) summed up the differences between the two stating that “[. . .] ESR is the claim that all we know is the structure of the relations between things and not the things themselves, and a corresponding crude statement of OSR is the claim that there are no ‘things’ and that structure is all there is” (Ladyman 2016, sect. 4). It has been suggested by Ladyman (1998, p. 410; 2016, sect. 3) that ESR is the view held by Worrall, and it has been further divided into two versions by French and Ladyman (2011). According to one version, there *are* objects that are unobservable to us, but we

cannot know them. In the second version of ESR, we cannot know whether or not there are unobservable individual objects, and even if there are, we cannot know them (French and Ladyman 2011, p. 27).

Given that I am trying to formulate a metaphysical position that can reconcile the metaphysical with the biological, I am not going to address ESR beyond this point. Rather, I will limit my discussion to OSR, which can be fleshed out in a variety of different ways (see, e.g., Ainsworth 2010; Ladyman 2016, sect. 4) but all of which, broadly speaking, give ontological priority to structures and relations (Ladyman 2016, sect. 4).⁴¹ To be more specific, I am going to assume a form of eliminativist structuralism—one defended by Ladyman and Ross (2007)—where relations are taken as ontologically basic. “Objects” (which can be individuals or non-individuals), in this view, are heuristic (French and Ladyman 2003) or pragmatic (Ladyman and Ross 2007) devices.⁴² As Ladyman and Ross (2007) note, “A core aspect of the claim that relations are logically prior to relata is that the relata of a given relation always turn out to be relational structures themselves on further analysis” (p. 155). As such, the relata are understood as abstractions (or heuristics, or pragmatic devices) of more fundamental relations.

French (2014) argues that the realist should only commit themselves to ontologies that can be read off from our best theories and models. These ontologies are understood in terms of laws and symmetries and the properties that play a role in them. The structuralist, in this case, do not take these properties to be seated in objects (French 2014, p. 330).

Although structural realism was originally formulated as a way of reconciling the *no-miracles argument* and the *pessimistic meta-induction*, the introduction of OSR supplies us with a way to make use of structuralism beyond explaining theory change. Namely, the introduction of OSR provides us with another way to resolve ontological problems. It is in this way I believe

⁴¹ For defences of OSR over ESR see Ladyman (1998); Ladyman and Ross (2007); French and Ladyman (2011).

⁴² Ladyman has recently backed away from an eliminativist view of objects (see, e.g., Waechter and Ladyman 2019).

OSR can help us cut through the tension between vagueness in biology and the *existential problem* of biological individuality.

6.2. Concerning laws

The importance of laws in the version of OSR that I'm motivating poses a problem for those that want to apply the position to biology as it's generally agreed upon that there are no laws in biology. Take, for instance, 'Evolutionary Contingency Thesis' defended by John Beatty, according to which:

All generalisations about the living world: a) are just mathematical, physical, or chemical generalizations (or deductive consequences of mathematical, physical, or chemical generalizations plus initial conditions), or b) are distinctively biological, in which case they describe contingent outcomes of evolution (1995, pp. 46-47).

Beatty's argument is that any biological generalisations are reducible to mathematical, physical, or chemical generalizations, making such generalisations about the laws of the disciplines that biology reduces to, and not of biology itself. If the generalisation *is* biological, then it's a generalisation that is contingent on the process of evolution—it's a generalisation that could have been otherwise had selection occurred differently. But why believe that generalisations in biology are contingent outcomes of evolution? French notes that such contingency is an implication of our current conceptions of mutation and natural selection, and as such, any generalisations in biology do not admit of natural necessity, which is typically taken as an essential feature of a law, but (as I will soon elaborate) certain conceptions of lawhood reject (French 2014, p. 331).

Rosenberg (2001) has argued that biology has only one law which is based on the principles of the theory of natural selection (PNS) (more on the nature of this law in a moment) because, if biology did have laws beyond those of the PNS, then these laws would either link together functional kinds with

functional kinds (Rosenberg uses the example, ‘all amphibians reproduce sexually’) or would link functional kinds with structural kinds (he uses the example ‘all genes are composed of DNA’). This causes a problem, however, because, according to Rosenberg, if a mechanism selects for effects, then it is blind to whatever structures that instantiate those, or similar, effects—that is to say, biology individuates kinds that have been naturally selected for. But, Rosenberg argues, any science that individuates kinds by functions that have been naturally selected for cannot have laws, so biology cannot have laws beyond those of the PNS (p. 737)

Furthermore, Rosenberg argues that biology cannot have *ceteris paribus* laws—that is, laws that can have exceptions—because such laws must have their nomological character underwritten by ‘super-laws’ that determine when things aren’t equal (i.e., when exceptions occur); these ‘super-laws’ help explain why, in *ceteris paribus* cases, we ought to expect a lack of precision as well as predictive failures. Biology lacks such ‘super-laws’ because, during evolution, the environment sets up adaptational and design problems that evolving lineages are forced to solve. The resulting competition between the evolving lineages and their environment creates an inconsistent environment, and thus, Rosenberg argues, natural selection does not limit the number of outside forces that can interfere with any given evolving lineage (2001, pp. 736-737).

This is where that single biological law comes in. This law, Rosenberg claims, comes from the principles of the theory of natural selection, which he describes as follows (p. 752):

- (1) Biological systems not on the verge of extinction or fixity reproduce with heritable variations.
- (2) If heritable variation obtains among biological systems, then there will be fitness differences among the biological systems.
- (3) In the long run, the more fit variants will leave a higher proportion of descendants than the less fit variants.

He states that one conclusion Darwin derives from these principles is,

- (4) Until fixity or extinction is attained, there will be descent with modification, i.e., evolution.

Whether or not these premises, and the resulting conclusion, are sound will be discussed briefly later on. For now, it's important to note that Rosenberg argues that these principles should be seen as nomological generalisations similar to those found in the physical sciences. These principles do not run into the same issues that other biological generalisations do, he argues, because these principles are about natural selection *itself* and thus not subject to the conditions imposed by its principles (2001, p. 752).

Interestingly, for Rosenberg, it is from this law (i.e., the PNS) that the contingencies in biology are derived, and why, he believes, biology is a historical discipline:

Biology is indeed a historical discipline. But the main principles of Darwin's theory are not historical narratives—not even world-historical ones. They are the only (*ceteris paribus*) laws of biology. And it is the application of these laws to initial conditions that generates the functional kinds which make *the rest* of biology implicitly historical: in our little corner of the universe, the universally ubiquitous process of selection for effects presumably began with the precursors of hydrocarbons, nucleic and amino acids. That local fact and its adaptational consequences explain the character of the sub-disciplines of terrestrial biology. Their explanations are 'historically' limited by the initial distribution of matter on the earth, and the levels of organization into which it has assembled itself. So, their local generalizations are increasingly riddled with exceptions as evolution proceeds through time (Rosenberg 2001, p. 758)

For Rosenberg, we take the PNS as forming a *ceteris paribus* law in biology and as a result of the nature of this law (by which I mean the contingent environment that is generated as a result of it) we get a historical discipline.

With some of the arguments against the existence of laws in biology explicated, we can see the problem more clearly: with no laws in biology, where do we find our (modally resilient) properties from which we derive our ontology? Recall that the structuralist (at least the kind referred to here) bases their ontological commitments on the laws and symmetries that play a role in our best current scientific theories. Given this, if the structuralist is to formulate a biological ontology, they require some laws (or something similar) from which they find their modally resilient properties. The problem, as I've shown, is that the received view amongst philosophers of biology is that such laws are not to be found.

Luckily, there are several alternatives at our disposal to solve this problem. For instance, in response to Beatty, French (2014) notes two possible responses: first, one could agree with his thesis but argue that, although contingent, there are biological structures that are not completely accidental [e.g., one could follow Mitchell (2000), and argue that (at least some) biological structures are more modally resilient than mere accidental generalisations]. A second way of responding to Beatty would be to challenge the way he is using 'law' (p. 331).

Let's focus on the latter possible response first: perhaps there is a problem with the concept, 'law', which is being referred to by Beatty and Rosenberg. There is a case to be made that biology does have laws; however, the concept may need to be altered a bit to fit within a biological context. Sober (2000), for instance, has drawn some attention to the if/then generalisations found in biology:

Biologists usually don't call them "laws"; "model" is the preferred term. When biologists specify a model of a given kind of process, they describe the rules by which a system of a given kind changes. Models have the characteristic if/then format that we associate with scientific

laws. These mathematical formalisms say what will happen *if* a certain set of conditions is satisfied by a system. They do not say *when* or *where* or *how often* those conditions are satisfied in nature (p. 16).

He refers to Fisher's Sex Ratio Argument (1958, specifically pp. 158-160) as an example of such a model.⁴³ Hamilton (1967) explained the argument as follows:

1. Suppose male births are less common than female.
2. A newborn male then has better mating prospects than a newborn female, and therefore can expect to have more offspring.
3. Therefore parents genetically disposed to produce males tend to have more than average numbers of grandchildren born to them.
4. Therefore the genes for male-producing tendencies spread, and male births become commoner.
5. As the 1:1 sex ratio is approached, the advantage associated with producing males dies away.
6. The same reasoning holds if females are substituted for males throughout. Therefore 1:1 is the equilibrium ratio (Hamilton 1967, p. 477)

Hamilton notes as well that this argument works whether or not polygamy occurs in the population or if there is a difference (which is not correlated with the sex-ratio genotypes) in the mortality rate of the sexes (p. 477). What this shows is that given two assumptions in a population: first, that mating in the population is random, and second that there is a heritable difference in the mix of sons and daughters produced by each parental pair in the population, selection will favour an even (1:1) sex ratio in that population. This is because

⁴³ For the more mathematically-minded individuals reading this, a more formal description of Fisher's argument can be found in Sober (2000, Box 1.3, p. 17).

selection, given the above assumptions, favours parental pairs that produce the minority offspring (Sober 2000, p. 16).

As Sober notes, Fisher's model is an if/then statement, and as such, the starting conditions Fisher describes may or may not be satisfied. If the conditions are satisfied, then the results must follow (that is, a 1:1 sex ratio must evolve) since the model is not limited to a place or time. Furthermore, Sober sees Fisher's conclusion as making a proposition about natural selection that distinguishes it from other propositions about natural selection. He argues, contra Rosenberg, that asking whether or not natural selection is a law is meaningless because it's not clear which proposition about natural selection one is making—the kind of proposition determines whether it's a law or a historical hypothesis. An example of a statement that is a historical hypothesis would be to assert that human's opposable thumbs are a result of natural selection. On the other hand, to state Fisher's conclusion that an even sex ratio will result from natural selection if certain conditions are met is to state a law (Sober 2000, pp. 16-17).

Another candidate for a biological law is the Hardy-Weinberg Law, which allows us to take the frequency of gametes and then calculate the distribution of genotypes that they produce. It can be roughly stated as follow (see also, table 1):

If the frequency of the A gene is p and the frequency of the a gene is q at some locus in a population, then the frequencies of the three genotypes AA , Aa , and aa will be p^2 , $2pq$, and q^2 , respectively (Sober 2000, p. 73).

Insofar as certain conditions are met (such as the occurrence of random mating and the alleles in the two sexes have the same frequency), we can expect the above genotype frequencies to occur given an infinite population (Sober 2000, p. 73). That is, like Fisher's sex ratio argument, The Hardy-Weinberg Law is mathematical truth.

That these models are mathematically true has led some to argue that they cannot be laws. According to proponents of this view, such models are empty insofar as they are tautologies and, as such, they lack the empirical quality often seen necessary in scientific laws. As Sober notes, “If we use the term ‘tautology’ sufficiently loosely (so that it encompasses mathematical truths), then many of the generalizations in evolutionary theory are tautologies” (2000, p. 73). This, he states, presents us with a difference between physics and biology: laws in physics tend to be empirical, but the kinds of generalisations found in evolutionary theory are not; they are mathematical truths (p. 73).

Table 3: The Hardy-Weinberg Law

| | | | |
|---------------|-----|---------------|-------|
| | | <i>Mother</i> | |
| | | p | q |
| <i>Father</i> | p | P^2 | pq |
| | q | pq | q^2 |

However, there is reason to reject the idea that mathematical truths cannot be laws. As Sober argues, just because something is a tautology does not mean that it is empty or obvious. Regarding Fisher, for instance, Sober states, “[p]erhaps Fisher’s sex ratio argument, construed as an if/then statement, is a mathematical truth. Even so, it is very far from being trivial. And it was not obvious until Fisher stated the argument” (2000, p. 74; see also 1984, ch. 2).

Elgin (2003) has similarly argued that there can be *a priori* laws on the basis that, in regards to explanation and prediction, *a priori* laws in biology function in the same way as empirical laws in the physical sciences. Given this, he suggests that there is reason to doubt whether the empirical element found in physical generalisations are, indeed, what gives them their status as a law—thus, the empirical requirement for laws in science is problematic.

Another way in which French (2014) has argued that we can respond to Beatty’s Evolutionary Contingency Thesis is to accept its conclusion (i.e.,

that there are no *necessary* laws in biology) but to argue that this doesn't then conclude that biological phenomena are purely contingent. This view is forwarded by Mitchell (2000, see also 2003, ch. 5.2), who takes the lack of "ideal laws" in the special sciences to present philosophers with an interesting problem. She writes:

The working biologist or chemist or social scientist makes do with knowledge claims that fall short of the philosopher's ideal. The appropriate response, I argue, is not to impugn biology, chemistry, and the social sciences for failing to deliver the philosophically valued goods. Rather, this "failure" invites the philosopher to explore just how it is that we manage to explain, predict, and intervene on the basis of these "lesser" variants of lawful relations. How universal, exceptionalness, necessarily true generalizations explain, predict, and allow successful intervention is a relatively simple matter compared with how "lesser" variants *actually used in these sciences* manage to perform those same functions (Mitchell 2000, p. 249, emphasis in original).

The task that Mitchell presents philosophers of science is to uncover how the special sciences (e.g., biology, chemistry, and the social sciences) can still find success despite lacking the ideal laws found in the physical sciences.

One hindrance to pursuing Mitchell's task is conceptualising a strict dichotomy between the necessity and contingency found in science. Dividing the world in this way is something that she argues Beatty is responsible for doing in the Evolutionary Contingency Thesis:

The dichotomous opposition between natural contingency and natural necessity in Beatty's discussion can be interpreted as a product of framing natural relations in logical terms. Logical necessity and contingency are indeed dichotomous alternatives. Yet imposing that feature onto the natural relations discovered by sciences limits what one can express about those relations (Mitchell 2000, p. 252)

The problem with positions like the Evolutionary Contingency Thesis is that they carry the strict necessity/contingency dichotomy found in logic and carry that relationship over to explanations in our world. This is problematic in that, as Mitchell points out, scientific laws describe the world in which we live; they don't describe a world that is logically necessary (Mitchell 2000, p. 251). Our world is messy, and the generalisations uncovered by the sciences may not fall so neatly into such course-grained frameworks.

Luckily, Mitchell provides us with a better framework, one which she refers to as the 'Continuum of Contingency.' This continuum lies between two extremes: "ideal laws" on one end and "accidental generalisations" on the other. On this continuum, we can place scientific theories based on their strength and stability. A similar move has been made by Dorato (2011), who argues that there are laws in biology and that these laws differ from physical laws in their *degree* (rather than *kind*) of stability, contingency, and resilience. In this regard, French (2014) notes:

Such claims clearly mesh nicely with, and can be pressed into the service of, OSR, with 'resilience' equated with 'stability' and biological regularities regarded as features of the (evolutionary contingent) biological structures of the world. It is this latter aspect that accounts for the (relative) resilience/stability and the way that aspect of their nature can explain why certain biological facts obtain (2014, p. 332).

Even with the received view being that there are no laws in biology, there is reason to be optimistic that we can find laws or law-like generalisations in biology from which the structuralist can derive their ontologies. One reason to be optimistic is the existence of biological laws in the form of mathematical truths. If this is the route the structuralist decides to venture, they can use such models (e.g., Fisher's model) to derive their ontological commitments. If, however, we don't take such truths to be laws, the structuralist can still work within a continuum of contingency or stability, where we take biological laws

to be less modally resilient than those found in the physical sciences, but more resilient than the accidental generalisations of which they are commonly described.

6.3. Eliminating biological objects

I suggest we eliminate biological objects as metaphysically robust entities. Instead, we ought to take terms like “organism”, “species”, etc. as playing a heuristic role determined by which relevant biological structures we are interested in at the time. What these biological structures may turn out to be is the subject of this section.

To that point, and to make discussion simpler and more streamlined, some distinctions are needed. I will argue that biological entities do not exist in a metaphysically robust sense. By this, I mean that biological entities are nothing more than mind-independent biological structures that, for purposes of their instrumental use, we conceptualise (or compose) as an object—a “node” that stands in relation to other nodes in our biological theories. Let’s call such a composition *thin*, or *n-composition*. The resulting heuristic “nodal” entity is likewise understood in a *thin* sense (or an *n-entity*). N-entities are not ontologically fundamental and thus do not belong in our ontology.⁴⁴

A *thick* composition would answer the composition and special composition problem in the traditional metaphysical sense (as discussed in the thesis introduction). In these cases, the resultant *thick* entity is understood as a robust metaphysical entity worthy of being a part of our ontology. I will refer to composition of this sort as *k-composition* and the resultant (metaphysically robust) entity as a *k-entity*.

Once these distinctions are made, the position of this chapter can be understood thus: in biology, there is no reason to refer to k-composition or k-entities, but only refer to n-composition and n-entities. Because of this, organisms are n-entities, and any talk about what composes or constitutes an

⁴⁴ Of course, one may hold the view that we ought to include non-fundamental things in our ontology. Responding to this objection is, unfortunately, not within the boundaries of this particular project.

organism can be understood in terms of *n*-composition. In this way, taking OSR as a metaphysical position in biology allows the philosopher of biology a response to Olson's (2021) *existential problem* of biological individuality by denying the *k*-composition underlying the problem. Olson wants to know under which circumstances there exist objects (what I call *k*-entities) called "organisms," and the structuralist can respond, "there are no circumstances in which this occurs!" However, the structuralist does have *n*-entities called "organisms", which are *n*-composed in virtue of their modally resilient structural relations. What these relations could be is the topic of this section.

Now let's turn to the present concern: organisms. Recall Eddington's two tables (see Eddington 1928, pp. xi-xii): table 1 is the table of our everyday experience—our substantial table. Table 2 is our scientific table—our table that is mostly empty space. Which table is more analogous to organisms isn't clear, which may be part of the miscommunication between the metaphysicians and philosophers of science. On the one hand, there is obvious observability to (at the very least) 'folk' organisms such that we can refer to, and track, them in a way that seems to differ from the way that we track unobservable entities such as electrons. On the other hand, we have seen in the previous chapter that there is an important (and unavoidable) conceptual problem with how scientists refer to and define "organism" such that they can be referred to correctly.

This problem can be seen as an example of 'the structural realists dilemma,' a broader concern about structuralism that Chang (2012) posits. According to Chang, on the first horn, we identify the structure as something that is observable; however, this renders structuralism as just a form of empiricism. On the other horn, we take the preservation of structure as something wilfully done, in which case we are not justified in taking the structure to be an element of external reality (p. 245). I've suggested above why the preservation of structure in biology need not be seen as something that is wilfully done (i.e., the preservation is maintained by the modal resilience of the biological models). In what follows, I will argue that the structure in biology is not only empirical but that it is also conceptual. As such, the elimination of biological entities (in this case, organisms) needs to be handled with care.

Here we can make use of Ludwig's (2014) model of gradual ontological elimination. According to Ludwig, there are two types of ontological elimination of entities that occur in the sciences: *elimination through redescription* and *elimination through failed reference* (also referred to as the *phlogiston model*). In *elimination through redescription*, the concept postulated by theory T is too broad. As such, it is eliminated in favour of a more fine-grained, and therefore useful, taxonomy. This occurs even though there is no flawed empirical assumptions about the entity (p. 72). *Elimination through failed reference* occurs when an entity is eliminated because everything that a particular theory T assumed about it turned out to be wrong (p. 72).

Ludwig argues that it's misleading to see these types of elimination as dichotomous and that we should take each type as representing an idealized form that marks the ends of a spectrum of ontological elimination (2014, p. 72). A positive aspect of looking at elimination in this way is that it doesn't have to appeal to substantive accounts of reference (p. 73):

On the one hand (and towards the phlogiston-end of the spectrum), elimination controversies are due to different empirical assumptions [...] on the other hand, (and towards the redescription-end of the spectrum), elimination controversies are motivated by different conceptual choices (Ludwig 2014, pp. 73-74).

As such, using Ludwig's model, we can make sense of criticisms that occur in elimination controversies that target both empirical assumptions as well as conceptual choices without having to worry about whether or not the terms being considered for elimination succeed or fail to refer (pp. 73-74). By eliminating organisms as entities in biology and instead focusing on biological structures, we can better understand the concepts, as well as the role they play in biological discourse. In this sense, the *n-entities* referred to aren't merely observable phenomena but are determined by which concept (i.e., heuristic) we are using at the time.

French (2014) has already discussed how OSR can be applied to biological individuals by the example of ‘metagenomics,’ a stance taken by Dupré and O'Malley (2007). This stance in biological research takes focus away from individual genomes to large amounts of DNA. This shift in focus from genomes to metagenomes led to a recognition that biological individuality is more complicated than the standard one-genome-per-customer account has suggested. As Dupré describes:

[...] metagenomes are communal resources that the entity to which the resource is available is coordinated, developing, multifunctional, multicellular organisms composed of large numbers of cells of different varieties and capabilities, able to work in ways in which the collectivity regulates the function of individuals. *Individual organisms, from this viewpoint, are an abstraction from a much more fundamental entity* (Dupré and O'Malley 2007, p. 841, my emphasis).

Given that metagenomics gives us a view of individual organisms as abstractions, there is an obvious question as to how we are meant to conceptualise an ontology of biological entities. One way of doing this is to adopt Dupré's *promiscuous realism*, a form of pluralism that takes there to be “countless, legitimate, objectively grounded ways of classifying objects in the world. And these may often cross-classify one another in indefinitely complex ways” (Dupré 1993, p. 18). Of course, adopting “promiscuous realism” would also force one to adopt a very robust ontology (one filled with countless biological objects, at least), which may be something a metaphysician would want to avoid.

The structuralist need not fret over metagenomics and the unintuitive conception of individuality that it forces us to take seriously. As French points out, the structuralist wouldn't have to adopt *promiscuous realism* (and thus all of the countless biological objects that come along with it), stating:

From this perspective, *there are no biological objects (as metaphysically robust entities)*. All there is are biological structures, interrelated in various ways and causally informed. Putative objects, such as genes, individual

organisms, and so forth, can then be seen as emergent entities, or as dependent upon the appropriate structures, where the notions of emergence and dependence here will be both informed by the relevant biology and framed in terms of an appropriate metaphysics [...] Thus there is no need for Promiscuous Realism since we can adapt a (dynamical) form of structuralism which will allow us to be realist about the relevant biological structures, without being ontologically pluralist about the entities (French 2014, p. 345).

I won't go into much more detail regarding structuralist accounts of metagenomics. I only refer to this example not only because it provides us with a brief view of an already established example of OSR being applied to biological individuality, but to highlight the ability that adopting OSR in biology affords us: the ability to conceptualise biological individuals (*n-entities*) in a variety of different, objectively grounded ways without adding the ontological baggage that usually comes along for the ride. We do this by being realists about the biological structures rather than the entities (*k-entities*).

The structuralist can also make sense of various conceptions of larger-scale biological organisms (e.g., *Homo sapiens*) in a similar way to large-scale objects (e.g., Eddington's tables). To do this, however, the structuralist has to be specific about what organism concept they are using so that they know which biological structures are relevant. To narrow down the different conceptions of organismality, let us first look at a form of pluralism used to redescribe species into more specific terms.

Eliminative pluralism was initially suggested by Ereshefsky (1992) as a new form of species pluralism. He notes that despite the fundamental role the species category has in biology, a proper definition has not been agreed upon, and no less than eight prominent definitions being used in the literature (p. 671). Two responses to the diversity of species definitions have been taken: species monism and species pluralism. Species monists argue that the debate over the correct definition is unfinished and must continue until the proper definition is found. Species pluralists argue that the species category is

heterogeneous—that there is no common attribute shared by all species taxa (p. 672).

Ereshefsky defends species pluralism, noting that many of the proposed definitions for species fall within three general approaches: *interbreeding*, which sees species as “the most extensive group of organisms that interbreed and produce fertile offspring” (p. 672); *ecological*, which see species as lineages that occupy the same adaptive zone or niche (p. 673); and *phylogenetic*, which see species as basal monophyletic taxa (p. 674), meaning that a species must be a taxonomic group that contains all and only the descendants of a common ancestor (p. 673). All three of these approaches assume species are lineages, however, they provide taxonomies that are incompatible (p. 674). That is, they can (and do) classify the same organisms into different lineage (p. 675).

Whereas a species monist would argue that one type of lineage is more important for understanding the course of evolution (thus being the one lineage we can properly call ‘species’), Ereshefsky argues that this is a mistake in that it leaves out important and insightful information afforded by the other lineages, stating:

A proper systematic study of life requires each of these taxonomies. Consider the sorts of theoretically important information each taxonomy offers. A taxonomy of monophyletic taxa provides a framework for examining genealogy. A taxonomy of interbreeding units offers a framework for examining the effect of sex on evolution. And a taxonomy of ecological units provides a structure for observing the effect of environmental selection forces. A systematic study that considers just one of these taxonomies provides an overly coarse-grained picture of evolution (1992, p. 678).

He goes on to use the importance of the different taxonomies to formulate *eliminative pluralism*, stating:

Instead of referring to basal lineages as "species", biologists should categorize those lineages by the criteria used to segment them: interbreeding units, monophyletic units, and ecological units. The term "species" is superfluous beyond the reference to a segmentation criterion; and when the term is used alone it leads to confusion. The term "species" has outlived its usefulness and should be replaced by terms that more accurately describe the different types of lineages that biologists refer to as 'species' (p. 680).

Ereshefsky suggests we use the terms "biospecies", "ecospecies", and "phylopecies" to refer to lineages picked out by the interbreeding, ecological, and phylogenetic approaches. Replacing the broader term "species" with these terms—terms that are more accurate—aids the goal of communication in systematics (pp. 680-81).

So what Ereshefsky is doing here is arguing that species must be eliminated because the concept "species" isn't helpful, except for (perhaps) being an umbrella term for three different and incompatible taxa. It's important to note here that, to Ereshefsky, this form of pluralism isn't just epistemic; it's ontological. That is, evolutionary forces have produced these three different types of basal lineages, and these basal lineages cross-classify the organic world (p. 679).

My suggestion for the problem of the organism concept is to do just this. Instead of offering different definitions to explain a *single* kind of thing, I suggest we eliminate the organism concept in favour of separate and more accurate categories (i.e., concepts/heuristics) of biological individuality (thus eliminating the "organism" concept falls closer to the *elimination by redescription* side of Ludwig's scale).

A move like this has already been made by Wilson (1999), which I described in more detail in the previous chapter. Recall that Wilson distinguishes six concepts of biological individuality (p. 60):

1. A particular

2. A historical entity
3. A functional individual
4. A genetic individual
5. A developmental individual
6. A unit of evolution

Each of these concepts, Wilson argues, is important to biology and philosophy of biology.

Wilson adopts Dennett's (1991b) conception of "real patterns" to form of view of natural kinds that are patterns in nature (Wilson 1999, p. 42). A "pattern" is to be understood as anything that can be a candidate for recognised as a pattern (Dennett 1991b, p. 32). What's interesting here is how Wilson goes about constructing his view of natural kinds-as-real-patterns, he writes,

[t]he existence of a pattern in a phenomenon does not preclude the existence of another pattern in the same phenomenon, even if each of these patterns is the basis of a natural kind. The same parts can compose more than one object simultaneously (1999, p. 47)

Wilson argues that a pattern-based view of natural kinds makes it permissible to have a pluralistic ontology of overlapping natural kinds within the same phenomena. By formulating natural kinds in this way, he believes he is able to identify individuals in terms of substantial kinds (p. 47).

However, Wilson's ontology leads him to some conclusions that I find unpalatable, especially given the alternative I'll discuss in a moment. First, given that Wilson's ontology concludes that the same group of material can constitute different objects at the same time, he ends up with a rich ontology (p. 47). Second, because this group of material constitutes different substantial kinds, the material itself cannot constitute identity because the overlapping kinds of individuals will have different persistence conditions (pp. 46-47). Furthermore, Wilson later admits that the kind *functional individual* is

problematic in that it is often held to varying degrees, making it difficult to demarcate organism from non-organism (Wilson 2000, p. S302).

The problems that Wilson faces with his pluralistic ontology can be avoided by adopting OSR and then eliminating biological individuals (ontologically as well as conceptually) via *elimination by redescription* to hone in on the relevant, finer-grained, biological concepts. Similar to French's response to the metagenomics example, adopting OSR to Wilson's pluralism would allow us to avoid the robust ontology whilst being a realist about the biological structures underlying the various conceptions of individuality. Similarly, the identity problem caused by Wilson's ontology is eliminated, given that the overlapping structures are not seated in any object or material. "Identity" in this case would be understood in terms of whichever heuristic, or *n-entity*, that is being referred to.

Lastly, in regards to the vagueness problem posed by Wilson's *functional individual*, recall from the previous chapter that a *functional individual* is, to Wilson, something that begins to exist when either:

1. Among single-celled entities, a free-living cell is produced.
2. A number of cells are caught up in a developmental process that causally integrates them.
3. Higher-level entities (organisms) are themselves combined in a way that causally integrates them, as in, for example, grafts or parasitism (Wilson 1999, p. 99)

However, given these conditions, it's unsurprising that the limits of *functional individuals* are vague. As we mentioned above, work in metagenomics suggests that biological individuals are actually abstractions of a complex and integrated whole, some of the entities of which form in different genetic lineages. As Dupré notes:

[c]ontrary to the idea that is fundamental to the one genome one organism idea, the biological entities that form reproducing and evolving lineages are not the same as the entities that function as wholes in wider biological contexts. *Functional biological wholes, the entities that we primarily think of as organisms, are in fact cooperating assemblies of a wide variety of lineage-forming entities* (2010, p. 28, my emphasis).

The vagueness problem only seems to occur because Wilson identifies the individual with a substantial kind that overlaps with other individuals identified with other substantial kinds. All of this is constituted by the same group of material. As such, whenever the persistence of one functional aspect of the individual ceases, there is going to be vagueness as to whether that functional aspect is a part of a larger *functional individual* or not. By adopting OSR, Wilson would be able to avoid this vagueness by eliminating objects and focusing on the specific biological structure underlying the specific biological function. As such, vagueness in biology can either be seen as:

- (1) Vagueness in the relevant level of structure, *not* vagueness in composition and/or functional integration; and/or,
- (2) Vagueness in where to draw our biological heuristics and language

If (1), then the structuralist retains a vagueness problem, but the problem differs from the composition problem faced by the *existential problem*. As such, the structuralist can still maintain that there exist no biological objects (thus circumventing the *existential problem*), even though a different problem still remains. If (1), the vagueness in biology is *metaphysical*. If (2), then the *existential problem* is avoided, however a non-metaphysical remains in terms of how we deal with vagueness in our biological language and conceptualisation. Thus, according to (2), vagueness in biology is *not* metaphysical but is linguistic and conceptual. That (2) is true seems likely to me.

6.4. Objection and Conclusion

In this chapter, I've argued that shifting OSR to a biological context would allow us to negatively respond to the *existential problem* of biological

individuality posed by Olson (2021). We do this by being realists about the structures in biology that are understood in terms of the relations between the properties found in our biological laws/models. Given that the structuralist does not take the resulting biological heuristics (which I've referred to as *n-entities*) to not constitute metaphysically robust entities (which I've referred to as *k-entities*), there are not biological objects. As such, the structuralist response to Olson is that there is no condition such that there exists a biological object.

I've encountered two objections that seem to hone in on the same discomfort with my conclusion: the first is that OSR as a metaphysical theory is too radical, and the second objection is that we cannot even begin to make sense of the elimination of biological objects. I don't understand the reasoning for these concerns. Ladyman and Ross (2007) have claimed that, "[...] it is far from clear that OSR's rivals are 'worked out' in any sense that OSR isn't. There in [sic] no general agreement among philosophers that any of the metaphysical theories of, say, universals is adequate" (p. 155). Even if Ladyman and Ross are unjustified this claim, it's still the case that there is precedent for eliminativist ontologies to be a part of our metaphysical discourse. As I've mentioned in chapter 1, van Inwagen (1990) eliminates all objects except those that are living, and (as will be discussed later, in chapter 7) some animalists have adopted the view to make sense of organismal death (referred to as 'corpse eliminativism'). Unger (1979b) has also argued against the existence of ordinary objects. More recently, Benovsky (2019) has not only argued in favour of the elimination of ordinary objects (as well as persons) but also develops a method for eliminativism. In terms of biological ontology, Dupré and O'Malley (2007) suggest moving away from entity-oriented ontologies to process-oriented ontologies.

All of this isn't to say that there aren't legitimate concerns with OSR in general (or when the position is applied to each scientific or non-scientific discipline). It just suggests that OSR, as a metaphysical framework, is not as radical as it is sometimes claimed. In fact, further work in OSR, as well as other eliminativist positions, may benefit from an exchange of ideas.

Chapter 7. Structural Animalism

In this chapter, I will shift attention away from how OSR can help us understand the role organisms play in biology to how OSR can help us understand the role organisms play in personal identity. As I mentioned earlier, the two aims of this thesis were to offer a naturalised critique of animalism as well as lay the groundwork for a new form of animalism that is fostered by a non-substantial ontology. Throughout the project, I've focused on my first aim by directing several criticisms towards what I have been calling *traditional* animalism. Most of these have stemmed from a traditional metaphysics and an underappreciation of the complexities and unintuitive conclusions that can be found in biology and philosophy. In the previous chapter, I began fleshing out the details of my second aim—to lay the groundwork for an animalism that is not understood in terms of substance but rather in structure. In this and the following chapter, I will take the structures that I argued could be used to make sense of biological individuality and show that they can be used to solve and/or absolve some of the criticisms that animalism has faced.

Structural animalism is the view that we are identical with animals—with biological individuals—but that such individuals are nothing above and beyond modally resilient structural nodes that are used as heuristic devices to better understand our identity. To this end, I will circle back to some of the arguments for and objections to animalism that I have mentioned throughout this thesis and see how a *structural* animalist might respond to them in a way that a *traditional* animalist cannot. In the next section, I will show several unrecognised consequences that occur when the 'same-life criterion' of organismal identity. These consequences—including an animalist version of the Foetus Problem—go against pre-established positions that many animalists already hold, but by using OSR as a framework, we can avoid them. After this, in section 5.2, I will shine some light on is the AAA, which has received little

attention after some well-placed criticism. I will then show that OSR allows us to accept much of the criticism forwarded to the AAA whilst also accepting the arguments main conclusions. In section 5.3, I will look at the ‘Thinking Animals’ and ‘Thinking Parts’ problems with animalism and show that they miss an important aspect of the structures of organisms. Lastly, in section 5.4, I will take a look at dicephalic cases and show how, when focusing on structure rather than substance, these cases pose no problem to animalism.

7.1. The same life criterion and animalism’s Foetus Problem

In chapter 1, I set out several questions that can be asked about identity and what question animalism answers. Animalism answers the question, “what kind of thing are we?” Another question that I discussed was the *persistence* question (i.e., “what does it takes for the kind of thing we are to persist through time?”). It’s important to note the difference between these two questions because answering one does not necessarily entail a particular answer of the other.

Animalists respond to the question “what kind of thing are we?” by stating that we are biological organisms. This answer does not tell us what it takes for animals to exist over time—it does not answer the *persistence* question. This doesn’t mean that there aren’t proposed answers, however, and the favoured response by animalists has already been mentioned in chapter 1. The animalist’s response to the persistence question happens to be one of the few things on which animalists agree with Locke concerning our identity.

Recall from chapter 1 that Locke believed the persistence of organisms depend on their partaking of the same life (1690 [1975], II.xxvii.6). That is, a particular organism x at T_1 and an organism y at T_2 , $x=y$ insofar as x and y partake in the same continued life. Partaking in the same life must be the persistence condition of organisms, Locke believed, because organisms are constantly going through a change of matter, yet they persist through time regardless of this (1690 [1975], II.xxvii.6) (compare this to Locke’s belief that non-living objects, or “masses of matter”, do not persist through time if the matter composing the object changes (1690 [1975], II.xxvii.3)).

Most animalists agree with Locke when it concerns the persistence conditions of organisms (and thus, the persistence conditions of us, if you are an animalist):

On the Biological Approach, what it takes for us to survive remains the same throughout our careers: like other animals, we persist as long as our life-sustaining functions remain intact. One survives, at any point in one's career, just in case one's circulation, respiration, metabolism, and the like continue to function, or as long as those activities have not irreversibly come to a halt, or as long as one's capacity to direct and regulate those functions is not destroyed (Olson 1997a, p. 89)

The majority of animalists, following Locke, argue that organisms persist through time insofar as they share the same life. More specifically, as Olson suggests, organisms persist through time insofar as their circulation, respiration, metabolism, etc., continue to function. We can call this criterion of organismal persistence the *same life criterion*. Proponents of the same life criterion have been referred to as *organic* animalists (Blatti 2014, sect. 1.2). Those that object to the same life criterion, favouring the view that life is *not* necessary for organismal persistence, have been referred to as *somatic* animalists (Blatti 2014, sect. 1.2). We will discuss the intricacies of these two positions in the next chapter. What is relevant for the current discussion is that the majority of animalists are *organic* animalists—they are proponents of the same life criterion.

One may now ask what it means for an organism to partake in the “same life”. What exactly does the organic animalist mean by “life”? Based on the above quote by Olson, it appears “life” has something to do with certain functional properties, or dispositions, of an organism (such as respiration, circulation, and metabolism). These are only examples of what might compose a “life”, however. To better understand why functions such as respiration, circulation, and metabolism compose a “life”, we have to understand what it is

about these kinds of functions that are important. For instance, Olson describes life as:

[. . .] a sort of storm of particles in constant motion. (Storms too are events: they are extended in time, begin and end, have earlier and later parts.) A life draws in new particles and energy from its surroundings, imposes its characteristic form of activity on those particles, and later expels them. But unlike meteorological storms, lives are *self-directing*, or self-organising. Their activities are constrained by elaborate internal controls (Olson 1997a, p. 136)

This self-directing/self-organising property of lives has two results, according to Olson. The first is that life can retain a certain form and structure for long periods of time, regardless of the rate of matter flowing through it (pp. 136-137). The second result is that lives are well-individuated events, “there is usually a definite answer to the question of whether a given particle is or is not caught up in a particular life” (p. 137).

The second result that lives are well-individuated events is an interesting one (and one that I will argue against in the next section). But this result is important for the organic animalist in that it affords them the ability to do something with lives that would be considerably more difficult to do without: count them. Olson writes:

Lives are easy to count: in most cases there is a clear difference between a situation that contains one life and a situation that contains two. That is because of the nature of the activities that a life enforces upon the particles caught up in it [. . .] When a life draws a molecule into itself, it breaks that molecule into smaller pieces and reassembles them according to its needs. After extracting such chemical energy from them as it can, it expels their remains in a less ordered form. Thus, a particle cannot participate in two lives at once, any more than

one can serve in two armies at once; and two lives cannot overlap.
(1997a, pp. 137).

Given that a particle is drawn in, broken down, used, and expelled in a particular way, and according to the needs of the life that drew it in, Olson argues that such a particle cannot participate in two separate lives at the same time—two lives cannot overlap (at least insofar as two lives are not compatible in the right way). There is a caveat here, however, in that Olson *does* claim that two lives can overlap if one of them is subordinate to the other (1997a, p. 137). This last point will be explicated in more detail later on, but for the moment, what is important is what Olson understands a “life” to be.

“Life” according to the organic animalist can be described thusly: a “life” is a self-directing, well-individuated event that functions such that it allows itself to remain in a particular shape and structure for long periods of time despite the constant flux of material flowing through it. Examples of this kind of event organic animalists refer to (e.g., those that are self-directing and well-individuated) include respiration, circulation, and metabolism.

For the time being, whenever I refer to “life”, I am referring to the above definition (the one that appears to be the one used by organic animalists). I will offer a criticism of this definition later on by comparing it to the metabolic definition of individuality presented in the previous chapter. Prior to that argument, I want to show that there are internal conflicts created between the organic animalists’ definition of life and at two assumptions that animalists have made: their position regarding our once being foetuses and the view that we are not functional kinds. At the end of this section, I will show how these issues only arise if we accept a substance ontology and how a structural ontology can avoid them.

Let’s start with the animalist assumption that we—that is, all human animals—were once foetuses. In chapter 1, I explained that an argument in favour of animalism was the Foetus Problem Argument. As the argument goes, if we accept that we are essentially persons (and not animals), then no human person was ever a foetus. This must be the case, the animalist argues, because

no foetus is a person, and if we are essentially persons, then we couldn't be something that is a person. This causes a Foetus Problem for mentalists, in that anyone holding the position must either accept the counter-intuitive conclusion that no human person was ever a foetus or else find a way to reconcile person-essentialism with our being foetuses. Animalism doesn't have a Foetus Problem, and thus it seems to be a better position regarding what we are.

Why doesn't animalism have a Foetus Problem? Olson (1997a) has considered the possibility but ultimately argues against it. One could hold, he suggests, the following premises (see 1997a, p. 92):

P2.1: I am a living organism throughout my career

P2.2: a multicellular zygote does not seem to be an organism

P2.3: a multicellular organism does not exist until about two weeks after fertilisation when the cells that develop the foetus become specialised

Those that might argue that animalism has a Foetus Problem suggest that these premises lead to the conclusion that no human animal was ever a zygote (Olson 1997a, p. 92). This follows from premises 1 and 2. Two possibilities emerge from this conclusion: either the zygote ceases to exist and is replaced by the animal—a numerically different being—or the zygote continues to exist, and shares its space and matter with the numerically different animal (p. 92).

The problem with the argument, Olson argues, is that “we need not suppose that there is any one persisting object, be it an organism or anything else, that is first a fertilized ovum composed of a single cell, and later consists of two cells, then four, and so forth” (Olson 1997a, p. 93). By this, he means that we can easily accept that the zygote ceases to exist and is replaced by the animal that we are. This is analogous to an amoeba that separates into two separate cells. As Olson notes, the amoeba doesn't continue to exist as two

spatially divided entities, but rather the original amoeba ceases to exist and is replaced by two different cells (p. 93).

Still, Olson entertains, a person may argue that given P2.1 (i.e., “I am a living organism throughout my career”), we ought to expect the multicellular zygote to persist from the zygote to an embryo, then a foetus, etc. based on the fact that these things are linked by a continuous process of growth and development, “[a] living thing, organism or not, doesn’t cease to exist simply by growing and developing in its characteristic way” (1997a, p. 93).

The problem with this argument, according to Olson, is that it assumes that there is a *single* process of growth and development that the multicellular zygote, embryo, foetus, etc., go through. This doesn’t seem to be the case, however. Each daughter cell of the fertilised ovum develop in complete independence from one another, “that is why embryologists deny that the ovum becomes a two-celled organism when it divides” (Olson 1997a, p. 93).

Despite Olson’s arguments to the contrary, I submit that there is a Foetus Problem for the *organic* animalist. There is one relationship that Olson does not engage with concerning the developing foetus: the relationship between the foetus and its mother. One may reasonably ask when *life* begins for the foetus. Or, more appropriately, when does a foetus begin its *own* life, independent of its mother. It’s unclear to me whether or not the foetus and mother share a single life at any given point in the relationship or not. To show this, let’s examine some possible mother/foetus relationships.

One relationship that the mother and foetus may have to one another would be that they maintain two individual lives throughout the entire developmental process of the foetus. On this view, the foetus begins its life whilst being inside the mother, and it continues to maintain its own life after birth. This is, perhaps, a consequence of Olson’s view that two lives can overlap insofar as one of the lives is subordinate to the other. He writes:

Each of your cells has a life of its own, with an internal plan and a well-defined boundary. The life of an individual cell can be a part of the life of a multicellular organism because the demands that those two lives

impose are compatible. You can serve in two armies at once if one of them is a division of the other (1997a, pp. 137).

In the same way that a single cell's life can overlap with a human animal's life on the basis that the single cell's life is subordinate to the human animals', so too can the foetus' life overlap with the life of the mother on the basis that the foetus' life is subordinate to the mothers.

A problem with this option is that it seems to tacitly take a foetus to be a part of its mother (an option we will examine in a moment, but one to which animalists tend to object.) A single cell's life can overlap with an animal's life because the single cell is a part of the animal. This is one way to interpret an entity overlapping another.

A different interpretation of "overlap" and "subordination" could be that one entity merely relies on, or is dependent on, another. If this is the interpretation that we are meant to use, then it seems like a foetus, although perhaps not a part of its mother, is at least dependent on her for certain resources by which it can continue to grow and develop. If this is the relationship between the mother and foetus, then we have to figure out how to individuate the process of growth and development. How to do so is unclear. Olson suggests that a multicellular zygote is partaking in a different process of growth and development than an embryo and foetus. Could a foetus, by this reasoning, be partaking in a different process of growth and development than a child? If so, then the reason to believe no human person was ever a multicellular zygote must apply to embryos and foetuses—meaning that no human person was ever either of these things. That is, the argument Olson gives for our never being a multicellular zygote is that the process of growth and development of a zygote is different than that of an embryo and foetus (which, it is assumed, is the same as a child). But, if the process of growth and development is, in fact, different between the embryo/foetus and the child, then (using the same line of reasoning), then no human child was ever an embryo/foetus.

Another possible mother/foetus relation is to embrace the idea that the mother/foetus partake in a single life. After the birth of the foetus, this view maintains, there is a substantial change from foetus to baby, at which point the baby gains and maintains its own life—a life distinct from the one that it had when it was a part of its mother. A similar view to this has been forwarded by Kingma (2018), who applies a substance ontological framework to the relationship between a foetus and mother during pregnancy.⁴⁵ In doing this, she argues that foetuses (which she refers to as ‘fosters’) are parts of their mother (which she refers to as ‘gravida’). She writes:

“[. . .] birth *is* a substantial change: at birth fosters cease to be and a new substance—baby-organisms—come into existence. And Human beings do not begin 16 days after conception but, usually, nearly eight-and-a-half months later: at birth (Kingma 2018, p. 155-176).

Kingma argues that there are several attractive qualities of this conclusion (i.e., that foetuses are a part of the mother and that baby organisms come into existence at birth.) First, it makes counting organisms incredibly neat in that it’s clear when we have one organism versus two or more: prior to birth, there is a single organism with a foetus-part, and after birth, there are (usually) two organisms—the mother and the child (Kingma 2018, p. 176).

Birth being a clear-cut event that marks the coming into existence is an attractive quality in its own right. The conclusion that human organisms come into existence at birth is also attractive in that it’s consistent with intuitions about mammalian organisms being easily demarcated, physically cohesive individuals for the duration of their existence (Kingma 2018, p. 176).

Lastly, Kingma believes that marking birth as a substantial change is an attractive quality in that it emphasises and preserves something that other views overlook: the important changes that occur at birth. She notes, “[. . .] birth is a much more substantial event than a mere change of environment,

⁴⁵ See also, Kingma (2019) for an argument based on biological considerations.

and fosters are not simply ‘babies in tummy’s’; there are many differences (internal, structural, functional, relational and topological) between fosters and babies” (Kingma 2018, p. 176).

On the other hand, the view that human organisms come into existence at birth seems intuitively odd. Not only does such a view imply that no human organism was ever a foetus, but that no foetus ever survives to become an organism (Kingma 2018, p. 177). Both of these conclusions follow from the substantial change that takes place at birth. Prior to birth, there is a foetus (taken here to be a part of a mother), and at the moment of birth, a substantial change takes place, and a numerically distinct entity comes into existence—a baby organism.

This result is acknowledged by Kingma, who goes on to suggest that our metaphysics be revised to avoid it and thus capture the phenomena that we seem to want to track: the thing that *appears* to persist prior to and after birth (2018, p. 179). This leads us to our third option for the mother/foetus relationship: that foetuses are a part of the mother but that no substantial change takes place during birth. This option has the advantage of a foetus being numerically identical to an organism after birth. However, this option comes at a cost as our metaphysics of organisms would have to be revised to account for organisms having other organisms as parts (i.e., mother-organisms having foetus-organisms as parts). Consequently, Kingma notes that some of the virtues that came with the traditional view of organisms (that is, that organisms could not have other organisms of the same kind as parts) would have to be similarly revised (2018, p. 181).

Secondly, Kingma notes that taking foetuses to be both parts and organisms opens the doors to organs (as well as other body parts) potentially counting as organisms as well. This is due to some organs having the same, or very similar, properties that foetuses do and, as such, it’s unclear why foetuses could count as organisms but such organs would not. Kidneys, she points out, also undergo change, cease to exist if they do not maintain numerical identity, have spatial parts, lack an external boundary, is internally connected, is an independent entity, as well as has other properties similar to foetuses (2018, pp. 181-182).

Lastly, if foetuses are both organisms as well as parts of organisms, then the spatial and temporal boundaries of foetuses are unclear as a result of there being no complete external boundaries. This results in the added complication of when a foetus comes into being (Kingma 2018, pp. 183-184)

Taking organisms to be parts of different organisms of the same kind is only a problem if we take organisms to be substances. In fact, a structural metaphysics can avoid all of the consequences Kingma notes occur when we take, for example, foetuses to be parts of their mother. We can avoid these problems by re-interpreting the claims about objects (e.g., ‘foetuses’) to claims about structures.

Recall from the previous chapter that structures, unlike substances, can co-exist without interfering with one another. In lieu of ‘substantial sortals,’ we refer to whichever ‘structural sortal’ (i.e., a sortal which is determined by whichever structural heuristic is in play) is relevant to the topic at hand. It’s these structural sortals that we use to determine the persistence conditions of the heuristic ‘object’ that is relevant at that point. The pragmatic importance of understanding parts in this flexible way has been stated nicely by Saunders, who writes:

The world is a structure, and it is thought of as such in exact physical, interpreted mathematical terms, but how it is to be broken down into parts, to be spoken of predicatively, can be a more rough and ready affair, sufficient only in the sense of FAPP [For All Practical Purposes], to use Bell’s acronym; sufficient linguistically, but only for all practical purposes (Saunders 2003, p. 132).

All of this is to say that structuralists can lend themselves to the notion of ‘parts’ without committing themselves to the composition that metaphysicians refer to. Recall the difference I made between what I referred to as K-composition (i.e., ‘thick’ composition) and N-composition (i.e., ‘thin’ composition) in the previous chapter. N-composition refers to a practical way of discussing composition in structural terms—a composition that takes place

amongst ‘parts’ that are only meant to be understood in practical terms. This kind of composition—N-composition—differs from the K-composition that metaphysicians typically refer to. Such K-composition is not merely heuristic—it’s ontological. As such, the sortals that pick out such entities are “in the world” in a way that N-composed ‘entities’ are not.

Given this distinction between K-composition and N-composition, structuralists could take mothers having a foetus as a part to suggest that, at some point in time, there is a biological structure (call this structure ‘mother’) that, at some point, has a distinct structural node that is worth referring to as a distinct thing (call this structural node ‘foetus’). At some point, ‘foetus’ will undergo a process where it becomes independent of ‘mother’ and continue existing on its own, whilst ‘mother’ will no longer have ‘foetus’ as a part. Given that these heuristic devices are referred to when practical considerations arise, at no point is it unclear when ‘foetus’ is a part of ‘mother’ and when ‘foetus’ begins. ‘Foetus’ is a part of ‘mother’ precisely whenever it’s relevant to refer to ‘foetus’ as being a part of ‘mother’, and it becomes detached precisely whenever it’s relevant to refer to ‘foetus’ being detached (this typically occurs at birth).

Furthermore, the concern that the distinction between the ‘foetus’ and other parts of ‘mother’ (e.g., kidneys) becomes less problematic. The question for the structuralist isn’t “how do we prevent other parts of ‘mother’ from being organisms once we understand foetuses as organisms?” rather the question is “at what point, and under what conditions, is it practical to refer to a part of ‘mother’ as an organism in its own right?”

The *same-life* criterion of our persistence causes another problem for animalists in that it conflicts with the animalist position that we are not functional kinds. Olson (1997a) imagines a scenario in which an individual is so fascinated by moving objects that she formulates a criterion of identity around the ability to move—the *locomotive criterion* of identity (p. 32). According to the locomotive criterion of identity, the ability for an entity to move of its own accord is both necessary and sufficient for certain entities to persist through time. These entities are referred to as “locomotors” (p. 32).

The locomotive criterion of identity is inadequate as a criterion of identity, Olson argues, because the criterion only tells us what such objects *do*, not *what* they are. That is, “locomotors” are a *functional* kind, not a *substantial* kind. The difference being that *substantial* kinds are the only kind of thing that tells us what something is, and *functional* kinds can only tell us about what something can do (1997a, p. 34)

Olson denies that a Psychological Criterion of identity can tell us anything about what it is that is. He argues that like the imagined “locomotor criterion”, a psychological criterion of identity merely tells us what something can do (i.e., “this thing can think, rationalise, etc.”):

To say that something is a person is to tell us something about what it can do, but not to say what it is. To say that something is a person is to say that it can think in a certain way—that it is rational, that it is ordinary conscious and aware of itself as tracing a path through time and space, that it is morally accountable for its actions, or the like. But it doesn’t tell us *what* it is that can think in that way. We might still ask, Is the thing that can think a biological organism? An angel? A machine made of metal and silicon? What sort of thing is it that has those special psychological properties? (Olson 1997a, p. 32)

Like psychological criteria and Olson’s *locomotor* criterion, I want to suggest that the *same-life* criterion forces us to look at “organism” as a functional kind—not a substantial kind. Olson suggests that only substantial kinds can answer the question of *what* it is that does a particular thing. This, he argues, is one reason why psychological criteria of identity are inadequate as criteria of identity—they fail to tell us what *it* is that is thinking. But “organism” also fails to answer this question when combined with the same *life-criterion*—it fails to tell us what *it* is that is living. We can question this in exactly the same way that Olson questions what it is that is thinking: is the thing that is living an angel? A thing made of metal and silicon? What kind of thing is it that has those special “living” properties?

If the animalist accepts that organism picks out a functional kind, then they have the problem of explaining why “living thing” is a better candidate answer for what we are than “psychological thing”. The *structural* animalist, on the other hand, doesn’t have this issue on account of them rejecting any ontologically robust “things.” Instead, the structural animalist can refer to functions as higher-order relations that certain, lower-level, heuristic objects generate. Metabolic processes, for example, can be interpreted as relations (for example, relations between chemical reactions) that occur within certain biological structures.

7.2. The Animal Ancestors Argument

In chapter 1, I described the Animal Ancestors Argument (AAA), which shows mentalist positions regarding identity must reject evolutionary theory regarding human evolution. The argument suggests that given the mentalist picture that we are not biological organisms, then the principles by which biological organisms evolve must not be applicable to what we are (i.e., if we are not human animals, then neither were our parents, their parents, etc. until evolutionary theory is no longer applicable for us).

When I described that AAA, I mentioned that I take it to point out something incredibly important about what we are despite it not really motivating much the debate. Here I want to explain why I take the argument to be important. To do that, I need to address the criticisms that it has faced.

Gillett (2013) has argued against the AAA on the basis that it hinges on the key assumption that it is necessary for us to be organisms if we are to be the products of evolution. This assumption, he argues, is false given that contemporary biologists use evolution to explain the occurrence of non-organismal entities. The position that we are identical to brains (call this the ‘Brain View’), for example, is just as consistent with evolutionary theory. Brains are particular organs, the existence of which can be explained by evolutionary theory. Given that brains are the product of evolutionary theory, and given that the Brain View takes us to be identical to brains, proponents of the Brain View can deny animalism without rejecting evolutionary theory.

Similarly, contra Blatti, Gillett argues that constitutional views of identity can be consistent with an acceptance of evolutionary theory. Here he makes an interesting comparison to superorganisms. Superorganisms are individuals that are composed of organisms, and superorganisms are also products of evolution. Therefore, he argues, some individuals that are composed of organisms are products of evolution. Gillett then suggests that this compares to constitutionalist views that we are psychological things constituted by organisms: He explains:

[. . .] the Psychology-Plus-Constitution theorist can argue that under their accounts you are analogous to such a superorganism in being an individual composed by an organism, or organisms, and hence you are potentially a product of evolution (Gillett 2013, p. 276).

Later on, Gillett emphasises the point that a general feature of evolutionary theory is that it can explain how one kind of thing can result in a different kind of thing (2013, p. 277). He then continues to conclude that Blatti is wrong to state that constitutionalist cannot *in principle* explain our existence as psychological things constituted by organisms, stating:

Contrary to Blatti's contention, the case of superorganisms illustrates how non-organisms might very well evolve from organisms. And even if one is concerned that superorganisms are still strictly organisms, rather than non-organisms, then the general point about evolution just outlined suggests that nothing bars one in principle from giving an evolutionary explanation of how a kind of individual that is composed by an organism evolved from organisms but is itself a non-organism (Gillett 2013, p. 277).

Gillett is right to point out that evolution can occur on entities that are not organisms, as well as that evolution can produce organisms from non-organisms. However, an important aspect that Gillett doesn't acknowledge in

his argument is the background conditions of our development (organismal or psychological). The most interesting aspect of our identity that the AAA highlights is that there (at least appears) to be an important biological basis for our development. This biological basis may, indeed, produce something psychological (as Gillett points out), but it may also be something biological (as Blatti argues). I think the latter option is more likely because it takes the development of psychological capacities seriously.

To illustrate this, compare the ‘organism/thinking thing’ relationship to the ‘organism/environment’ relationship discussed above (in chapter 3). Subrina Smith’s notion of the necessity of an organism being constitutionally embedded in its environment is particularly helpful here. According to Smith, although we can *conceptualise* organisms as being separated from their environment, we cannot, *in fact*, understand organisms without understanding them as organisms-in-the-world. Organisms are necessarily embedded in their environment because the environment provides the context of development of the organism.⁴⁶

7.3. Thinking animals and thinking parts

As I’ve shown above, by shifting focus away from substances and the problems that accompany the part/whole distinction, and instead pay attention to structural relations between differing heuristic ‘objects,’ the *structural* animalist can respond to several objections posed to the traditional animalist. First, I provided a way of making sense of the heuristic devices that can be practically tracked to make sense of accounting for, as well as counting, nodal parts in relation to greater biological structures. I did this to show how we can avoid a Foetus Problem for the animalist, as well as make sense of functional aspects of the organism heuristic. Second, I argued that the Animal Ancestors Argument works best when we see it as highlighting the importance of *biological* structures to the development of human persons. Although Gillett’s point that evolutionary theory can produce a non-organism from an organism (and,

⁴⁶ The idea of organisms being necessarily embedded in their environment could be fleshed out in further detail in terms of recent literature on embodied cognition (see, e.g., Bermúdez et al. 1995; Chemero 2009; Bermúdez 2018; Shapiro 2019). Although beyond the scope of this project, understanding embodied cognition in structural terms would be an interesting idea for future research.

indeed, non-organisms to organisms) was well made, he doesn't consider that the process being considered takes place within a biological framework. With all of this under our metaphorical belts, it will be useful to turn our attention over to the (TAA). Not only is this a focal argument in favour of animalism, but it provides the *structural* animalist with the context to show the importance of the pragmatic element of deciding which structures to pick out as heuristic devices.

As I mentioned in chapter 1, the TAA relies on the common belief that human animals have the ability to think. The argument was stated as such:

P1: There is a human animal sitting in this chair

P2: the human animal sitting in this chair is thinking

P3: I am the thing sitting in this chair thinking

Conclusion: I am the human animal sitting in this chair thinking

The 'rival candidates problem' was posed in response to the TAA. According to the 'rival candidates problem,' an acceptance of the TAAs schema not only entails an acceptance of animalism but also a number of its rivals (e.g., 'mere body,' 'psychological person,' etc.) Similarly to the 'rival candidates problem,' the TAA has also faced the 'thinking parts problem.' This problem also follows the TAAs schema but concludes that individual parts of an organism can think, and thus be what we are identical to (e.g., if my head is located in a chair and can think, then I am the head in the chair.)

The structural animalist can respond to the 'rival candidates problem' and the 'thinking parts problem' by denying the ontological existence of any of the rival candidates and/or parts. This puts them in a weird position, of course, because they seemingly accept and deny P1 (there is a human animal sitting in this chair). The way to understand this, however, is to understand that the structural animalist rejects P1 insofar as 'organism' is understood in K-compositional terms but accepts the premise insofar as 'organism' is understood in structural (or N-compositional) terms. *Which* structural organism

is most appropriate to put in P1 is an interesting question; however, given that this is the ‘thinking animal argument’ let’s assume for the moment that a conscious organism is an appropriate suggestion (call this conscious organism a COH for ‘conscious organism heuristic’). Doing this gives us the resulting structural emphasis of the thinking animal argument:

P1*: There is a particular biological structure sitting in this chair that is referred to as ‘human organism’⁴⁷

P2*: This biological structure can be referred to as thinking (the COH)

P3*. There is a biological structure sitting in the chair that refers to itself as ‘I’⁴⁸

Conclusion*: The structural relation referring to itself as ‘I’ is the human organism sitting in the chair

I take these premises to be pretty straightforward in terms of structural emphasis of ‘organism,’ but critics might point out that the existence of various structural organisms, in this case, reignites a similar problem to the *Rival Candidates Problem* (i.e., which structural organism are we identified with) and *Thinking Parts Problem* (i.e., how do we know we aren’t a thinking part of the structural organism, rather than the whole structural organism?) But, as I’ve shown throughout this, as well as the previous two chapters, we have good reason to believe no such problems exist for the structuralist. Given that structuralists refer to heuristic ‘objects’ based on their practical use, it’s unclear in which cases (apart from, perhaps, a horror novel) referring to, for example, a “head sitting in a chair right now” is in any way helpful.

The reason we refer to the ‘thing’ sitting in this chair as an ‘animal’ and not a ‘thinking thing’ is because the former is more specific, i.e., the animal is

⁴⁷ Of course, the structuralist would also understand the terms ‘chair’ and ‘sitting’ as referring to some other heuristic device.

⁴⁸ ‘I’ here should not be understood in substantial terms, but as being sub-structure ‘node’ of the COH or, perhaps, an even higher-order structure generated by the COH. This is an interesting area of further study and will be briefly discussed in more detail in the conclusion of the thesis.

the ‘thing’ which is thinking, and thus more amenable to practical considerations. If the ‘thing’ sitting in the chair happened to be some intelligent golem, then anyone would be right in saying “the thing sitting in that chair is a golem” or even perhaps “the thing sitting in that chair is a thinking thing, and by ‘thing’ I mean ‘golem’.” But if the person were to say, “the thing sitting in that chair is a thinking thing,” then another would reasonably ask, “what *thing* is thinking?” (compare this to Olson’s objection to ‘thinking’ as a substantial kind due to it being a functional kind.) Likewise, if a person were to say, “That thing over there is a hunk of matter”, then another could reasonably ask, “which hunk of matter are you referring to exactly?” Referring to the thing as a golem (or a human animal, or a robot, etc.) is (normally) the exact amount of specificity one needs to communicate such things, and *that* is why the structures underpinning those heuristic devices are appropriate to use.

The second reason these premises don’t create a Rival-Candidates Problem or a Thinking Parts Problem has to do with structural priority, as discussed in the previous section. That is, the reason the thing sitting in the chair is an ‘animal’ rather than a ‘thinking thing’ is because the structural relations that produce, or the structures from which the ‘thinking thing’ structures emerge from, is the kind of thing that has undergone certain evolutionary processes to make such ‘thinking thing’ structures possible (i.e., a biological organism). As I argued above, one cannot make sense of the ‘thinking’ structure without seeing that structure necessarily embedded in a prior structure that can generate the thinking—and in the case of human persons, that necessary thing is an organism! ‘Thinking’—as well as any other heuristic device that refers to a functional kind—will, on this view, always be a higher-level heuristic device that is generated by lower-level relations.

7.4. Dicephalic cases

The last problem for animalism that I will discuss are dicephalic cases. I will argue that such cases don’t pose a problem for *structural* animalism, even if they do for traditional, substance-based, animalism.⁴⁹ I will argue that once we take

⁴⁹ Olson (2014) has, likewise, argued that dicephalic twinning doesn’t pose a problem to animalism. According to Olson, even if we assume that dicephalic cases are cases in which

‘organism’ and ‘person’ to refer to heuristic devices, then any metaphysical conflicts over identity drop out of the discussion in lieu of references to differing subsets of structure. In this regard, much of my argument here follows from the nature of the COH and similar higher-order structures developed throughout this chapter thus far.

Dicephalic cases are an example of conjoined twinning in which a single torso on which two heads are connected (each head containing its own brain). Such cases pose an interesting problem to animalism in that it’s argued that both people cannot be identical to the organism (if this were the case, then they would be the same person). Given that both people cannot be identical to the organism, at least one of them must be identical to something else. Each person has the same relation to the organism, however, so it cannot be the case that one of the people is identical to the organism whilst the other is not. Thus, as McMahan (for example) concludes, “[t]he best thing to say [. . .] is that neither of them is identical to the organism” (2006, p. 47). Call this the “dicephalic argument” against animalism, and it can be structured thusly:

P1: In cases of dicephalic twinning, there exist two human persons and a single organism

P2: Two persons cannot be identical to the same organism

Conclusion 1: Some human persons are not organisms

P3: If some human persons are not organisms, then no human person is an organism

Conclusion 2: No human persons are organisms

However problematic or useful these arguments are for the animalist arming themselves with a substance-based metaphysics, I contend that the

there is two person to a single organism (which he shows there is reason to doubt), the assumptions that are needed to get from this conclusion to the conclusion that animalism is false rely on either assumptions that imply animalisms being false, or are simply question-begging.

structural animalist can avoid them by denying P1 in terms of composition, giving us the ability to deny P2. How is this so?

Structural animalists (at least ontic-structural animalists) deny that there are individuals above and beyond heuristic devices used to discuss phenomena. On an ontological level, structural relations are all that exist, and any “objects” that exist are meant to be understood as heuristic terms only. Given this, an “organism” in a structural sense is a heuristic, and (as I’ve shown in the previous chapter) there are many ways of caching out what kinds of organisms exist. To solve the metaphysical puzzle that dicephalic cases give to the animalist, we first have to figure out what kind of organism is necessary. Given that the problem in these cases is the ratio of person to organism, it seems reasonable to assume that the heuristic needed is whatever structural organism gives rise to conscious experience (i.e., the COH).

The structural animalist can then re-phrase P1 as

P1: In cases of dicephalic twinning there exists one COH that gives rise to the structure of two consciousnesses

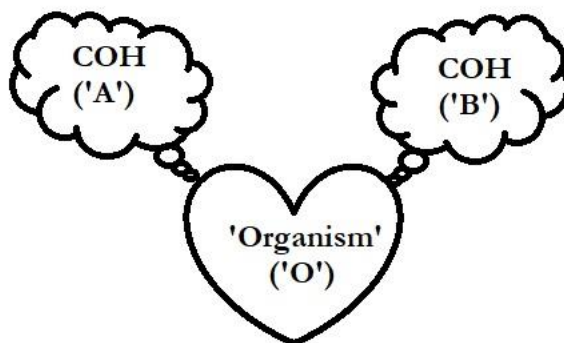
Typically, in cases of COH, we see the organism heuristic give rise to a single conscious heuristic (we typically call this thing the ‘self,’ or, if one wants to be more personal, ‘I’). In dicephalic twinning cases, however, there appears to be a single COH that gives rise to two distinct conscious heuristic devices. Each heuristic device is relevant at any given time will depend, as noted above, on which device is the most practical at the time.

To illustrate this, Figure 2 depicts a heart shape that represents a dicephalic organism (call this ‘O’ for short) and two distinct thought bubbles that represent two distinct COHs (call them ‘A’ and ‘B’). There may be certain circumstances in which the best heuristic device to use would be ‘object’ (again, object here is understood in heuristic terms only) OAB. Such a situation may be broader discussions of dicephalic cases in which a complete picture of such cases is needed for reference. Likewise, perhaps the ‘object’ that is most appropriate to refer to is OA (or OB); such cases may occur when A is asleep,

but B is awake (or vice-versa). Such a case may seem problematic on a substance-based metaphysics because it suggests that a single organism can be both awake and asleep at the same time. However, because a structuralist commits themselves only to the ontology of certain relational properties and not to an object-based ontology, this problem doesn't arise. The OA and OB 'parts' of OAB functioning in different ways at the same time becomes no more mysterious than any other 'parts' of OAB functioning differently at the same time.

The question may be asked whether or not this is possible—that is, under a structuralist framework, is it possible for a single COH to give rise to two structural relations that are best understood as being distinct. Although the opponent of the structuralist may say no, Daniel Dennett provides a possible way of making sense of such a phenomenon that does not necessarily depend on a substance view of the self.

Figure 5: *Dicephalic Twinning (COH)*



Although I can't claim to solve the issue here, one potential way to make sense of two conscious structures being produced by one COH is to take Daniel Dennett's explanation of how humans construct a self. He writes:

[t]he strangest and most wonderful constructions in the whole animal world are the amazing, intricate constructions made by the primate *Homo sapiens*. Each normal individual of this species makes a *self*. Out of its brain it spins a web of words and deeds, and, like the other creatures, it doesn't have to know what it's doing; it just does it (Dennett 1991a, p. 416).

An important aspect of this construction of selves is that it isn't something constructed consciously (1991, p. 418); rather, the consciousness and the narrative we refer to as the "self" are products of biological processes (p. 416) that present themselves *as if* they are coming from a unified agent—a phenomenon Dennett refers to as a *center of narrative gravity* (p. 418). He describes his theory thus:

A self, according to my theory, is not any old mathematical point, but an abstraction defined by the myriads of attributions and interpretations (including self-attributions and self-interpretations) that have composed the biography of the living body whose Center of Narrative Gravity it is. As such, it plays a singularly important role in the ongoing cognitive economy of that living body, because, of all the things in the environment an active body must make mental models of, none is more crucial than the model the agent has of itself (Dennett 1991a, pp. 426-427).

If we take the self as a centre of narrative gravity, then we can deny a substantial account of the 'self' that is metaphysically significant in a way that, for example, a neo-Lockean might take the self to be. The centre of narrative gravity isn't a thing in this substantial sense but can be seen as an abstraction generated by the COH. If this were the case, then any organism with the required context of development (or may include, for instance, a functioning brain) could generate a COH capable of generating such a narrative.

Given that dicephalic organisms have two brains (and, therefore, two distinct contexts of development), it's unsurprising that two distinct COH could develop. Of course, taking the self to be a centre of narrative gravity is only one way in which structural animalists could account for two 'selves' to an organism. Finding alternative views that are compatible with structural animalism is an area of further research beyond what I can achieve in this project.

7.5. Conclusion

The aim of this chapter was to show how a structuralist animalism—a version of animalism rooted in a structural realist ontology—could respond to certain objections that animalism has either traditionally faced or could face. In the process of doing this, I began to develop a possible hierarchy of structural heuristic devices that could be referred to, all of which are generated from biological structures.

Chapter 8. Corpses in science

In chapters 1, 5, and 7, I argued that some major motivations for an animalist account of identity stem from a recognition that biology can help in answering philosophical problems about what we are. I've also argued (in chapters 3 and 4) that a satisfying account of animalism ought to require it to be able to accommodate biology (or science in general) as well as the philosophy thereof. In this chapter, I will argue that a position held by many *traditional* animalists fails to certain practices, classifications, and observations made in science: forensic human identification, gross human anatomy, classifications of necrophilia in humans, and necrophilia sexual strategy.

Blatti (2014) makes a distinction between 'organic' animalism and 'somatic' animalism. 'Organic' and 'somatic' animalism offer alternative views on how to understand our numerical identity after death. *Organic* animalism maintains that being alive is a necessary condition for an animal (in this case, a human animal) to persist. *Somatic* animalism denies that living is a necessary condition of animal persistence, instead arguing that one persists through death as a corpse (Sect. 1.2).

In this chapter, I will argue that animalists should embrace somatic *structural* animalism because it allows for a more straightforward understanding of particular areas of current science. Whereas *somatic* animalists argue that we often persist as corpses—as non-living bodies—for some amount of time after death, I'll argue that the *structure* of a corpse (and therefore the *structure* of a non-living body) is the relevant structure for understanding our persistence. *Somatic-structural animalism* is a view that keeps in mind the kind of structural biology and structural animalism I've defended in the previous two chapters—there are, strictly speaking, no biological individuals, no metaphysically robust objects, and no 'us' above and beyond structural regularities. Of course, this means that there aren't any bodies by which we persist, but in the same way

that, in the previous two chapters, I argued for our structural persistence in terms of particular heuristic nodes, here I will argue that those heuristics continue to play an important explanatory role after we die.

This chapter is divided as follows: in section 1, I will lay out some background information regarding ‘organic’ and ‘somatic’ animalism. I will show how each of these positions responds to a more general metaphysical thesis: *the termination thesis*, the metaphysical position that once a person dies, they cease to exist. I will also give an overview of arguments that have been made for and against each position.

In section 2, I will show how human cadavers have been used by two scientific fields: medical research and forensic anthropology. I will also show how the language used by these scientists, as well as how they learn from corpses, may give us a reason not only to assume certain metaphysical assumptions made by scientists about the nature of corpses but also why these assumptions should be seen as correct in some regard.

In section 3, I will briefly dive into the weird world of paraphilias—seemingly aberrant behaviours—by taking a close look at necrophilic behaviour in both humans and non-humans. As I’ll show, if the TT is true, then understanding necrophilia becomes incredibly difficult from both a behavioural and biological standpoint. This is especially the case when one considers the ‘necrophilia strategy’—a sexual strategy found in some species that possibly offers a functionally fit behaviour for reproductive success.

I’ll discuss what I call the ‘explanatory gap’ in section 4. Although the existence of the explanatory gap has been hinted at in previous literature (e.g., Carter (1984)), it has not been called as such and has not received the kind of attention that I believe it deserves. I will discuss a response that has been made to avoid the problem caused by the gap, as well as why it and similar responses fail to avoid the problem. Section 5 will conclude the chapter.

8.1. The termination thesis

I’m going to begin this section by considering Mackie’s (1999) ‘death argument’. According to the death argument, psychological continuity is not necessary for personal identity. This conclusion follows from the premises:

- 1) a dead person remains in existence after death,
- 2) the dead person is not psychological continuous to the person that was formerly the living person, and
- 3) the dead person is identical with the person that was formerly living (Mackie 1999, p. 219).⁵⁰

What's interesting about the 'death argument' is that it may appear as if any animalist would agree with each premise. This isn't the case, however.

As I mentioned above, Blatti (2014) makes a distinction between what he calls 'organic' animalism and 'somatic' animalism. According to the *organic* animalist, when an organism dies, it ceases to exist (sect. 1.2). Unlike the organic animalist, the *somatic* animalist believes that (under normal conditions) an organism will continue to exist after death as a corpse (sect. 1.2). These differing views are opposing responses to what has been called "the termination thesis" (TT) (Feldman 1992; Mackie 1999; Feldman 2000; Hershenov 2005; Árnadóttir 2011; Snowdon 2014a). According to the TT, people cease to exist when they die. Organic animalists accept TT. Somatic animalists reject TT.

Most animalists believe that the existence of an animal ends when its life ends (Blatti and Snowdon 2016, p. 7). Given that TT is so widely accepted, it's important to determine exactly what it is before I go on to argue against it. TT does not claim that when a person dies, they cease to exist *as a person* (Feldman 1992, p. 91; 2000, p. 100). Rather, TT suggests that a person ceases to exist, *simpliciter*, when they die (2000, p. 100). Neither does TT suggest that when we die, we will become a corpse, or any other kind of thing, as that would imply the falsity of TT:

⁵⁰ I assume that by "dead person," Mackie is referring to the body that was formerly associated with the person, and not the "person" we refer to in terms of psychological continuity. This seems to me like the most charitable interpretation of Mackie's argument.

'TT' is not the view that when people die, they cease existing *as the same kind of thing they formerly were*. 'TT' says nothing about “existence as a kind of thing.” Rather, 'TT' implies that when a person dies, he or she ceases existing as any kind of thing, since he or she ceases existing altogether. And in the second place, if a person goes on existing as a corpse after death, then he or she most certainly does go on existing. If you exist as a corpse, then you exist. In that case, 'TT' is false, since 'TT' implies that when people die they don't go on existing as anything (Feldman 2000, p. 101, original emphasis).

'TT' is the view that we cease to exist, *simpliciter*, when we die. When an animalist accepts 'TT' we can refer to them as *organic animalists*.

As I've mentioned, organic animalists deny that we continue to exist after death, so although they would agree that psychological continuity isn't necessary for personal identity, they would (similarly to the non-animalist) disagree with the first and/or third premise. Regardless, Mackie's death argument casts light on the primary difference between the two positions (i.e., the organic and somatic animalism). Thus, Mackie suggests:

Consideration of the Death Argument forces us to recognise that Animalists face a genuine choice between different accounts of the persistence conditions of human beings. The question what those conditions are has not been adequately debated in the literature, and there has been a tendency to assume that continued life is required (1999, p. 221).

The importance of this difference—the different positions regarding the persistence conditions of human beings—as well as acknowledgement of the lack of discussion on this issue in the literature, are mentioned by Blatti (2014, sect. 1.2) and (Olson 2004, p. 269). The differing views have also been used to show that this debate is not merely a verbal or linguistic problem (Blatti 2014, sect. 1.2). In the rest of this section, I will flesh out why some animalists have

endorsed the *organic* variation of animalism, as well as why some have advanced the *somatic* variation.

Several arguments have been suggested for embracing the TT and thus taking organic animalism to be true. However, not all of these arguments apply well to animalists. ‘The argument from personal dualism’, described by Feldman (1992), doesn’t afford the animalist much hope, for instance. According to this argument, we cease to exist when we die because we are a union of body and soul. When we die, our soul separates from our body, thus breaking the union (pp. 97-99). However, Feldman notes that most people that accept TT do not believe in the sort of dualism described (1992, p. 98).

One argument that may be embraced by the organic animalist is that an animal must cease to exist after death because that is a consequence of accepting Locke’s criteria of the persistence of organisms—call this the ‘Lockean defence of the TT.’ Recall from the introduction of this thesis that animalists have typically accepted Locke’s account of the persistence of organism—i.e., that an organism persists insofar as it partakes in the same life. Thus, when an animal dies, it ceases to exist because the corpse no longer partakes in the life necessary for animal persistence.

The desire to maintain a Lockean account of the persistence of organisms seems to be the main reason animalists have accepted TT. Olson, for instance, explains one reason to believe that the animal ceases to exist after death:

If organisms are essentially organisms, or if nothing can be an organism at one time and a non-organism at another, then what it takes for an organism to persist ought to have something to do with its life. The proposal that comes most readily to mind is that an organism persists if its life continues, and perishes when its life ceases and cannot be restarted: that is, when it dies. This cannot be what it takes for a corpse to persist. So the persistence conditions of living organisms seem unlike those of corpses (Olson 2004, p. 270)

For Olson, an animal must cease to exist after death in virtue of it no longer partaking in its life because life is a necessary property for organismal persistence. Corpses, on the other hand, have different persistence conditions (they can continue to exist without partaking in a life). Therefore, animals and corpses cannot be numerically identical, so the animal cannot continue to exist (as a corpse) after death.

Mackie (1999) argues that we can accept the important insight offered by Locke regarding the persistence of organisms whilst also rejecting the TT. Although Mackie takes Locke to have endorsed the TT (1999, p. 236), he takes there to be an ‘obvious alternative’ to Locke’s account of organismal persistence that both respects his insight yet denies the TT. We can do this, he believes, by taking the persistence of a biological organism to depend on whether or not the organism has enough of the organisation of parts that are suitable for that organism to live. This view would not, therefore, claim that organisms are necessarily alive, only that they have enough organisation of parts such that they *could* live (Mackie 1999, p. 236). He writes:

If we adopt this view, we can agree that there is a difference between the identity conditions of masses of matter and those of organisms, and that this difference is connected with the fact that it is characteristic and/or distinctive of biological organisms that they take on, and lose matter as part of their natural life cycles - indeed, that this is how they naturally live - without believing that biological organisms necessarily cease to exist when they die (Mackie 1999, p. 236)

What’s more, Mackie believes that this alternative interpretation of organismal persistence may follow from some of the things Locke himself says [although he suggests that we should not take Locke to have meant, or even be aware of, this alternative interpretation (1999, p. 237).] For instance, after talking about how a plant’s identity is understood in terms of its continued life, Locke continues to describe that it continues to exist insofar as its parts “[. . .] exist united in that continued Organisation, which *is fit to convey that Common Life*

to all the Parts so united” (Locke 1690 [1975], II.xxvii.4, Mackie's [1999] emphasis, p. 237). Following this alternative interpretation, Mackie states:

Now the parts of an organism plainly *can* be organised in such a way that they are fit to convey life to the organism, even if they are not actually doing so. Freshly dead trees, butterflies, and human beings may retain an almost perfectly intact organisation of their parts (Mackie 1999).

As stated above, the organisation of parts that are fit to convey life is the basis for Mackie's alternative to the TT (1999, p. 237). On this view, an organism persists insofar as the organisation of those parts that are fit to convey life are sufficiently intact. Animalists have argued against this account of organismal persistence (e.g., Olson (2004, p. 270-272)), but it at least offers a way to reject the TT for those that wish to do so and, at the same time, take seriously the important insights that Locke provided on this matter.

As I mentioned earlier, the ‘organic’/‘somatic’ debate amongst animalists isn't merely verbal/linguistic. However, it has been recognised, both by organic animalists [e.g., Olson (2004, p. 269), Rosenberg (1998, p. 41)] and somatic animalists (Feldman 1992, pp. 93-95; 2000, pp. 101-103; Árnadóttir 2011, p. 581; Snowdon 2014a, p. 115), that we often talk as if there really are dead animals. Thus, regardless of whether we are correct in doing so, we say things like “we buried my grandmother today” or “when my father died, we had *him* cremated”. Likewise, Feldman (2000) suggests that the “here lies” followed by the name of the deceased on the headstones in cemeteries speaks to the idea that we continue to exist after death (pp. 101-102). In fact, “[. . .] if people went out of existence when they died, there would never be a case in which some formerly living person lies dead in his grave. Every ‘Here lies’ would be a lie” (Feldman 2000, p. 102).

Despite many agreeing that our common language assumes the existence of dead animals, it's believed by some that this fact does little to make somatic animalism persuasive. It has been suggested that our folk

ontologies (and associated linguistic practices) can also favour the view that there aren't dead people. For instance, those that believe in a soul are likely to believe that their dead relatives are located in Heaven rather than existing as a corpse in a grave (Hershenov 2005, pp. 38-39). This suggests that there may be more than one common-sense view, or perhaps, no common-sense view at all regarding when we cease to exist (p. 39).

Furthermore, even if there is a common-sense view and set of linguistic practices shared amongst most (or even all) people, such talk and views are not always clear when it concerns the persistence of objects (Árnadóttir 2011, p. 581), and thus we would still have reason to be wary of putting too much weight on such things (Hershenov 2005, p. 39):

We should not let our metaphysics be driven by pre-theoretical intuitions even if linguistic practices reveal them to be widely shared by laypeople. When exploring the metaphysics of individual objects we should place less emphasis on folk ontology and linguistics intuitions and more on other matters [. . .] (Hershenov 2005, p. 39).

What's particularly important for the purposes of this chapter is that one of the things that Hershenov believes we ought to place more emphasis on is whether or not a particular metaphysical position is compatible with our best current science (Hershenov 2005, p. 39). This compatibility with science is something Hershenov and I agree on, and I'll rely on what I've said previously in this project (especially chapter 3) to defend the view in a general sense.

The next section of this chapter will focus on the nature of this compatibility in a narrower sense: I will focus on whether or not our best current science assumes, requires, or is indifferent to the view that humans continue to exist after death. I will strongly suggest that some scientific disciplines do, in fact, assume and require this shared identity. Before I can show this importance, I want to point out two potential problems that those defending the TT have to face. Both of these issues have a fair bit of response

in the literature already, but I mention them again because they will resurface later on (in section 3).

The first problem is that an acceptance of the 'TT', and thus organic animalism, face what I will call the 'transfer problem'. This problem is one of explaining how an item that was previously on the living person comes to be on the now corpse—how did it transfer from one thing to the other?

I base the transfer problem on a scenario described by Feldman (2000) in which a person dresses in a tight-fitting, hard to button suit, only to die later with the suit still on. After their death, we now have a corpse on which is the same tight-fitting, hard to button suit. Feldman asks, “[h]ow did the person get out of the suit without unbuttoning the buttons and unzipping the zippers? How did the corpse get in there? If 'TT' is true, these things must have happened” (2000, p. 103). Feldman argues (and I agree) that it is more reasonable to assume that there was no transfer of the suit from a living organism to a corpse (p. 103). Rather, we both believe that the living person died with the suit on, and now the corpse (the same object, although now dead) is wearing it.

The second problem that 'TT' faces has been referred to as ‘the annihilationist’s dilemma’ (Olson 2013, p. 88). The annihilationist’s dilemma stems from the fact that, if an animal really does cease to exist after death—if the animal and the corpse are not numerically identical—then an explanation is needed as to where the corpse came from after the animal died and ceased to exist (p. 88). It’s a dilemma in that there seems to only be two possible solutions, neither of which is ideal: *corpse concurrentism* and *corpse creationism*.

According to *corpse concurrentism*, the corpse existed before death. This position has the advantage of answering the problem of where the corpse came from—it was there all along! However, Olson suggests that this solution has the odd disadvantage of implying a biological dualism: that the corpse-to-be and the animal would be composed of the same atoms at the same time in a non-identity relation (Olson 2013, p. 88).⁵¹

⁵¹ Baker’s material constitution (discussed previously) may be one way of making sense of this ‘biological dualism’ in that the organism and the corpse-to-be could be said to stand in some constitutional relation. I’m not sure if Baker would have subscribed to such a view, but I’m confident, given matters discussed previously, that neither Olson nor I would adopt such a view.

Another solution to the annihilationist's dilemma is what Olson calls *corpse creationism*. On this view, the death of the animal brings the corpse—a new object—into existence (Olson 2013, p. 88). He states, “[s]o nothing persists through an animal’s peaceful death other than its small parts, such as individual atoms. Killing an animal would be a way of bringing a new object into being” (2013, p. 88). Olson seems to suggest that the atoms that composed the animal go on to compose the corpse, thus *creating* the corpse out of its material. One may reasonably ask how this creation works—how and why do atoms respond to the death of an organism in this way? Olson doesn’t provide any suggestion to these questions, and it’s perhaps because of the weirdness of this position that believes it best that it, along *corpse concurrentism*, be avoided (p. 89).⁵²

Someone rejecting TT (e.g., somatic animalist) does not have to worry at all about the annihilationist’s dilemma. Indeed, the fact that the organism doesn’t seem to go anywhere and that a corpse doesn’t seem to appear suddenly has been seen as a reason to reject TT:

Surely in every case in which a 150-pound person dies and leaves a 150-pound corpse, there are plenty of obvious reasons to suppose that a certain 150-pound object persists through the change from being alive to being dead. I mentioned several of these earlier. I can mention one more: suppose a terminally ill 150-pound person is resting on a sensitive scale when he dies. Suppose he dies peacefully, so that the needle of the scale does not move. It pointed to “150” before he died, and it continued to point to “150” when and after he died. It did not even quiver at the moment of death. It would have been hard to remove the person and replace him with an equally heavy corpse. It would have been nearly impossible to do this without causing the needle on the scale to move. Since the needle did not move, there is at least some *prima facie* reason to suppose that some 150-pound object persisted through the change (Feldman 2000, p. 105)

⁵² Olson previously defended *corpse creationism* (Olson 2004, p. 272).

It appears that such *prima facie* reason is not sufficient reason to many for believing that the object survived the change from animal to a corpse. Instead, they choose to face the annihilationist's dilemma.

Hershenov (2005) also offers a solution to the annihilationist's dilemma (although he doesn't refer to it as such). They propose that we substitute the words "corpse" or "dead body" with "remains" (p. 40). According to Hershenov, it wouldn't be strange to assume that the remains of an organism would have similar properties of the organism—weight and appearance, for example. Still, he states that outer appearances can be deceiving (p. 40). As I will show in section 3, referring to corpses and dead bodies as "remains" does nothing to solve the problems that are created by accepting TT.

Lastly, one could adopt *corpse eliminativism*, the view that corpses don't exist; there are, on this view, just particles arranged 'corpse-wise' (Olson 2013, p. 94). Those that endorse *corpse eliminativism* don't have to deal with the annihilationist's dilemma because they deny any corpse comes into being after death—a 'corpse' is just a useful fiction. An issue with *corpse eliminativism*, however, is that it's not clear how to defend it without also defending the elimination of all things (p. 94). How can we justify counting tables as objects/chairs/etc. as objects but deny corpses count?

8.2. The use of corpses in science

So far, I've fleshed out the differences between organic animalism and somatic animalism, as well as briefly outlined some arguments for and against each position. I've also shown how organic animalism and somatic animalism are opposing responses to TT. In this section, I want to offer what I take to be a convincing argument in favour of somatic animalism, the view that we continue to exist after death.

This argument stems from an observation concerning how scientists talk about and study corpses and how they (at least appear to) learn from corpses. In some respects, this recognition isn't new. Carter (1984) offers a few scenarios that depict situations similar to the ones I'm about to describe. He notes, for example, that if TT is true, then it is strange how an autopsy is performed on a corpse in order to discover how a different entity perished (p.

413). Carter also gives us an example of a physician examining a corpse of a man that he had performed surgeries on and, recognising the resulting scars, states how he spent a good deal of his time and energy taking care of the person (p. 413).

Although Carter's imagined scenarios are instructive, my hope is that some real case studies of scientific research and investigation of cadavers will show that these scenarios are not merely imaginary. In doing so, I will show just how strange accepting TT can be and (in section 4) how this leads to a large problem for the organic animalist. For the rest of this paper, I'm going to use the term "corpse" to refer exclusively to what we would normally call human corpses, but I see no reason why my argument (or similar arguments) cannot also refer to non-human corpses.

In medical education, the use of corpses to teach gross human anatomy has occurred for centuries (Cornwall and Stringer 2009, p. 234), and the dissection of these cadavers in medical courses has been seen as a "uniquely defining feature" (McLachlan and Patten 2006, p. 243) of such courses. Beyond university degrees and courses, non-university groups such as dentists and midwives have also used cadavers in various ways (Cornwall and Stringer 2009, pp. 235-236). More importantly, research on cadavers has led to biomedical advancements (Bach 2016, p. 356) in areas such as the lymphatic anatomy of the breast (Suami et al. 2007).

Anatomy isn't the only scientific discipline where a presupposition that we continue to exist after death is useful. Forensic anthropology is defined by Nawrocki (2006) as "[. . .] the application of anthropological research and techniques to the resolution of medicolegal issues, drawing primarily from physical anthropology and archeology" (p. 1). They go on to differentiate forensic anthropologists from general anthropologists by stating the former's focus on human identification (p. 1). Identifying the deceased is important in that it helps in criminal investigations, determine victims of accidents and mass disasters, as well as victims of war crimes and genocide (Black 2007, no pagination). Thus, Black (2007) notes the important roles that forensic practitioners play:

The recognition of a self identity may be a basic tenet of humanity and therefore, by extension, the scientific ability to confirm that identity is a natural progressive step. [. . .] The determination of biological identity of the living or the deceased is undertaken by forensic practitioners to fulfill our obligations to international humanitarian law, to uphold human rights, and to assist those who survive (Black 2007, no pagination).

We can see from the use of terms such as “human identification” and “biological identity” in reference to the deceased that forensic anthropologists are working under the presupposition that what they are dealing with are dead biological organisms, specifically humans.

Although the language that forensic anthropologists use when talking about corpses is interesting, what helps push my argument further is references to the history of the formerly living individual that forensic scientists use to explain assistances and hindrances in identifying the deceased. Hobbies, previous accidents or assaults, bodily modifications, medical interventions, etc., that a living individual had or experienced, for example, can aid in identifying them once they die (Rutty 2007, pp. 122-123). Examples of this can include deformities of the nose and ears of former boxers (p. 122) or missing organs from individuals who had them surgically removed when alive (p. 123). Identifying the individual can be hindered in cases where the person was badly burnt, shot, or died from explosives, etc. (pp. 124-125).

The occupation and drug/alcohol use of the living organism can also help to identify their corpse after death (Milroy 2007, pp. 108-111). An example of this can be seen in coal miners who can have identifying marks based on soft tissue changes made by breathing in coal dust (p. 108). The nasal septum can be changed in those that snort cocaine, and external stigmata can be seen on individuals who take drugs intravenously (p. 109).

If a satisfying account of animalism is one that can accommodate science in some fashion, then the fact that scientists use, and have used, corpses to learn about humans ought to be a reason to suggest that those

corpses were once living. To question this is to create an explanatory gap in which we have to explain how scientists are able to utilise corpses in such a way as to learn about humans.

The explanatory gap will be discussed further in section 4, but note that structural animalism does not have to contend with it. Nor does structural animalism have to figure out how to deal with the TT and the annihilationist's dilemma. In fact, the structural animalist is able to endorse a form of 'corpse eliminativism' that is strengthened by structural regularities, i.e., the structural animalist accepts that there are no corpses but isn't content with saying that there are particles arranged 'corpse-wise' and that corpses are just 'useful fictions.' Corpses, on this account, are n-entities—heuristic objects that are modally resilient (at least to some extent). Understood in this way, the structural animalist can claim that the corpse-structure is a continuation of some relevant biological structure—a *somatic* biological structure. This structure is what medical students refer to when studying gross human anatomy and what forensic scientists look for when finding and identifying corpses. Corpse-structures can also help biologists and psychologists when it concerns a specific aberrant behaviour: necrophilia.

8.3. The case of necrophilia

Aggrawal (2016, p. 1) defines 'necrophilia' as receiving sexual gratification via sex with the dead.⁵³⁵⁴ For this section, I will assume a broader understanding of the term that is based closer from its derived Greek—*nekros* (corpse, dead body), and *philia* (love, friendship)—but also considers the sexual component by which we understand the word today. As such, I will use 'necrophilia' to mean any sex act in which corpses play some kind of role.

The reason for this broader interpretation of necrophilia is that by Aggrawal's (2016) own classification system for necrophilia, some necrophiles

⁵³ Necrophilia has also been referred to as *necrophilism*, *necrolagnia*, *necrocoitus*, *necrochlesis*, and *thanatophilia*. When the attraction is specifically to the corpses of children it's known as *necropedophilia* (Aggrawal 2016, p. 1). When the attraction is specifically to the corpses of non-human animals it's known as *necrozoophilia* or *necrobestiality* (Aggrawal 2011, p. 74; 2016, p. 1).

⁵⁴ Aggrawal (2016) is the most up-to-date and expansive work by this author on this subject. See Aggrawal (2008) and Aggrawal (2009, ch. 13) for his similar but earlier considerations.

(i.e., classes I-III) don't actually have sex with the remains of dead people. Class I necrophiles (or 'role players') merely role-play as if they or someone else were dead (see 2016, pp. 47-48) and Class III necrophiles (or 'necrophilic fantasizers') only go as far as fantasizing about having sex with the dead (see 2016, pp. 51-55). In the case of class II necrophiles—or 'romantic necrophiles'—if sexual contact with a corpse does occur, that contact is limited to a very specific corpse, such as the corpse of a specific loved one (see 2016, pp. 48-51), and as such it's not corpses that are the object of desire, but the former person that the corpse represents. Romantic necrophiles are mostly composed of bereaved people who sometimes cannot accept the passing of a loved one (2016, p. 48), and the psychopathology of this class may be transient in nature and thus recover in time (2016, p. 51).

Additionally, I don't believe sexual gratification is a necessary component of necrophilia. As I will show later on, necrophilia has been observed in several non-human animals. I assume that at least some of these animals don't do it for sexual gratification (at least, not in the way that humans understand the term) but as a way of attempting reproduction. Given that only seven of the ten categories of necrophiles involve physically interacting with the dead bodies as the object of desire, as well as my definition being able to accommodate necrophilia in non-human animals, my broader definition of necrophilia is more encompassing of the phenomenon as a whole.

In non-human animals, necrophilia is also known as 'Davian' behaviour. Izzo et al. (2012, p. 293) and Costa et al. (2010, p. 79) have attributed the first use of this term to Dickerman (1960), stating that it's a reference to a limerick about a necrophiliac named Dave (one which I will not be reciting here.) Davian behaviour has been observed in mammals (Dickerman 1960), birds (Lehner 1988; Moeliker and Rotterdam 2001), amphibians (Meshaka 1996; Brito et al. 2012; Izzo et al. 2012; Groffen et al. 2019; Pintanel et al. 2021), and reptiles (Brinker and Bucklin 2006; Costa et al. 2010; Siqueira et al. 2015; Ashaharraza et al. 2020).

There are four reasons I refer to necrophilia specifically in this chapter: the first is to highlight that our common conceptions of necrophilia as a phenomenon become less clear once we accept the TT. We often consider

necrophilia as something strange or gross, if not completely wrong or immoral.⁵⁵ Given that I've previously argued that common conceptions have little to no place when doing metaphysics, I won't go into too much detail here. Still, for those who disagree with me on this point, it may be worth considering how one can reconcile the widespread belief that having sex with a corpse is wrong/disgusting/etc. with the belief that there is individual (or, indeed, even a corpse if we are corpse nihilists) there for such wrong/disgusting/etc. acts to be acted upon.

The second reason I refer to necrophilia is that, beyond the common conceptions of it mentioned above, the phenomenon becomes more difficult to explain and understand scientifically. Anurans (i.e., members of the order Anura, i.e., frogs) provide perhaps the best examples to illustrate this point. Meshaka (1996) takes Davian behaviour in anurans to be indicative of a 'Darwinian dilemma' in which the drive to procreate puts them in situations where there is no chance that they will be able to reproduce. Even further, some of these individual anurans put themselves into danger in order to attempt this copulation by doing so on roads where they can be killed. Meshaka believes the high frequency of necrophilic behaviour in anurans is a consequence of human behaviour, i.e., we've built automobiles and roads which result in the death of female anurans. These deaths result in stationary females that appear receptive to male anuran advances (Meshaka 1996, p. 75).

How is a proponent of the TT able to explain this phenomenon? If the TT is true (and we assume that if it is for human animals, then it must be for non-human animals), then the dilemma that Meshaka (1996) states as occurring in anuran Davian behaviour is much more complicated than previously stated. If the TT is true, it's not the case that male anurans are fooled into putting themselves into danger to attempt copulation with a dead female, but that they are fooled into copulating with a non-frog.

These scenarios become even more complicated when one considers the observations and experimentations of Izzo et al. (2012) and (possibly)

⁵⁵ See, e.g., Ochoa and Jones (1997, pp. 252-254) for a brief discussion on why societies value the remains of the dead. Aggrawal (2016) describes necrophilia as “[. . .] one of the weirdest, most bizarre and revolting practices of abnormal and perverse sensuality” (p. 1).

Groffen et al. (2019). Izzo et al. (2012) provide a case of what they call a ‘necrophilia strategy’ exhibited in the species *Rhinella proboscidea*. *R. proboscidea* fertilization occurs externally, and males have been observed extracting oocytes from dead females by compressing the dead female’s abdomen. The eggs were collected and found to have been successfully fertilized (p. 2963).

R. proboscidea participate in ‘explosive’ breeding (Izzo et al. 2012, p. 2962), meaning that breeding occurs in a short span of time (p. 2961). Because of this limited time, male-male competition occurs as a way of limiting female choice in a mate. This competition can result in female fatalities (p. 2962). Izzo et al. believe the ‘necrophilia strategy’ seen in *R. proboscidea* may be beneficial in that it provides males with the use of oocytes from dead females (2012, p. 2965), making it more likely that they can reproduce. After a female dies, the chances are unlikely that a male will find and successfully breed with another alive female. This is especially the case given that the operational sex ratio is strongly biased to males and that males expend a lot of energy in battles over females (p. 2965). Given this, it would be advantageous for *R. proboscidea* for males to have adapted a sexual strategy in which they extract and fertilize oocytes from dead females because it would allow for the reproductive success of both the male and female (p. 2965). Beyond *R. proboscidea*, Izzo et al. hypothesize that the ‘necrophilia strategy’ may be adaptive to other species, stating:

As expulsion of oocytes from dead females probably can have fitness advantages for both partners, the behaviour may be more prevalent in anurans, or even other groups that rely on external fertilization, than present records indicate. However, studies of reproductive behaviour of species that are explosive breeders should be conducted to confirm this hypothesis (Izzo et al. 2012, p. 2965).

Since their publication, Groffen et al. (2019) has suggested that the ‘necrophilia strategy’ may be utilised successfully by the species *Rana uenoi*, a ‘prolonged breeder’ (p. 43) (meaning that, unlike ‘explosive breeders,’ *R. uenoi* aren’t

limited to a short-term temporal breeding pattern.) This observation gives added credence to the ‘necrophilia strategy’ as a successful breeding strategy.

If the TT is true, then how are we to explain Davian behaviour as a worthwhile sexual strategy? How are we to explain the offspring resultant of such a strategy? If we accept some version of corpse eliminativism, then it seems like we would have to accept some version of *creatio ex nihilo* in certain circumstances: such as in circumstances when the necrophilia sexual strategy is successfully utilised. Even if we deny corpse eliminativism, and accept that some kind of non-anuran material object exists after the female anuran dies, we would presumably need to accept some major revisions in our understanding of sexual strategies. For example, one might suggest that it’s worthwhile for some members of *R. proboscidea* or *R. uenoi* to attempt copulation with an object that is not a member of its respective species (nor even an animal). When such a strategy is successful in these cases, we might say that the resultant offspring only has one parent (i.e., the male) given that there is, at least according to the TT, no female present.

Of course, these complications don’t exist for those that deny the TT. There is no question, on this account, what the dead object is. The necrophilic sexual strategy works precisely because, in such circumstances that it’s successfully implemented, a male frog reproduces with a female frog! Given that a rejection of the TT provides us with a more straightforward interpretation of the necrophile strategy, I believe that we ought to reject it.

The third and fourth reasons I utilise necrophilia in this discussion can be seen as considerations that follow the first and second reasons above. If TT is true, it’s not only our common conceptions of necrophilia that become dubious but our common moral and legal concerns regarding necrophiles and acts of necrophilia. I will go into further detail on this point in the following (and final) chapter.

8.4. An explanatory gap

In the previous section, I showed how medical researchers and forensic scientists use dead humans to learn about humans in general as well as

particular individuals. I also showed that cases of necrophilia become complicated, especially in cases in which necrophilia leads to procreation. Because of this, I argued that it is beneficial to take ourselves to exist after death (as corpses). Of course, one may oppose this argument on the grounds that it assumes a philosophical understanding from such scientists that is simply not there. Perhaps what medical researchers and forensic scientists *think* they are studying and what they are *actually* studying are two completely different things. What they are *actually* studying is not something identical to a human animal, but something numerically different from a human animal. Perhaps necrophiles aren't interested in human corpses, but atoms arranged 'corpse-wise.' Maybe we ought to reconsider how reproduction in some species works to include cases of *creatio ex nihilo*.

If this move is made, then I think things become weird and complicated very quickly. I believe this because what I take to be an explanatory gap forms as a result of accepting that a corpse is not identical to a previous living animal. Unless the organic animalists reject that knowledge is attained from corpses by medical researchers and forensic scientists, they have to explain how it is that such scientists learn about humans (both generally and regarding specific individuals) by a) examining objects that are not themselves those animals or individuals, or b) examining objects that are not connected to the animals or individuals in any clear way.

I'm sure the gap can be filled in somehow: scientists consistently learn about stuff from other, non-related things. However, in these cases, there is usually some connection between the entities we are learning about and the entities we are learning from. When it concerns corpses, however, the connection isn't clear if we adopt 'corpse creationism' (i.e., the corpse is brand new, so some connection with the once-living organism would need to be made),

To illustrate this point, imagine a scenario in which a corpse is found in a forest. Upon examination, a group of forensic anthropologists and other experts in the area determine that the corpse is a male, somewhere in their late thirties or early forties. The corpse has been in the forest for only a few days based on the level of decomposition, and the presence of a bullet hole in the

back of the head (as well as an embedded bullet) suggests that the cause of death was from a gunshot. Later, DNA, dental, and photographic evidence show the body to be that of an individual named Norman.

If the organic animalist is correct, then this scenario becomes problematic very quickly. As shown in the previous section, a key job of the forensic anthropologist is to identify humans. Given that the corpse found in the forest isn't human, one may wonder how the forensic anthropologist identified it (or why a forensic anthropologist was brought in to investigate the scene to begin with). Assuming that the organic animalist can account for this identification (as I will show later, they could suggest that the corpse is the *remains* of the individual, whilst not being identical to them), they then must explain how a non-biological thing can be determined to have a particular sex, as to my knowledge sex is a property that only living beings have. Determining the time since death and the age of the corpse is also complicated. How is it that forensic anthropologists can determine when a human animal died based on an object that never existed when the animal was alive?

Another problem comes from explaining the cause of death. Firstly, how does one determine the cause of death of something that no longer exists based solely on a new and distinct object that didn't exist when the living entity died? Secondly, recall the *transfer problem* mentioned earlier. If the bullet really is numerically identical to the one that caused the death of an individual, then how did the bullet get removed from the animal? How did it find itself in the head of the corpse? Similar to Feldman's person in a tight suit, if the organic animalist is right, then this switch from animal to corpse must have occurred at some point.

Regarding the nature of this and similar cases, the fact that it appears as if the bullet didn't make a transfer suggests the falsity of TT. Take a similar example given by Feldman (2000) in which an individual is shot by a bullet but survives. Later, an autopsy reveals the bullet (p. 102). Feldman states:

I can readily imagine that there might be a person who is hit by a bullet on one occasion and then later dies as a result of a stroke. I can readily

imagine that an autopsy might be performed on this dead person and that the medical examiner might then remove the long-embedded bullet. The object that formerly was a living person still exists—now as a corpse—and still contains the bullet. If such a thing could happen, then TT is false (Feldman 2000, p. 102)

If, as it appears, a bullet in such a circumstance doesn't transfer from an individual to a corpse, then TT (and thus, organic animalism) is false. If the bullet does transfer from a living organism to a corpse, then this transfer has to be explained.

Lastly, it should strike one as both odd and unbelievably coincidental that the corpse and Norman happen to look the same, as well as share the exact same DNA and dental structure. But *coincidence* seems to be the only explanation if organic animalism is true—the corpse just happens to have matching DNA, dental structure, and appearance of a former living animal. This coincidence makes it appear (falsely) as it was that same individual!

Similarly, the organic animalist has to offer an explanation for how medical students learn about human anatomy using the anatomy of a corpse or how medical research using cadavers can lead to advancements in medicine. Without this explanation, it seems miraculous that these things occur.

One may respond to this problem by suggesting that we can make sense of it if we refer to the corpse as the *remains* of the living human animal. Hershenov (2005) suggests as such, noting that it's not strange to hear of coroners studying remains (p. 39). He goes on to list a variety of things that scientists have learned from that are not, themselves, organisms:

[. . .] there is an abundance of counterexamples to the claim that knowledge of a species can only come from studying individual members of the species. Just consider all the truth that can be gleaned from footprints, artefacts, nests, feather, stools, and blood samples of the species in question. They tell us a great deal about an organism that they are not identical to. So, likewise, gaining knowledge from studying

what is called a ‘corpse’ does not necessitate that the corpse had to be a living organism. It is not even necessary that the corpse be considered a genuine substance rather than just the remains of one (Hershenov 2005, pp. 39-40).

Thus, according to Hershenov, organic animalism can accommodate research done on cadavers. There is no explanatory gap because what researchers are studying are the *remains* of a living animal. I don’t see this as a productive move to make, however, because at best, it creates the question of what kind of “remains” the corpse is (e.g., are human remains like blood samples? Bird nests?). At worst, it only pushes the problem back further: how do we begin to make the connection between the corpse and the former living animal?

One could suggest that we can make the explanatory connection between corpses and the former living animal in exactly the same way that we learn from bird nests and blood samples—that is, corpses are of the same kind of remains as bird nests and blood samples. I don’t know if this is exactly what Hershenov (2005) had in mind when he listed his examples of animal remains, but such a suggestion is possible. We could potentially do this by broadening the “historic-dependence account” described by Olson (2013, p. 90-92), in which the boundaries of an organism include things that are in, some sense, a result of earlier activities of the life that created them (p. 90).

Olson mentioned the historical-dependence account as a possible way to include “dead” parts of an organism (for example, a sheep’s horns) as parts of that organism, but we could extend such a definition to include artefacts that, although not parts of the organism, have at least some causal connection with the organism. A bird’s nest, for instance, may not be a part of the bird, but we can recognise the nest as offering information about that species of bird in virtue of a member of that species building it, i.e., having some causal connection to it, when it was alive. This account doesn’t seem to work in explaining the connection between corpse and living animal, however, because a corpse isn’t something that is left over by the organism, according to the organic animalist—it’s an entirely different entity.

Because organic animalists have the burden of finding a solution to the explanatory gap, and because any way of doing this seems to fail, I suggest we abandon the position that creates it. We do persist after death (as non-living things). In structural terms, this amounts to a continuation or some somatic biological structure that extends beyond death. These non-living structures can then be n-composed (recall that this means ‘composed’ in a thin sense) to denote a particular useful structural node or n-entity that we call a ‘corpse’. Corpses are then studied by scientists to not only learn about the specific individual that the now corpse was when it was alive but also about certain aspects of the kind of thing to which the individual belongs (in our case, *Homo sapiens*).

8.5. Conclusion

In this chapter, I have shown that accepting a version of somatic animalism (and thus denying the *termination thesis*) is preferable to accepting the alternative view: organic animalism. I’ve referred to this version of somatic animalism as *somatic-structural animalism* because it focuses on the somatic structures found in biology. Structural somatic animalism is preferable to organic animalism because the latter offers a less straightforward interpretation of what occurs in our best current science (especially gross human anatomy, forensic human identification, and cases of necrophilia). Organic animalism also has to deal with an explanatory gap brought upon by ‘corpse eliminativism’ or the annihilationist’s dilemma.

Conclusion

There are three main steps that I've made in this project: first was to argue that animalism, the view that we (i.e., human persons) are animals (i.e., members of the species *Homo sapiens*), works better as a theory of identity when we motivate it with actual biology. The second step was to argue that biology—at least when concerning biological individuals—works best when we abandon talk of 'substances' and 'objects' and instead embrace an eliminative Ontic Structural Realism (OSR). Finally, in the third step, I brought OSR all the way back to where I started by offering an account of animalism that accepts that we are necessarily animals but denies that animals are 'objects' in any ontological sense. I've called this view Structural Animalism. To conclude this project, I'm going to broadly look back at some of the key points I've made and discuss where we, structures of human animals, go from here.

1. Summary: Step one (animalism to biology)

Step one of this project began with an introduction to a theory of personal identity known as animalism. Animalism, it was described, broadly held that we, human persons, are identical to animals. Specifically, each human person is identical to a biological individual, a member of the species *H. sapiens*.

Animalism is a response to the *personal-ontological question* of personal identity, the question that asks, "what are we?" In this regard, animalism doesn't (at least directly) address other questions of personal identity, namely the *evidence question* (i.e., "which evidence do we use when we consider when establishing whether or not two or more persons or objects are numerically identical?"), the *personhood question* (i.e., "what does it take to be a person rather than a non-person?"), and the *persistence question* (i.e., "what are the necessary and sufficient

conditions for some entity at one point in time to be numerically identical to another entity at another, different, time?”)

The relationship between the various questions of personal identity was discussed (albeit briefly). An answer to the *personal-ontological question*, for example, could imply an answer to the *persistence question* (and vice-versa). This relationship exists because what we are will tell us something about what it takes for something like us to persist. If we are human animals (as animalists suggest), then this answer to the *personal-ontological question* will imply that we persist in whatever way human animals persist—it will imply an answer to the *persistence question*.

The *evidence question* traditionally relates to the *persistence question* because an answer to the former will help us answer the latter. If we want to know what the necessary and sufficient conditions are for something to persist through time (thus, answering the *persistence question*), then we ought to be interested in what kinds of evidence will lead us to those conditions (thus, answering the *evidence question*.) I suggested at this point in the thesis that we also ought to consider that an answer to the *evidence question* will also help us determine an answer to the other questions of personal identity by, e.g., providing us with evidence to determine what it takes something to be a person (thus, answering the *personhood question*) or suggesting what we might be (thus, answering the *personal-ontological question*.)

In this section of the project, I also suggested that the *personhood question* could be broken down into two separate questions: what I called the *broad personhood question* and the *narrow personhood question*. The *broad personhood question* asks what it takes for any entity to be a person—what properties would some entity have to have in order to be a person? The *narrow personhood question* asks what it would take for some particular kind of entity to be a person—what does it take for some particular kind of entity to have the properties suggested by the *broad personhood question*. Again, consider electricity to motivate this distinction: we can have a ‘broad electricity question’ that offers us a general account of what it takes to generate electricity, but not all things that generate electricity are the same. A ‘narrow electricity question’ would provide an answer of what it takes for a windmill to generate electricity or what it takes a

solar panel to generate electricity. This distinction should be important to the animalist because animalism doesn't take all persons to be human persons (even though all human persons are human animals). Presumably, the conditions that must be met for a human animal to be a person are different than those that must be met for an alien to be a person (or an elf, a god, a robot, etc.) Yet, an answer to the *broad personhood question* would tell us what properties to look out for that group all of these different entities together.

Animalism was compared and contrasted with neo-Lockeanism. A group of views that accept some form of *psychological criterion* of personal identity. Neo-Lockeanism is named such because it refers back to John Locke, who argued that persons persisted through time differently than living things (i.e., biological organism)—persons persisted through time insofar as the rational being or consciousness persisted through time. Neo-Lockeans follow in Locke's footsteps by arguing that what it takes for a person to persist has something to do with psychology (hence, the *psychological criterion*.) In the same way that animalists answering the *personal-ontological question* by claiming we are human animals (and thus are implied to persist in the same way human animals persist), neo-Lockeans respond to the *persistence question* by stating that we persist in virtue of some psychological fact (and thus are implied to be numerically identical with something psychological.) We can see the relationship between the *personal-ontological* and *persistence* questions playing an important role in how neo-Lockeans and animalists approach questions about our identity (i.e., animalists start by answering the *personal-ontological question* and derive answers to the other questions of personal identity from that, and neo-Lockeans start with an answer to the *persistence question* and do the same with their answer to that question.)

With the different questions of personal identity in mind, I suggested that the question that ought to have priority is the *evidence question*—that, as metaphysicians interested in personal identity, we should consider what evidence we look at to lead us to one view of identity or another. Once we do this, we can see that the animalists are emphasising evidence that points to our biological aspects and neo-Lockean's are, in a similar fashion, emphasising evidence that highlights our mental properties.

In chapter 1, I showed how animalists emphasise evidence that shines a light on our biological properties by providing a critical analysis of three arguments that animalists have provided to conclude that we must be biological organisms. The *Thinking Animals Argument* (TAA) emphasised a common belief that we have that some biological organisms (e.g., *H. sapiens*) have mental capacities such as the ability to think. The *Foetus Problem* hangs on the belief that many people have that we, as human persons, were at one point human foetuses. The “problem” comes into play when we consider that this common belief seems to be at odds with the belief that we are necessarily persons (something that no foetus is.) Finally, the Animal Ancestors Argument (AAA) gets its force from the common belief that all human persons are the product of evolution by natural selection. According to the AAA, if human persons aren’t organisms, then neither were the members of the previous generation (e.g., our parents), and the same can be said of the generation before that (and so on, and so forth *ad infinitum*). Thus, it was argued, the entirety of evolution by natural selection must be false (at least when it concerns human persons.)

In chapter 2, I turned my sights over to arguments that have been made against animalism. Utilising a slightly modified taxonomy afforded by Paul Snowdon, I showed that arguments against animalism could be broadly categorised in two ways: those that rely on apparent dissociative cases (i.e., cases in which there is a perceived dissociation between the human person and the human animal) and those that do not rely on such cases. In terms of the latter kind of argument, if a perceived dissociation were shown to exist, then animalism must be false. Animalism proposes that human persons are identical to human animals, and if dissociative cases are shown to exist, then it would be possible for a human person to exist without also being a human animal (and vice-versa). Concerning dissociative cases, Snowdon divides them according to those that rely on possible cases in which there is an animal and no person (A&~P) cases, and those that rely on possible cases in which there is a person and no animal (P&~A cases).

Although this taxonomy is useful, there is another way that dissociative cases can be categorised that, if the division is found suitable, can be of great

tactical advantage to animalists. In chapter 3, I spelt out this division of dissociative cases in terms of those that were ‘real’ and those that were ‘imagined.’ ‘Real’ cases, it was argued, were those conceived dissociative cases that could actually occur in the world as we know and understand it. ‘Imagined’ cases, in contrast, were conceived dissociative cases which could only occur in the imagination (and thus not in the real world.) If this is a worthwhile manner in which to divide up apparent dissociative cases, I argued, then animalists can reject any ‘imagined’ dissociative cases as not posing any metaphysical threat to animalism on the grounds that such cases were not possible.

Snowdon rejected the idea that such categories pointed at a real division in dissociative cases, whereas I argued that they did. This is because Snowdon doesn’t believe we can delineate ‘imagined’ scenarios in philosophy from those in science. Such scenarios are used in science to help us make hypotheses about how the world works and, as such, it seems like we can do the same thing with imagined scenarios in philosophy. If imagined thought experiments weren’t able to be used in philosophy, he argued, then why can we use them in science?

In determining whether or not the ‘real’ and ‘imagined’ distinction was a worthwhile one, Snowdon and I were both referring to Wilkes’ contention that thought experiments had no place in drawing conclusions in philosophy (this despite her view that they could be used reliably to draw conclusions in science.) As I showed, Snowdon’s criticisms of the ‘real’/‘imagined’ were based on an uncaredful analysis of Wilkes’ view, leading him to conflate ‘thought experiments’ that aren’t useful (i.e., those that aren’t constrained by experimentation) with ‘thought experiments’ that are useful, ‘experiments that take place in thought,’ and ‘merely imagined’ thought experiments. Given that these kinds of experiments are different to Wilkes, and given that the ‘real’/‘imagined’ distinction only relies on ‘thought experiments’ that aren’t useful being utilised in philosophy, I argued that Snowdon’s criticisms of the distinction were unfounded.

2. Summary: Step two (biological objects to biological structures)

With an understanding of animalism—its varieties, motivations, etc.—considered. I went on to the second step of my plan, namely, to suggest that a fully developed animalism necessitates that the position is, at minimum, accommodating to our current knowledge of biology. However, as I showed in chapters 5 and 6 (which realised this step,) exactly what this means isn't clear and may be best understood by adopting a new metaphysics of biology.

If animalism, the view that I suggested we adopt, claims that we are animals—individual organisms of the species *H. sapiens*—then it had better give us some indication of *what* such a thing is. Yet, providing such information is the first problem that a naturalised animalism must face. As I showed, it's not actually clear what a biological organism/individual even is. Several candidate definitions that are taken seriously by contemporary philosophers of biology were provided. The various attempts at providing a clear set of necessary and sufficient conditions for organismality are attempts at providing a solution to what I called the *definitional* problem of biological individuality. The *definitional* problem is what one faces when they try to figure out what it takes for something to be a biological individual, and as such, it requires a definitional solution—a solution that outlines a set of necessary and sufficient conditions such that, when an entity fulfils them, that entity belongs to the category “biological individual.”

However important a definitional account of organismality may be, such an account still isn't sufficient for telling us what it takes for something to be a biological individual. This problem is what Eric Olson has suggested to us by arguing that such *definitional* solutions will always presuppose that there is some entity that counts as being a candidate for such a definitional solution. What an account of biological individuality requires (either alone or in conjunction with a definitional account) is an ontological account of what counts for some entity to exist such that it can even begin to be defined as a biological individual. I referred to this need for an ontological account of biological individuality as the *existential* problem of biological individuality, with a candidate solution to the problem being an *existential* solution.

Although I agreed with Olson that *definitional* solutions were problematic in that they presupposed particular ontologies, I pointed out that *definitional* solutions were guilty of their own presuppositions—*definitional* solutions presupposed a proper definition of biological individuality. That a *definitional* solution requires a solution to the *existential* problem, which, itself, requires a solution to the *definitional* problem, is what I referred to as the *meta*-problem of biological individuality—how do find a solution to both the *definitional* and the *existential* problems in a non-question-begging way?

The answer to this question was found in a structuralist ontology. According to Ontic Structural Realism (OSR), reality is fundamentally one of structure. I suggested that this non-substantive metaphysics was able to cut through the meta-problem of biological individuality by offering a metaphysics that was both scientific in nature (i.e., structures are understood in terms of modally resilient property relations) and metaphysical in nature (i.e., it suggests that the world is one of structure, not of substance.) By focusing on the important causal or lawlike similarities found in biology, I argued that we could refer to patterns of nature in a coherent way that doesn't necessitate them being properties *of* an object. In doing this, I argued that we could eliminate biological objects (such as organisms) whilst also accepting that there exist heuristic nodes that can be carved out to fit those roles (I referred to this 'carving out' as n-composition, or 'thin' composition, and the resulting thin entities, 'n-entities'.)

3. Summary: Step three (biological structures back to animalism)

With a structural account of biology in mind, I took the third and final step in this thesis: to go back to where I started (i.e., animalism) and apply structuralism there. In chapter 7, I considered some arguments for and against animalism (e.g., the AAA) and suggested how a structuralist metaphysics could bolster some of the arguments in favour of animalism whilst also improving the criticisms animalists could make to their opponents.

Next, I considered how *structural* animalism could be applied to a specific problem in the debate: how to best understand our identity (or lack thereof) after death. This was the situation discussed in chapter 8. In the

chapter, I provided an analysis of the Termination Thesis (TT) and considered what particular sciences or scientific phenomena would look like if it was true. As I showed, accepting the TT creates an epistemic gap for scientists learning about humans via corpses. Accepting the TT also had strange consequences for the reproduction of certain species of frogs. Although there were ways to make sense of these consequences, they were ultimately deemed problematic and less straightforward when compared to a somatic account of organismal persistence. However, I also acknowledged that the somatic account was metaphysically problematic in that it led to the annihilationist's dilemma. To follow through with the *structural* animalism defended in this project, I suggested that we take a *structural somatic* account of organismal persistence to be the most straightforward account in science. According to this account, the relevant structural 'node' to follow in organisms is something somatic—the heuristic has something to do with the body of the organism.

4. Looking forward

I recognise that a *structural* animalism is a unique position amongst animalists, and one that is in need of a lot more consideration. For instance, it's still relatively unclear which biological structures animalists should concern themselves with. I mentioned in chapter 6 a potential conscious organism heuristic (COH) which is arguably the biological structure we care about most often since this is the structure that both animalists and mentalists often refer to. However, there are cases in which the material or 'somatic' structure is the one we care about. This is especially the case when dealing with dead bodies and their parts. A 'living' (broadly construed) structure may be the one ought to consider when we are considering individuals who are in a permanent vegetative state. In any or all of these cases, the animalist needs to figure out precisely what the biological structures are, as well as how modally resilient they are.

Another possible area for further discussion is the role a structural metaphysics can possibly play in feminist metaphysics, both broadly as well *structural* animalism. Elizabeth (2014) has argued that projects in metametaphysics rule out the possibility of feminist metaphysics due to such

metametaphysical projects embracing an overly restrictive importance to fundamentality. She writes:

Many familiar debates in metaphysics—personal identity, free will, constitution, etc.—don't fit neatly into a fundamentality-centric framework. And yet, with a bit of wrangling, defenders of fundamentality-centric metaphysics can argue that those debates are actually, in some sense, debates about fundamentality. That option simply isn't available, though, for most feminist metaphysics. Feminist metaphysics is explicitly—and deliberately—not about the fundamental (Elizabeth 2014, p. 349).

One of the benefits of a structuralist ontology is that it can refer to fundamentality in a nested fashion. There are the modally resilient structures in fundamental physics, and nested in them are the less modally resilient structures found in biology. This leaves open the possibility of a structural account of psychology, cognitive science, and even social sciences. Each of these structures could plausibly be seen as nested within a more fundamental structural relation. Because of this, feminist metaphysicians could reconcile the kind of metaphysics they are doing whilst also claiming to work within a metaphysics of fundamentality (i.e., the fundamental structure of sociology, history, etc. and the relational role that women play within them). Of course, this goes against Elizabeth's point of metaphysics not necessarily having to do with fundamentality, but the option I propose above could be seen as a possible compromise.

Lastly, earlier I suggested that a structural account of necrophilia could help us make sense of our common moral, legal, and psychological, and forensic concerns regarding the phenomenon. I find it strange that the American Psychiatric Association (APA) classifies necrophilia as under code 302.9 (Other Specified Paraphilic Disorder) in the Diagnostic and Statistical Manual of Mental Disorders, 5th ed. (DSM-V) (American Psychiatric Association 2013, p. 705). Perhaps this is due to the disorder being presumed

rare (Aggrawal 2016, p. 99). However, even if the statistics concerning the prevalence of necrophilia are correct, it does seem like there are some regularities in necrophilic behaviour in humans that seem to specify the behaviour in much more concrete and subtle ways.⁵⁶ Aggrawal (2016) has formulated ten distinct classes of necrophiliac with examples of criminals that fit each. If something as presumably rare as necrophilic behaviour in humans can be categorised into ten distinct and relatively regular kinds, then presumably other 'rare' forensic and medico-legal phenomena can as well.⁵⁷

Not only are fine-grained classifications of mental disorders beneficial to psychology, but they could also play a clarificatory function in law where necrophilic behaviour and the ethics thereof can come into play (see, e.g., Klaf and Brown (1958); Rosman and Resnick (1989); Ochoa and Jones (1997); Ehrlich et al. (2000); Troyer (2008); Boureghda et al. (2011); Pettigrew (2019a, 2019b) for examples of medico-legal cases of necrophilia, and Benecke (2008); McKearn (2008) for ethical considerations of necrophilia.) The important point here is that a structural account of this (and similar) phenomenon would provide us with a better way of understanding the psychological relations at play in such aberrant behaviour, but also a possible way to understanding such behaviour within larger social relations.

⁵⁶ Aggrawal (2016) notes that necrophilia may be more prevalent than statistic indicate given that the acts only become known once the necrophiliac is caught. This is in addition to the fact that the presumed victim (i.e., the corpse) is unable to complain (p. 99).

⁵⁷ An example of this can be found in Aggrawal (2011) who has categorised zoophilia into ten categories similar to his categories of Necrophilic behaviour.

References

- Aggrawal, Anil. 2009. *Forensic and medico-legal aspects of sexual crimes and unusual sexual practices*. Boca Raton: CRC Press.
- Aggrawal, Anil. 2011. A new classification of zoophilia. *Journal of forensic and legal medicine*. **18**(2), pp.73-78.
- Aggrawal, Anil. 2016. *Necrophilia: Forensic and Medico-legal Aspects*.
- Aggrawal, Anil Mbbs M. D. 2008. A new classification of necrophilia. *Journal of forensic and legal medicine*. **16**(6), pp.316-320.
- Ainsworth, Peter Mark. 2010. What is Ontic Structural Realism? *Studies in History and Philosophy of Modern Physics*. **41**, pp.50-57.
- Alston, William P. and Bennett, Jonathan. 1988. Locke on People and Substances. *Philosophical Review*. **97**(1), pp.25-46.
- American Psychiatric Association. 2013. Other Specified Paraphilic Disorder, 302.89 (F65.89). *Diagnostic and Statistical Manual of Mental Disorders*. 5th ed. Washington: American Psychiatric Publishing.
- Árnadóttir, Steinvör Thöll. 2011. Bodily Thought and the Corpse Problem. *European Journal of Philosophy*. **21**(4), pp.575-592.
- Ashaharaza, Khan, Vogel, Gernot and Shaikh, Samir. 2020. Record of Davian behaviour (necrophilia) in *Fowlea piscator* (Schneider, 1799) (Serpentes: Natricidae) from Central India. *Herpetology Notes*. **13**, pp.693-695.
- Ayers, Michael. 1991. *Locke*. New York: Routledge.
- Bach, Michelle C. 2016. Still Human: A Call for Increased Focus on Ethical Standards in Cadaver Research. *HEC Forum*. **28**, pp.355-367.
- Bäckhed, Fredrik, Ley, Ruth E., Sonnenburg, Justin L., Paterson, Daniel A. and Gordon, Jeffrey I. 2005. Host-Bacterial Mutualism in the Human Intestine. *Science*. **307**(5717), pp.1915-1920.
- Baker, Lynne Rudder. 2000. *Persons and Bodies: A Constitution View*. Cambridge: Cambridge UP.
- Baker, Lynne Rudder. 2008a. Big-Tent Metaphysics. *Abstracta*. (Special Issue I), pp.8-15.
- Baker, Lynne Rudder. 2008b. Response to Eric Olson. *Abstracta*. (Special Issue I), pp.43-45.

- Beatty, John. 1995. The Evolutionary Contingency Thesis. In: Walters, G. and Lennox, J.G. eds. *Concepts, Theories, and Rationality in the Biological Sciences*. Pittsburgh University of Pittsburgh Press.
- Benecke, Mark. 2008. Clandestine Necrophilia - Probably Legal, Still A Problem. *Anil Aggrawal's Internet Journal of Forensic Medicine and Toxicology*. [Online]. **9**(2). [Accessed 07 November 2019]. Available from: http://anilaggrawal.com/ij/vol_009_no_002/papers/paper003.html
- Benovsky, Jiri. 2019. *Eliminativism, Objects, and Persons*. New York: Routledge.
- Bermúdez, José Luis. 2018. *The Bodily Self*. Cambridge: The MIT Press.
- Bermúdez, José Luis, Maracel, Anthony and Eilan, Naomi eds. 1995. *The Body and the Self*. Cambridge: The MIT Press.
- Bird, Alexander and Tobin, Emma. 2017. Natural Kinds. In: Zalta, E.N. ed. *The Stanford Encyclopedia of Philosophy*. [Online]. (Spring 2017 Edition) ed. Available from: <https://plato.stanford.edu/archives/spr2017/entries/natural-kinds/>
- Black, Sue. 2007. Introduction. In: Thompson, T. and Black, S. eds. *Forensic Human Identification: An Introduction*. Boca Raton: CRC Press.
- Blatti, Stephan. 2012. A new argument for animalism. *Analysis*. **72**(4), pp.685-690.
- Blatti, Stephan. 2014. Animalism. In: Zalta, E.N. ed. *The Stanford Encyclopedia of Philosophy*. [Online]. Winter 2016 ed. Available from: <http://plato.stanford.edu/archives/win2016/entries/animalism/>
- Blatti, Stephan and Snowdon, Paul F. 2016. Introduction. In: Blatti, S. and Snowdon, P.F. eds. *Animalism: New Essays on Persons, Animals, and Identity*. Oxford: Oxford UP, pp.1-27.
- Bouregghda, S.S.T. , Retz, W., Philipp-Wiegmann, F. and Rösler, M. 2011. A case report of necrophilia – A psychopathological view. *Journal of forensic and legal medicine*. **18**(6), pp.280-284.
- Brinker, Andrew and Bucklin, Stacey. 2006. Necrophilia in *Holbrookia maculata*. *Herpetological Review*. **37**, p466.
- Brito, Lucas Bezerra de Mattos, Joventino, Igor Roberto, Ribeiro, Samuel Cardozo and Cascon, Paulo. 2012. Necrophiliac behavior in the cururu toad, *Rhinella jimi* Steuvax, 2002, (Anura, Bufonidae) from Northeastern Brazil. *North-Western Journal of Zoology*. **8**, pp.1-2.

- Brown, James Robert. 1986. Thought experiments since the scientific revolution. *International Studies in the Philosophy of Science*. **1**(1), pp.1-15.
- Bryant, Amanda. 2017. Keep the chickens cooped: the epistemic inadequacy of free range metaphysics. *Synthese*. **197**(5), pp.1867-1887.
- Bryant, Amanda. 2020. Epistemic Infrastructure for a Scientific Metaphysics. *Grazer philosophische Studien*. pp.1-23.
- Carlyle, Arthur G. 2016. *Organisms and the extended self: a re-evaluation*. thesis, University of Kansas.
- Carter, W. R. . 1984. Death and Bodily Transfiguration. *Mind*. **93**(371), pp.412-418.
- Chakravartty, Anjan. 2017. Scientific Realism. In: Zalta, E.N. ed. *The Stanford Encyclopedia of Philosophy*. [Online]. Summer 2017 ed. Available from: <https://plato.stanford.edu/archives/sum2017/entries/scientific-realism/>
- Chang, Hasok. 2012. *Is Water H2O?* Dordrecht: Springer.
- Chemero, Anthony. 2009. *Radical Embodied Cognitive Science*. Cambridge: The MIT Press.
- Cheung, Tobias. 2006. From the Organism of a Body to the Body of an Organism: Occurrence and Meaning of the Word 'Organism' from the Seventeenth to the Nineteenth Centuries *The British Journal for the History of Science*. **39**(3), pp.319-339.
- Clark, Andy and Chalmers, David. 1998. The Extended Mind. *Analysis*. **58**(1), pp.7-19.
- Clarke, Ellen. 2010. The Problem of Biological Individuality. *Biological Theory*. **5**(4), pp.312-325.
- Clarke, Ellen. 2016. A levels-of-selection approach to evolutionary individuality. *Biology and Philosophy*. **31**, pp.893-911.
- Clarke, Ellen and Okasha, Samir. 2013. Species and Organisms: What are the Problems? In: Bouchard, F. and Huneman, P. eds. *From Groups to Individuals: Evolution and Emerging Individuality*. Cambridge: MIT Press, pp.55-75.
- Cornwall, Jon and Stringer, Mark D. 2009. The wider importance of cadavers: Educational and research diversity from a body bequest program. *Anatomical Sciences Education*. **2**(5), pp.234-237.

- Costa, Henrique, Silva, Emanuel, Campos, Pollyanna, Oliveira, Marina, Nunes, André and Santos, Patrícia. 2010. The Corpse Bride: A case of Davian behaviour in the Green Ameiva (*Ameiva ameiva*) in southeastern Brazil. *Herpetology Notes*. **3**, pp.079-083.
- Dennett, Daniel. 2013. Kinds of Things--Towards a Bestiary of the Manifest Image. In: Ross, D., et al. eds. *Scientific Metaphysics*. Oxford: Oxford UP, pp.96-107.
- Dennett, Daniel. 2018. Reflections on Lynne Rudder Baker. In: Heubner, B. ed. *The Philosophy of Daniel Dennett*. New York: Oxford UP, pp.345-353.
- Dennett, Daniel C. 1991a. *Consciousness Explained*. New York: Back Bay Books.
- Dennett, Daniel C. 1991b. Real Patterns. *The Journal of Philosophy*. **88**(1), pp.27-51.
- Dickerman, Robert W. 1960. "Davian Behavior Complex" in Ground Squirrels. *Journal of mammalogy*. **41**(3), pp.403-404.
- Dietert, Rodney. 2016. *The Human Superorganism: How the Microbiome Is Revolutionizing the Pursuit of a Healthy Life*. New York: Dutton.
- Dorato, Mauro. 2011. Mathematical biology and the existence of biological laws. In: Dieks, D., et al. eds. *Probabilities, Laws and Structure*. Dordrecht: Springer, pp.109-121.
- Dupré, John. 1993. *The Disorder of Things*. Cambridge: Harvard UP.
- Dupré, John. 2010. The Polygenomic Organism. *The Sociological Review*. **58**, pp.19-31.
- Dupré, John. 2013. Living Causes. *The Aristotelian Society*. **Supplementary Volume 87**(1), pp.19-38.
- Dupré, John. 2014. Animalism and the Persistence of Human Organisms. *The Southern Journal of Philosophy*. **52**(Spindel Supplement), pp.6-23.
- Dupré, John and O'Malley, Maureen A. 2007. Metagenomics and biological ontology. *Studies in History and Philosophy of Biological and Biomedical Sciences*. **38**, pp.834-846.
- Dyke, Heather and Maclaurin, James. 2013. What Shall We Do with Analytic Metaphysics? A Response to McLeod and Parsons. *Australasian journal of philosophy*. **91**(1), pp.179-182.
- Eddington, Arthur S. 1928. *The Nature of The Physical World*. Cambridge: Cambridge UP.

- Ehrlich, Edwin, Rothschild, Markus A., Pluisch, Frank and Schneider, Volkmar. 2000. An extreme case of necrophilia. *Legal Medicine*. **2**(4), pp.224-226.
- Elgin, Mehmet. 2003. Biology and a Priori Laws. *Philosophy of Science*. **70**, pp.1380-1389.
- Elizabeth, Barnes. 2014. Going Beyond the Fundamental: Feminism in Contemporary Metaphysics. *Proceedings of the Aristotelian Society*. **114**, pp.335-351.
- Ereshefsky, Marc. 1992. Eliminative Pluralism. *Philosophy of Science*. **59**(4), pp.671-690.
- Ereshefsky, Marc. 2010. What's Wrong with the New Biological Essentialism. *Philosophy of Science*. **77**(5), pp.674-685.
- Feldman, Fred. 1992. *Confrontations with the Reaper*. Oxford: Oxford UP.
- Feldman, Fred. 2000. The Termination Thesis. *Midwest Studies in Philosophy*. **24**, pp.98-115.
- Ferner, A. M. 2016. *Organisms and Personal Identity: Biological individuation and the work of David Wiggins*. Abingdon: Routledge
- Fisher, Ronald A. 1958. *The Genetical Theory of Natural Selection*. 2nd ed. New York: Dover.
- French, Steven. 2014. *The Structure of the World*. Oxford: Oxford UP.
- French, Steven. 2016. *Philosophy of Science: Key Concepts*. 2nd ed. London: Bloomsbury.
- French, Steven and Ladyman, James. 2003. Remodelling structural realism: Quantum physics and the metaphysics of structure. *Synthese*. **136**, pp.31-56.
- French, Steven and Ladyman, James. 2011. In Defence of Ontic Structural Realism. In: Bokulich, P. and Bokulich, A. eds. *Scientific Structuralism*. Dordrecht: Springer, pp.25-42.
- French, Steven and McKenzie, Kerry. 2012. Thinking Outside the Toolbox: Towards a More Productive Engagement Between Metaphysics and Philosophy of Physics. *European Journal of Analytic Philosophy*. **8**(1), pp.42-59.
- French, Steven and McKenzie, Kerry. 2015. Rethinking Outside the Toolbox: Reflecting Again on the Relationship between Philosophy of Science

- and Metaphysics. In: Bigaj, T. and Wüthrich, C. eds. *Metaphysics in Contemporary Physics*. Amsterdam: Brill, pp.25-54.
- Gill, Steven R., Pop, Mihai, DeBoy, Robert T., Eckburg, Paul B., Turnbaugh, Peter J., Samuel, Buck S., Gordon, Jeffrey I., Relman, David A., Fraser-Liggett, Claire M. and Nelson, Karen E. 2006. Metagenomic Analysis of the Human Distal Gut Microbiome. *Science*. **312**(5778), pp.1355-1359.
- Gillett, Carl. 2013. What you are and the evolution of organs, souls and superorganisms: a reply to Blatti. *Analysis*. **73**(2), pp.271-279.
- Godfrey-Smith, Peter. 2013. Darwinian Individuals. In: Bouchard, F. and Huneman, P. eds. *From Groups to Individuals: Evolution and the Emerging Individuality*. Cambridge: MIT Press, pp.17-36.
- Griffiths, Paul. 2017. Philosophy of Biology. In: Zalta, E.N. ed. *The Stanford Encyclopedia of Philosophy*. [Online]. (Spring 2017 Edition) ed. Available from: <https://plato.stanford.edu/archives/spr2017/entries/biology-philosophy/>
- Groffen, Jordy, Borzée, Amaël and Yikweon, Jang. 2019. First record of necrophilia in the prolonged breeder *Rana uenoi*. *Herpetology Notes*. **19**, pp.43-44.
- Guarner, Francisco and Malagelada, Juan-R. 2003. Gut flora in health and disease. *The Lancet*. **360**, pp.512-519.
- Hamilton, W. D. . 1967. Extraordinary Sex Ratios. *Science*. **156**, pp.477-488.
- Hershenov, David B. 2005. Do Dead Bodies Pose a Problem for Biological Approaches to Personal Identity? . *Mind*. **114**(453), pp.31-59.
- Hull, David. 1965. The Effect of Essentialism on Taxonomy--Two Thousand Years of Stasis (I). *The British Journal for the Philosophy of Science*. **15**(60), pp.314-326.
- Hume, David. 1738 [2009]. *A Treatise of Human Nature*. Oxford: Oxford UP.
- Humphreys, Paul. 2013. Scientific Ontology and Speculative Ontology. In: Ross, D., et al. eds. *Scientific Metaphysics*. Oxford: Oxford UP, pp.51-78.
- Izzo, Thiago, Rodrigues, Domingos, Menin, Marcelo, Lima, Albertina and Magnusson, William. 2012. Functional necrophilia: A profitable anuran reproductive strategy? *Journal of Natural History*. **46**.

- Janzen, Daniel H. 1977. What Are Dandelions and Aphids? . *The American Naturalist*. **111**(979), pp.586-589.
- Kincaid, Harold. 2013. Introduction: Pursuing a Naturalist Metaphysics. In: Ross, D., et al. eds. *Scientific Metaphysics*. Oxford: Oxford UP, pp.1-26.
- Kingma, Elseijn. 2018. Lady Parts: The Metaphysics of Pregnancy. *Royal Institute of Philosophy Supplement*. **28**, pp.165-187.
- Kingma, Elseijn. 2019. Were You a Part of Your Mother? *Mind*. **128**(511), pp.609-646.
- Klaf, Franklin S. and Brown, William. 1958. Necrophilia, brief review and case report. *Psychiatric quarterly*. **32**(4), pp.645-652.
- Kornblith, Hilary. 2018. Philosophy, Science, and Common Sense. In: de Ridder, J., et al. eds. *Scientism: Prospects and Problems*. New York: Oxford UP, pp.127-148.
- Ladyman, James. 1998. What is Structural Realism? *Studies in History and Philosophy of Science*. **29**(3), pp.409-424.
- Ladyman, James. 2016. Structural Realism. In: Zalta, E.N. ed. *The Stanford Encyclopedia of Philosophy*. [Online]. Winter 2016 ed. Available from: <https://plato.stanford.edu/archives/win2016/entries/structural-realism/>
- Ladyman, James and Ross, Don. 2007. *Everything Must Go*. Oxford: Oxford UP.
- LaPorte, Joseph. 1997. Essential Membership. *Philosophy of Science*. **64**(1), pp.96-112.
- Laudan, Larry. 1981. A Confutation of Convergent Realism. *Philosophy of Science*. **48**(1), pp.19-49.
- Lehner, P. N. 1988. Avian Davian Behavior. *The Wilson bulletin (Wilson Ornithological Society)*. **100**(2), pp.293-294.
- Liao, S. Matthew. 2006. The Organism View Defended. *The Monist*. **89**(3), pp.334-350.
- Locke, John. 1690 [1975]. *An Essay Concerning Human Understanding*. Oxford: Clarendon Press.
- Ludwig, David. 2014. Hysteria, race, and phlogiston. A model of ontological elimination in the human sciences. *Studies in History and Philosophy of Biological and Biomedical Sciences*. **45**, pp.68-77.

- Mackie, David. 1999. Personal Identity and Dead People. *Philosophical Studies*. **95**(3), pp.219-242.
- Maclaurin, James and Dyke, Heather. 2012. What is Analytic Metaphysics For? *Australasian journal of philosophy*. **90**(2), pp.291-306.
- McKearn, Sara. 2008. Dead Sexy: An Essay on the Ethics of Necrophilia. *Anil Aggrawal's Internet Journal of Forensic Medicine and Toxicology*. [Online]. **9**(2). [Accessed 07 November 2019]. Available from: http://anilaggrawal.com/ij/vol_009_no_002/papers/paper002.html
- McLachlan, John C. and Patten, Debra. 2006. Anatomy teaching: ghosts of the past, present and future. *Medical Education*. **40**, pp.243-253.
- McMahan, Jeff. 2006. An Alternative to Brain Death. *Journal of Law, Medicine & Ethics*. **34**(1), pp.44-48.
- Melnyk, Andrew. 2013. Can Metaphysics Be Naturalized? And If So, How? In: Ross, D., et al. eds. *Scientific Metaphysics*. Oxford: Oxford UP, pp.79-95.
- Meshaka, Jr., Walter E. 1996. Anuran Davian Behavior: A Darwinian Dilemma. *Florida scientist*. **59**(2), pp.74-75.
- Milroy, Christopher. 2007. Soft Tissue Pathology. In: Thompson, T. and Black, S. eds. *Forensic Human Identification: An Introduction*. Boca Raton: CRC Press, pp.99-111.
- Mitchell, Sandra D. 2000. Dimensions of Scientific Law. *Philosophy of Science*. **67**(2), pp.242-265.
- Mitchell, Sandra D. 2003. *Biological Complexity and Integrative Pluralism*. Cambridge: Cambridge UP.
- Moeliker, Cornelis and Rotterdam, Natuurmuseum. 2001. The first case of homosexual necrophilia in the mallard *Anas platyrhynchos* (Aves: Anatidae).
- Mohler, R. Albert. 2005. *The Origins of Life: An Evangelical Baptist View*. [Online]. Available from: <https://www.npr.org/templates/story/story.php?storyId=4760816&t=1588193570171>
- Moritz, Robin F.A. and Fuchs, Stefan. 1998. Organization of honeybee colonies: characteristics and consequences of a superorganism concept. *Apidologie*. **29**, pp.7-21.

- Nawrocki, Stephen P. 2006. *An Outline Of Forensic Anthropology*. [Online].
 [Accessed 04 November 2017]. Available from:
<http://archlab.uindy.edu>
- Nichols, Shaun and Bruno, Michael. 2010. Intuitions about personal identity:
 An empirical study. *Philosophical Psychology*. **23**(3), pp.293-312.
- Noonan, Harold. 2012. Personal pronoun revisionism - asking the right
 question. *Analysis*. **72**(2), pp.316-318.
- Noonan, Harold W. 2003. *Personal Identity*. 2nd ed. London: Routledge.
- Ochoa, Tyler Trent and Jones, Christine Newman. 1997. Defiling the dead:
 necrophilia and the law. *Whittier law review*. **18**(3), p539.
- Okasha, Samir. 2002. Darwinian Metaphysics: Species and the Question of
 Essentialism. *Synthese*. **131**, pp.191-213.
- Okasha, Samir. 2006. *Evolution and the Levels of Selection*. Oxford: Clarendon
 Press.
- Olson, Eric. 2008. Replies. *Abstracta*. (Special Issue I), pp.32-42.
- Olson, Eric T. 1997a. *The Human Animal: Personal Identity Without Psychology*.
 Oxford: Oxford UP.
- Olson, Eric T. 1997b. Was I ever a fetus? *Philosophy and Phenomenological Society*.
57(1), pp.95-110.
- Olson, Eric T. 2004. Animalism and the Corpse Problem. *Australasian Journal of
 Philosophy*. **82**(2), pp.265-274.
- Olson, Eric T. 2007. *What Are We?: A Study in Personal Ontology*. Oxford: Oxford
 UP.
- Olson, Eric T. 2011. The Extended Self. *Minds & Machines*. **21**, pp.481-495.
- Olson, Eric T. 2013. The Person and the Corpse. In: Bradley, B., et al. eds. *The
 Oxford Handbook of Philosophy of Death*. Oxford: Oxford UP, pp.80-96.
- Olson, Eric T. 2014. The metaphysical implications of conjoined twinning. *The
 Southern Journal of Philosophy*. **52**, pp.24-40.
- Olson, Eric T. 2015. What does it mean to say that we are animals? *Journal of
 Consciousness Studies*. **22**(11-12), pp.84-107.
- Olson, Eric T. 2021. Understanding the Problem of Biological Individuality.
 In: Dupré, J. and Meincke, A.S. eds. *Biological Identity: Perspectives from
 Metaphysics and the Philosophy of Biology*. Abingdon: Routledge, pp.63-85.

- Organism*. [Online]. [Accessed 16 June 2017]. Available from:
<http://www.newworldencyclopedia.org/entry/Organism>
- Pepper, John W. and Herron, Matthew D. 2008. Does Biology Need an Organism Concept? *Biological Reviews*. **83**, pp.621-627.
- Pettigrew, Mark. 2019a. Serial killing and homosexual necrophilia, an exploration. *The journal of forensic psychiatry & psychology*. **30**(3), pp.409-418.
- Pettigrew, Mark. 2019b. The Sexually Sadistic Properties of Necrophilia, in the Context of Serial Killing, a Case Study. *Journal of police and criminal psychology*. **35**(4), pp.1-8.
- Pintanel, Pol, Obando-Moreno, Gabriela and Merino-Viteri, Andres. 2021. Necrophiliac behaviour in the recently described species *Scinax tsachila* (Anura: Hylidae), with a review of necrophilia in amphibians. *Neotropical Biodiversity*. **7**, pp.53-56.
- Poincaré, Henri. 1905 [1952]. *Science and Hypothesis*. New York: Dover.
- Pradeu, Thomas. 2010. What is an Organism? An Immunological Answer. *History and Philosophy of the Life Sciences*. **32**(2/3), pp.247-267.
- Pradeu, Thomas. 2012. *The Limits of Self: Immunology and Biological Identity*. Oxford: Oxford UP.
- Pradeu, Thomas. 2016. The many faces of biological individuality. *Biology and Philosophy*. **31**, pp.761-773.
- Rosenberg, Alex. 2001. How is Biological Explanation Possible? *The British Journal for the Philosophy of Science*. **52**(4), pp.735-760.
- Rosenberg, Jay F. 1998. *Thinking Clearly About Death*. 2nd ed. Indianapolis: Hackett.
- Rosman, J. and Resnick, Phillip. 1989. Sexual attraction to corpses: A psychiatric review of necrophilia. *The Bulletin of the American Academy of Psychiatry and the Law*. **17**, pp.153-163.
- Ross, Don, Ladyman, James and Kincaid, Harold eds. 2013. *Scientific Metaphysics*. Oxford: Oxford UP.
- Rutty, Guy N. 2007. Soft Tissue Trauma. In: Thompson, T. and Black, S. eds. *Forensic Human Identification: An Introduction*. Boca Raton: CRC Press, pp.113-126.

- Saatsi, Juha. 2017. Explanation and Explanationism in Science and Metaphysics. In: Slater, M.H. and Yudell, Z. eds. *Metaphysics and the Philosophy of Science*. New York: Oxford UP, pp.163-191.
- Salvucci, Emiliano. 2012. Selfishness, warfare, and economics; or integration, cooperation, and biology. *Frontiers in Cellular Infection Microbiology*. **2**(54), pp.1-12.
- Santelices, Bernabé. 1999. How many kinds of individual are there? *Trends in Ecology & Evolution*. **14**(4), pp.152-155.
- Saunders, Simon. 2003. Structural Realism, Again. *Synthese*. **136**, pp.127-133.
- Scholz, Oliver R. 2018. Inductive Social Metaphysics—A Defence of Inference to the Best Explanation in the Metaphysics of Social Reality: Comments on Katherine Hawley. *Journal for general philosophy of science*. **49**(2), pp.199-210.
- Seddon, George. 1972. Logical Possibility. *Mind*. **81**(324), pp.481-494.
- Sellars, Wilfrid. 1962. Philosophy and the Scientific Image of Man. In: Colodny, R. ed. *Frontiers of Science and Philosophy*. Pittsburgh: University of Pittsburgh Press, pp.35-78.
- Shapiro, Lawrence. 2019. *Embodied Cognition*. 2nd ed. London: Routledge.
- Shoemaker, David. 2008. *Personal Identity and Ethics*. London: Broadview Press.
- Shoemaker, Sydney. 1984. Personal Identity: a Materialist's Account. *Personal Identity*. Oxford: Blackwell, pp.67-132.
- Shoemaker, Sydney. 2004. Functionalism and Personal Identity--A Reply. *Noûs*. **38**(3), pp.525-533.
- Shoemaker, Sydney. 2008. Persons, animals, and identity. *Synthese*. **162**, pp.313-324.
- Shoemaker, Sydney. 2016. Thinking Animals Without Animalism. In: Blatti, S. and Snowdon, P.F. eds. *Animalism: New Essays on Persons, Animals, and Identity*. Oxford: Oxford UP, pp.128-141.
- Siqueira, Raissa, Coeti, Rafaela, Cavalheri, Diego, Trevine, Vivian and Almeida-Santos, Selma. 2015. The sexual attractiveness of the corpse bride: Unusual mating behaviour of *Helicops carinicaudus* (Serpentes: Dipsadidae). *Herpetology Notes*. **8**, pp.643-647.
- Smart, J. J. C. 1963. *Philosophy and Scientific Realism*. London: Routledge & Kegan Paul.

- Smith, Subrena. 2017. Organisms as Persisters. *Philosophy, Theory, and Practice in Biology*. **9**(14), pp.1-16.
- Snowdon, Paul F. 1991. Personal Identity and Brain Transplants. In: Cockburn, D. ed. *Human Beings*. Cambridge: Cambridge UP, pp.109-126.
- Snowdon, Paul F. 2014a. Animalism and the Lives of Human Animals. *The Southern Journal of Philosophy*. **52, Spindel Supplement**, pp.171-184.
- Snowdon, Paul F. 2014b. *Persons, Animals, Ourselves*. Oxford: Oxford UP.
- Sober, Elliott. 1984. *The Nature of Selection*. Chicago: The University of Chicago Press.
- Sober, Elliott. 2000. *Philosophy of Biology*. 2nd ed. Boulder: Westview Press.
- Soto, Cristian. 2014. The aim and scope of scientific metaphysics. Review of Don Ross, James Ladyman, and Harold Kincaid (eds). 2013. *Scientific metaphysics*. Oxford: Oxford UP. *Metascience*. **23**(1), pp.117-123.
- Suami, Hiroo, Pan, Wei-Ren, Mann, G. Bruce and Taylor, G. Ian. 2007. The Lymphatic Anatomy of the Breast and its Implications for Sentinel Lymph Node Biopsy: A Human Cadaver Study. *Annals of Surgical Oncology*. **15**(3), pp.863-871.
- Tahko, Tuomas E. 2015. *An Introduction to Metametaphysics*. Cambridge: Cambridge UP.
- Taxon. [Online]. [Accessed 17 June 2017]. Available from: <https://www.britannica.com/science/taxon>
- Thornton, Allison Krile. 2016a. Varieties of Animalism. *Philosophy Compass*. **11**(9), pp.515-526.
- Thornton, Allison Krile. 2016b. Varieties of Animalism. *Philosophy Compass*. **1**(1/9), pp.515-526.
- Troyer, John. 2008. Abuse of a corpse: A brief history and re-theorization of necrophilia laws in the USA. *Mortality (Abingdon, England)*. **13**(2), pp.132-152.
- Unger, Peter. 1979a. I Do Not Exist. In: MacDonald, G.F. ed. *Perception and Identity: Essays Presented to A. J. Ayer with his Replies to them*. London: Macmillan, pp.235-251.
- Unger, Peter. 1979b. There Are No Ordinary Things. *Synthese*. **41**, pp.117-154.

- Unger, Peter. 1979c. Why There Are No People. *Midwest Studies in Philosophy*. 4(1), pp.177-222.
- van Inwagen, Peter. 1990. *Material Beings*. Ithaca: Cornell UP.
- Waechter, Jonas and Ladyman, James. 2019. In Defence of Ordinary Objects and a Naturalistic Answer to the Special Composition Question. In: Cumpa, J. and Brewer, B. eds. *The Nature of Ordinary Objects*. Cambridge: Cambridge UP, pp.82-128.
- West, Stuart A. and Kiers, E. Toby. 2009. Evolution: What is an Organism. *Current Biology*. 19(23), pp.R1080-R1082.
- Wiggins, David. 1980. *Sameness and Substance*. Oxford: Basil Blackwell.
- Wilkes, Kathleen V. 1988. *Real People*. Oxford: Clarendon Press
- Wilson, Jack. 1999. *Biological Individuality*. Cambridge: Cambridge UP.
- Wilson, Jack. 2000. Ontological Butchery: Organism Concept and Biological Generalizations. *Philosophy of Science*. 67, pp.S301-S311.
- Wolfe, Charles T. 2014. The organism as ontological go-between: Hybridity, boudaries, and degrees of reality in its conceptual history. *Studies in History and Philosophy of Biological and Biomedical Sciences*. 48, pp.151-161.
- Worrall, John. 1989. Structural Realism: The Best of Both Worlds? *Dialectica*. 43(1-2), pp.99-124.
- Zimmerman, Dean. 2008. Problems for Animalism. *Abstracta*. (Special Issue I), pp.23-31.