

Peircean realism –
towards a scientific metaphysics

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Abstract

The problem of the status of metaphysics – what it is and what it is for, what use it is – has been with us for millennia, at least since Plato took issue with the Sophists, and continues to the present day. Here I attempt an intervention in this perennial dispute, with the aim of providing some kind of *rapprochement* between the factions. This intervention is based on how Charles Sanders Peirce (1839–1914) understood metaphysics and the position presented here is thus called ‘Peircean realism’.

The basic idea is that everyone has a metaphysics and has to have one, just to get by in everyday life, and this is no different for scientific inquirers in their professional work. The subject matter of metaphysics is thus presuppositions, whether it is what we rely on to go shopping or to discover the Higgs boson. We rely on these in our activities and expect them to have an effect on outcomes, so when our expectations are frustrated, doubt may be thrown on our presuppositions. We would thus like the ability to inquire into our presuppositions so as not to repeat mistakes, but our instinctive, evolved capacity for reasoning may not be up the job, since it is entwined with what we take for granted. Instead, Peirce develops a science of good reasoning that includes a theory of inquiry, which would allow us to scrutinise our presuppositions, to perform metaphysical inquiry.

The starting point for this science of good reasoning is basic principles of combination and organisation, because these are involved in all activity, and these are Peirce’s categories of Firstness, Secondness and Thirdness. This is also where I start in the exposition of and argument for Peircean realism as a *scientific* – that is, truth-directed – metaphysics that provides the best possible general presuppositions to the natural and human sciences, the special sciences that deal with matters in their particularity; that Peircean realism is a viable metaphysics for those sciences. This exposition and argument comprises the first part of this thesis.

In the second part, the case for Peircean realism is further bolstered by turning a critical eye on positions that are deficient from the Peircean point of view, in that they lack one or other category and thus starve the special sciences of the resources they need, or that they try to ignore metaphysics entirely. All this is meant to demonstrate that metaphysics is unavoidable, that we need all three of Peirce’s categories for a viable metaphysics for the special sciences, and that Peircean realism is just such a metaphysics.

Abbreviations

Throughout this thesis, references cited many times have been abbreviated. Most of these are to Peirce's writings, but also to a couple of other authors where they are discussed in detail.

Peirce

CP *Collected Papers of Charles Sanders Peirce*, volumes 1–6 edited by Charles Hartshorne and Paul Weiss (1931–1935; Cambridge (MA): Harvard University Press) and volumes 7–8 edited by Arthur W. Burks (1958; Cambridge (MA): Harvard University Press). The citation is formatted as 'CP: ' followed by volume number, a full point, then the paragraph number.

EP1 *The Essential Peirce: Selected Philosophical Writings Volume 1 (1867–1893)*, edited by Nathan Hauser and Christian Kloesel (1992); Bloomington: Indiana University Press. The citation is formatted as 'EP1: ' followed by the page number. Where a text appears in both CP and EP, that in EP has been preferred because of improved and more transparent editorial policies.

EP2 *The Essential Peirce: Selected Philosophical Writings Volume 2 (1893–1913)*, edited by the Peirce Edition Project (1998); Bloomington: Indiana University Press. The citation is formatted as 'EP2: ' followed by the page number. Where a text appears in both CP and EP, that in EP has been preferred because of improved and more transparent editorial policies.

NEM *New Elements of Mathematics*, edited by Carolyn Eisele (1976/2014); De Gruyter. The citation is formatted as 'NEM: ' followed by the volume number, a full point, and the page number.

RLT *Reasoning and the Logic of Things: The Cambridge Conferences Lectures of 1898*, edited by Kenneth Laine Ketner (1992); Cambridge (MA): Harvard University Press. The citation is formatted as 'RLT: ' followed by the page number.

Sextus Empiricus

This only appears in Chapter 7.

PH *Pyrrōneioi Hypotypōseis*, the greek name for Sextus's *Outlines of Pyrrhonism*. The translation used is the one in Mates (1996). The citation is formatted as 'PH: ' followed by the section number.

Wittgenstein

These only appear in Chapter 7.

TLP *Tractatus Logico-Philosophicus*, translated by C. K. Ogden (1922). The citation is formatted as 'TLP: ' followed by the proposition number.

PI *Philosophical Investigations*, translated by G. E. M. Anscombe, edited by G. E. M. Anscombe, R. Rhees and G. H. von Wright (1953/1967); Oxford: Blackwell. The citation is formatted as 'PI: ' followed by the section number for part one, or the page number for part two.

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Chapter 1

Introduction

This is a thesis about metaphysics. But this is not metaphysics as some kind of idle speculation about matters supposedly beyond our ken, beyond the bounds of actual or possible experience, of no relevance to anyone or anything in the universe. Rather, this is a thesis about *scientific* metaphysics, a matter of developing and inquiring into the best possible presuppositions we can have for truth-directed inquiry. Such a metaphysics provides general presuppositions for the special sciences – sciences natural and human – being those that are concerned with matters in their particularity.¹

To understand what makes a metaphysics a viable one for the special sciences, I shall look to the work of Charles Sanders Peirce (1839–1914): chemist, geodesist, metrologist, mathematician, logician, founder of philosophical pragmatism and the father of modern analytic semiotics. The position developed here – through readings of primary materials and secondary literature and sticking mostly to Peirce’s considered, mature views – will be called ‘Peircean realism’. This name has been chosen because, while it is a variety of modal realism, it is completely unlike what often passes under that heading, such as the Genuine Modal Realism of David Lewis (Lewis (1986));² and it is not as cumbersome as ‘extreme scholastic realism’, a term often used to describe at least part of Peirce’s view (CP: 5.470; Haack (1992)), but which might also be used to describe other, non-Peircean views. In elaborating this position, the aim of this thesis is to show that Peircean realism is, indeed, a viable metaphysics for the special sciences.

¹What is meant here by ‘special science’ is clarified in the glossary entry for ‘Science’.

²Section 3.7 gives a Peircean critique of this view.

It might be wondered why the development of such a metaphysics is important or significant; why we should be interested in such a thing. In other words, what is the motivation for the inquiry constituted by this thesis and why should we care? The answer is that this is an intervention in an unresolved dispute that goes back millennia.

From the Sophists against Plato, through the arguments between experimentalists and rationalists at the beginning of the Enlightenment, to the positivism of Auguste Comte in the nineteenth century – subsequently opposed by, for example, Bradley and McTaggart – and his successors in the twentieth such as the logical positivists and Quine, whose desert landscapes were promptly populated by those speculating as to what kinds of thing can be the value of a bound variable in our best theories: every time a way to try and dispense with metaphysics has been contrived, metaphysics has risen again. My intervention in this long running dispute is meant to provide a *rapprochement* between the factions, although there is always the danger that it is unacceptable to all sides: we'll see how that goes.

The basic idea of this intervention is to point out that everyone 'has a metaphysics, and has to have one' (CP: 1.129), just to get by in everyday life, and this is no different for scientific inquirers, who have to start somewhere in their inquiries. The subject matter of metaphysics is thus regarded here as presuppositions, whether they are what is presumed to do a bit of shopping or to discover the Higgs boson. Just as we cannot pretend that we do not have presuppositions that we rely on, that have some effect on the outcomes of our activities, we cannot pretend that we do not have a metaphysics. The question then is how we are to inquire into those presuppositions, because they could turn out to be faulty, especially when extended beyond the domain in which they were evolved for. This is done through developing what Peirce calls a *logica docens*, a reasoned logic that permits us to inquire into what we presuppose, into what we take for granted; our evolved capacity for reasoning, our *logica utens*, is unlikely to be up to this task, because it is bound up with what we instinctively take for granted.

For Peirce, developing a *logica docens* involves developing a formal logic, a theory of meaning and a theory of inquiry, this last being how we best come to obtain true answers to questions, inquiry being understood as proceeding one question at a time, as we encounter surprising situations that frustrate our expectations. This thesis will concentrate on the theory of inquiry, there not being space to properly develop all three branches of logic as

the science of good reasoning. Metaphysics – as a discipline of inquiry, a way to scrutinise presuppositions – is then founded on what regulates truth-directed inquiry.

Of course, just like all inquiries, the development of a *logica docens* does not spring from nothing, but starts somewhere, and we need at least that *logica utens*. However, we notice that reasoning about anything involves combining and organising material. Indeed, combination and organisation seem manifest in everything we do, in every activity: in formulating a theory or devising methods for achieving some aim; in every use of language, formal and natural; in poetry, music, painting, sculpture, architecture and in the performative outputs of those arts, in the realisation of a symphony or punk track, in the building of a building; in our breathing, moving, coughing and digesting; in every interaction with our environment, in our getting drunk in the pub. It thus seems a good idea to start with the most basic principles of combination and organisation, and these are Peirce's categories of Firstness, Secondness and Thirdness.

Granted that there is activity in the universe – irrespective of whether it engenders genuine change or is ultimately futile churn³ – then a viable metaphysics for the special sciences should admit all three categories, lest it impoverish the conceptual resources of those sciences. Much then turns on how the categories are characterised.

The result of this is what I call Peircean realism, that there are real Firstnesses, Secondnesses and Thirdnesses. Admitting the reality of the categories makes this a viable metaphysics for the special sciences: it does not undermine those sciences' ability to obtain true answers to their questions, while properly accounting for key elements of scientific inquiry, such as successful prediction and explanation.

All of this will probably be familiar to Peirce scholars but, outside of that bubble there is still a tendency to consider metaphysics – and philosophy – as quite different to the special sciences, somehow in conflict with each other. As such, this thesis, while hopefully containing something of interest to Peirce scholars, is largely aimed at a broader audience, in particular analytic philosophers of science who might benefit from what could be construed as a viable alternative in the realism-antirealism debate. Although to make

³Peirce favours change over churn – evidenced by increasing diversity in biological species and the successes of the natural sciences – but no claim in this thesis depends on deciding this matter either way. Such a decision may well be required for a thorough defence of Peirce's cosmology, but that will not be attempted here: see Section 4.4.

that construal at least one critical distinction has to be redrawn: Peircean realism is opposed to nominalism, whereas many who have advocated scientific realism – such as Hilary Putnam – have themselves adhered to a nominalist metaphysics. With both sides in the realism-antirealism debate largely adhering to nominalism, it is no wonder that that debate can appear sterile.

Since this thesis is aimed at a broader audience than just Peirce scholars – and with the awareness that Peirce is widely regarded as difficult – an attempt has been made to clarify the important points as well as possible, without using too much of Peirce’s idiosyncratic terminology. In some places this is unavoidable because there is simply not another appropriate word, such as in the cosmology in Chapter 4. Peirce’s usage of some other common words and phrases is also somewhat idiosyncratic and so a Glossary has been provided.

Similarly, given that broad intended audience, there will not be much spelunking in the abstruse depths of Peirce scholarship, dealing with fine points of dispute. Nevertheless, some orientation within that scholarship is appropriate, so as to situate my reading of Peirce within the spectrum of interpretations, and also to provide some extra substance for Peirce scholars among the readership. Some argument will be given in the main body of the thesis where the reading diverges significantly from another interpretation, although in this introduction there will be little argument because the aim is only to give a rough guide as to how the reading relates to others.

My reading of Peirce is somewhat syncretic, involving ingredients from various scholars combined, in a piece of hermeneutic cookery, with seasonings and in a manner unique to this kitchen. The start of this reading – the *soffritto*, if you will – comes from Susan Haack and Umberto Eco, the one from the epistemological angle and the other from the semiotic.⁴ Further ingredients are added from, amongst others: Christopher Hookway, Cheryl Misak, Cathy Legg, Andrew Howat, Robert Lane, Cornelis de Waal, Richard Kenneth Atkins, Robert Stern, Robert W. Burch, Marc Champagne, Claudine Tiercelin, Randall Dipert, Rossella Fabbrichesi, Max Fisch, Chiara Ambrosio, T. L. Short and Sandra Rosenthal.⁵

⁴Haack (1977, 1987, 1992, 2009, 1998, 2005, 2007a,b, 2014, 2018); Eco (1976, 1984, 1994, 2000); Collini (1992)

⁵Hookway (1992, 1993, 1997, 2002, 2012). Misak (2004, 2007, 2010, 2013, 2016); Legg and Misak (2016); Misak (2018). Legg (1999, 2001, 2014); Legg and Giladi (2018); Legg (2018, 2020); Legg and Black (2022). Howat (2013, 2014, 2020, 2023). Lane (2001, 2004, 2007, 2018). de Waal (1996, 2005). Atkins (2006, 2010,

The finished dish is somewhat different from all of them but comes closest to Haack's reading.

The readings of Hookway and Misak have, in some respects, become almost hegemonic over the last thirty years or so, and there is much to like in both. It was Hookway who challenged the view that Peirce was a typical post-Kantian – as seems to be the reading of, for example, Karl-Otto Apel – and emphasised what was original in Peirce. It was Misak who sought to bring Peirce back properly into the pragmatist fold, which had concentrated overly on James and Dewey.

These readings have, however, recently come under pressure from, for example, Andrew Howat and Robert Lane. For instance, Misak seems to read Peirce's zetetic notion of truth as purely epistemic, and thus subsumable under some kind of metaphysically deflationary account. Both Lane and Howat have objected to this, and the reading here agrees with them.⁶ A notion of truth without an ontic component sunders the truth-reality connection and leads to the neo-pragmatism of Richard Rorty and Huw Price. I agree with Haack that neo-pragmatism is 'vulgar pragmatism', that it conflates the pragmatistic with the merely pragmatic – truth and reality with convenience and expedience – leading to a position that is cynical and self-undermining (Haack (2009, Chap.9)). Neo-pragmatism is not pragmatism: the former is nominalist, the latter realist.⁷

Pragmatism simply requires, in my view, a methodological commitment to clarifying concepts according to Peirce's maxim of pragmatism. Around that single commitment, a variety of positions can be developed. However, that one commitment entails others, presupposed by our ability to clarify concepts according to their possible experiential consequences. One of these is that there is an environment, discriminatingly responsive to an agent's actions, such that an agent's expectations can be fulfilled or frustrated; that there is 'a real world with real actions and reactions' (CP: 1.368). I consider that it is of the essence of pragmatism that it brings humans back from their Cartesian exile, back into the world in and on which they act, and which acts on them: we are of the world, not alien to

2012b,a, 2013, 2016a). Stern (2005, 2007, 2013a,b, 2022, 2023). Burch (1991, 1997, 2010). Champagne (2009, 2014, 2015, 2016). Tiercelin (1997, 2005, 2013, 2016). Dipert (1997, 2004). Fabbrichesi (2018). Fisch (1986). Ambrosio (2014). Short (2007, 2010, 2020). Rosenthal (2001, 2004). Short has recently published a new book (Short (2023)), which I have not yet had time to read, but which, on a quick skim, seems consistent with his earlier approach to Peirce.

⁶This is addressed in more detail in Section 3.5.2.

⁷Ibri (2013) gives nine Rortyan theses that are unacceptable to a Peircean.

it. Huw Price's isolation of humans from their environment – as discussed in Section 7.4 – is a betrayal of that basic essence. He is no pragmatist – and the 'neo' in 'neo-pragmatism' can be replaced with 'not' – but he is a nominalist; as Tiercelin (2013, 665) remarks: 'there is no pragmatism without realism'. Thus in this thesis, a key distinction is that between Peircean realism and nominalism.

On this theme, another divergence, this time with Hookway, is that he seems to think that Peirce allows some domains to be adequately explained nominalistically. Again, Howat and Lane disagree, and again the reading here agrees with them: Peirce strove hard to eliminate nominalism from his mature, considered view. The reading here, however, diverges from Howat and Lane on the matter of knowability. They both aver that some things cannot be known, but such a claim is typical of nominalism and, again, Peirce's considered view is realist, not nominalist.

Now with the motivation given and the argument sketched out for this thesis, we turn to the outline of how that argument plays out on a chapter-by-chapter basis.

1.1 Outline of the thesis

The thesis is divided broadly into two parts. The first – Chapters 2, 3 and 4 – is largely positive and expository, presenting Peircean realism and arguing for it as a metaphysics viable for the special sciences. This involves presenting the categories – basic principles of combination and organisation and the basis of a *logica docens* – then showing that the Peircean characterisation of those categories works as expected as well as arguing that metaphysics is unavoidable.

The second part – Chapters 5, 6 and 7 – turns a Peircean critical gaze on positions that are not viable, or so it will be argued. This is meant to show how these positions are deficient in various ways that Peircean realism is not. While it may be vain to do with more what can just as easily be done with less, there is a minimum stock of resources required to provide a viable metaphysics for the special sciences, and the deficient positions try to make do with too little. By contrast, Peircean realism – by admitting all the categories – has adequate resources.

We begin in Chapter 2 with Peirce's categories of Firstness, Secondness and Thirdness,

which are basic principles of combination and organisation. The aim of this chapter is to establish the categories as a sound theoretical basis for Peircean realism. They also serve as the main tool for criticism in the second part of the thesis.

They are initially characterised under four aspects – mathematical, phenomenological, logical, and metaphysical – followed by clarification of some of what may seem initially puzzling about them. This gloss discusses why Peirce’s categories are unique among categorial systems; why they are characterised under aspects, which introduces Peirce’s architectonic and the hypothesis of reality; a brief informal demonstration of Peirce’s reduction thesis, that there are irreducible dyads and triads, and all relations of arity greater than three are reducible to relations of arity three; and a paper and pencil analogy that tries to clarify how the categories are both independent and interdependent. The categories are then briefly defended on the points of: why we need categories at all; why everything cannot be done with Thirdness alone; and why the non-mathematical characterisations are as they are.

With its theoretical basis in place, Peircean realism – the reality of may-bes, actuals and would-bes – is elaborated in Chapter 3. The focus is largely on the reality of Thirdness because the main opponent of this view is taken to be what Peirce calls ‘ordinary nominalism’, which denies that reality. The aim of this chapter is to show that Peircean realism is a viable metaphysics for the special sciences because it allows for a universe that is knowable and in which scientific – that is, truth-directed – inquiry is possible, along with accounting for prominent features of such inquiry: explanation, successful prediction and reproducibility of experiments.

The chapter starts with some key features of Thirdness: that it involves bringing two things together into a dyadic relation by virtue of a third thing; that Thirdnesses, generals, outstrip their actual manifestations; that a commitment to real Thirdnesses amounts to a kind of modal realism; that every Thirdness is explicable; and that Peirce makes no distinction between the various ways in which nomicity has been expressed, Thirdness being the genus of which the others are species.

Sections 3.1 and 3.3 discuss the Peircean view on reality, truth and inquiry and how they are interconnected. This discussion introduces Peirce’s three grades of clarity of a concept, his maxim of pragmatism, and his three modes of inference – understood as

stages in inquiry – of abduction, deduction and induction, this last being understood as statistical inference. This leads to the statement of Peircean realism in Section 3.4, that it arises through the zetetic understanding of reality: what is real is represented by true answers to questions achieved through well-regulated, truth-directed inquiry. Such answers can represent possibilities (Firstnesses) and generals (Thirdnesses) – such as habits and laws – as well as existents (Secondnesses), so we should accept there being realities falling under all of Peirce’s categories. The rest of that section discusses how generals are involved in explanation, as opposed to nominalist explication.

The next section addresses a few points that might be puzzling or worrying with the Peircean account: the worry of a regress of explanations, which it is argued is not vicious; whether the Peircean notion of reality is epistemic or ontic, it being both; and whether the seeming truth-aptness of sentences involving fictions threatens the truth-reality connection, which it does not.

The case for Peircean realism as a viable metaphysics for the special sciences is further bolstered in Section 3.6 by showing how it renders the universe intelligible and can explain predictive success and how experiments can be reproducible. Along the way, the problem of lost facts will be handled – that some things might be unknowable due to critical evidence going permanently astray – as well as briefly showing how real generals can be truthmakers for modal sentences.

Since Peircean realism is a kind of modal realism, Section 3.7 presents a Peircean critique of what often goes by that name, David Lewis’s Genuine Modal Realism (GMR). On the Peircean line, this is bad metaphysics because it does not meet the criteria for an acceptable hypothesis – as given in Section 3.3 – and it is no kind of realism because the other worlds and their contents look like fictions. GMR is instead an example of what Peirce calls ‘nominalistic Platonism’, which is where the *explicans* is placed in an inaccessible realm, and Section 3.8 briefly elaborates this.

Having established the *prima facie* viability of Peircean realism as metaphysics for the special sciences – and dealt with an influential nominalistic opponent in GMR – Chapter 4 addresses a couple of outstanding issues. The first is the cluster: why we need a scientific metaphysics, what should it be like and what its basis should be. Section 4.1 answers these by arguing that metaphysics is unavoidable and so we should try to make it as good as

possible by basing it on our best theory of inquiry.

The second is the issue of what real Thirdness looks like in the wild, so to speak: when we are looking for, say, laws of nature, how we are to recognise them. This is handled in Section 4.3 by arguing that what Peirce calls a ‘necessitarian’ view of laws – that they are universal, eternal, immutable, exact and time-reversible – does not seem to be part of a scientific metaphysics: there is little evidence for it and it is difficult to account for laws with these features. By contrast, the Peircean view of laws – that they are, for the most part, local, mutable, probabilistic in nature, inexact and temporally oriented – falls largely out of the categories and the theory of inquiry. We have some evidence for this from ideal gas laws, statistical mechanics, nuclear physics and quantum theory. Moreover Peirce gives an account of how laws have come to have such features through his evolutionary cosmology. A brief summary of this is given in Section 4.4 and, while there are problems with this, it is argued that it counts a piece of scientific metaphysical theorising because it is modelled on our best theory of truth-directed inquiry, of how we best get true answers to questions we ask.

Between handling the two outstanding issues, Section 4.2 introduces Peirce’s seven systems of metaphysics, a rough way of classifying metaphysical systems according to which categories they admit as primitive, which, in effect, tracks the resources available to a system. This is used as a framing device for the rest of the thesis.

That concludes the first, largely positive half of the thesis. The next half turns critical, looking at positions that fail at being scientific metaphysics. The aim here is to show how Peircean realism is superior on this score to these other positions, that we need all three categories.

Chapter 5 looks in more detail at nominalism, with a view to showing that it is not a viable metaphysics for the special sciences. We start, in Section 5.1, by characterising nominalism according to one or more of four commitments: reality is in some sense unthinkable or inaccessible; there is only a single mode of being, usually existence; there are only individuals; there is no real generality. Brief criticism is given for each.

The last of these commitments gives rise to what Peirce calls ‘ordinary nominalism’, which is a metaphysics that only admits Firstness and Secondness. Section 5.2 discusses the difficulties such a position has with explanation and prediction, thus undermining its

viability as a metaphysics for truth-directed inquiry, and thus for the special sciences. Since nominalism has so many problems, it might be wondered why so many people adopt it: Section 5.2.3 offers some thoughts on this peculiar circumstance.

The critical focus then moves, in Section 5.3 to a modern, and much discussed, nominalistic account of science – Bas van Fraassen’s constructive empiricism – and whether it can bolster the case for nominalism as a viable metaphysics for the special sciences. Section 5.3.1 is concerned to show that Van Fraassen’s aim for the natural sciences – empirical adequacy – cannot be achieved by itself, but only by aiming at truth, and then Sections 5.3.2 and 5.3.3 argue that constructive empiricism offers nothing to help with the nominalist’s problems with explanation and prediction. Problems are then raised with Van Fraassen’s rejection of real modality in the world: that it seems to be a gratuitous addition that impedes the empirical adequacy of a theory; and it fails to adequately account for successful rational action.

Finally in this chapter, Section 5.3.5 takes issue with Van Fraassen’s strategy for dispensing with bad metaphysics and his doctrine of stances, concluding that nominalism is not a viable metaphysics for the special sciences.

Chapter 6 is concerned with what goes wrong in the absence of real Secondness and Firstness. Taken together with the previous chapter, the aim here is to show that we need all three categories for a viable metaphysics for the special sciences. Sections 6.2 and 6.3 discuss what goes wrong when there is no independent Firstness and Secondness. This yields a selection of issues – problems of genesis, applicability, distinguishability, compulsion, governance, actualisation, change and inquiry – which, taken together, are meant to show that a metaphysics of Thirdness alone is not viable for the special sciences. Section 6.4 then aims to show that the eliminative ontic structuralism of Steven French – as elaborated in French (2014) – is just such a metaphysics.

Having shown that we need all three categories for a viable metaphysics for the special sciences, Chapter 7 turns its attention to metaphysical quietism, understood here as the view that, while we have presuppositions, inquiry into them is impossible or futile. The aim of this chapter is to show that this quietism is not a viable position: it blocks the way of inquiry and may not even be quiet about the metaphysics, being instead a façade for nominalism.

Three examples of quietism are summarised and criticised along Peircean lines. Section 7.2 examines Pyrrhonism, as elaborated by Sextus Empiricus, and argues that the Pyrrhonist, deliberately confining themselves to phenomenology, has voluntarily chosen not to acquire the resources for normative inquiry, but has not demonstrated that there are no such resources. Moreover, Pyrrhonist inquiry is a sham, pre-deciding the results, and cannot demonstrate that metaphysical inquiry is impossible or futile.

Wittgensteinian linguistic quietism, explored in Section 7.3, shares a number of features with Pyrrhonism, such as: being seemingly stuck in phenomenology; a concept of philosophy as therapy; deploying methods rather than formulating theories; what seems to be a deep-seated conservatism; and a similarity between Sextus's forced assents and Wittgenstein's hinge propositions. This leaves the Wittgensteinian open to much the same criticisms as the Pyrrhonist, at least if they are sincere phenomenologists, as Sextus is. If they are not, however, their position seems to be self-refuting.

The last example of quietism addressed is that found in Huw Price's global expressivism, which is addressed in Section 7.4. This can be thought of as a Wittgensteinian account, with some attempt made to fix some of its problems. However, these fixes are themselves problematic. It will be argued that global expressivism is only metaphysically quiet by fiat: it denies the metaphysician access to the environment which they wish to get right. Moreover, it is not a quietism because it is nominalistic and is thus not neutral as between nominalism and Peircean realism.

Chapter 8 concludes the thesis and includes a very brief summary and some suggestions for further work building on this thesis.

Naturally, with this being a doctoral dissertation, it is expected to make some kind of original contribution, so the next section outlines what I suspect is novel.

1.2 What is original

It can be a fraught business trying to lay claim to some original thought or approach. There are so many papers and books published on any given topic that it is all but impossible to keep up with developments. Moreover, this thesis casts its net quite wide in bringing Peircean notions into dialogue with other views and is thus not just restricted to Peirce's

own writings and the scholarship thereon, which is voluminous enough by itself. So when I lay claim to originality in this thesis, this should be taken as an honest but fallible hope, open to correction: it is original only to some degree and as far as I am aware. Most of what seems to me original lies in details and emphasis.

Bearing that in mind, here is what might be considered as original contributions made by this thesis.

The first is the reading of Peirce itself which is, as mentioned above, close to some others – Susan Haack, Cathy Legg, Andrew Howat, Robert Lane – but diverges from them all in certain details. Sometimes there may be some point raised that, to the reader, seems original but which I do not claim as so, preferring to ascribe some interpretative extension to the original author, much as mediaeval thinkers tended to ascribe innovations to some ancient authority, such as Aristotle or Galen: sometimes it is difficult to separate one's own thoughts from the source material. This is, however, just the operation of semiosis in developing and enriching concepts through interpretation, perhaps to breaking point when catachresis occurs and misconstruals become evident. Peirce's ethics of terminology (EP2: 263–266) and his neologising are strategies to forestall such misconstrual.⁸ But semiosis – the movement and transformation of signs – cannot be stopped: all thought and possibly all being would end.⁹ So I apologise for any accidental originality in misconstruing or over-extending Peirce or any other writer, although if the thought is a good one – by whatever measure, such as clearing up confusion or enabling further inquiry – then I am pleased to have presented it.

In Chapter 2, emphasising the categories as basic principles of combination and organisation seems to be a novel approach. Mostly in the literature, their importance seems somewhat underplayed when, in my view, they are critical in underpinning the whole Peircean line of thought: little in Peirce makes much sense without them. A couple of novel details in this chapter seem to be the claim that there is a gradual commitment to the hypothesis of reality across the architectonic – which can account for Peirce's various comments about mathematics, at one end, and metaphysics, at the other – and the suggestion

⁸Currently in analytic philosophy, this would come under the fashionable term 'conceptual engineering', although this is not a new activity: every thinker in history has engaged in it in some way. And nor is its study a new discipline: it is semiotics, the study of signs, which goes back to Aristotle.

⁹To defend this claim would require diving into Peirce's semiotics – another part of his logic – and we are sticking to his theory of inquiry as the guide in this thesis.

that the teridentity relation is a typing mechanism.

There are several points of possible originality in Chapter 3. There is the discussion of whether Peircean reality is epistemic or ontic and the matter of fiction in Peirce, neither of which has received much attention in the literature. Then there is what might be called the hard-line on knowability, which runs counter to the current view. The extension of the explanation of successful prediction into the more general domain of successful rational action seems to be novel: at least, what I have surveyed of the literature on action seems to concentrate on the agent and neglects the role the environment plays in successful action. And when Peirceans talk of GMR it is as just one member of a contrast class to Peirce's modal view (Pihlström (2012)) or to summarily dismiss it either as an instance of nominalistic Platonism (Haack (1992, 33)) or of extreme nominalist explication (Legg (2020, 591)). Here an attempt is made to show exactly what is going wrong with GMR on the Peircean line.

Moving on to Chapter 4, the notion that the subject matter of metaphysics is presuppositions is not original – it is found in Collingwood (1940) – but reading Peirce in that way does seem to be novel. Collingwood has metaphysics as being concerned with *absolute* presuppositions, which he characterises as not being truth-apt. On the Peircean line, if a presupposition has no possible experiential consequences – if it fails the test of the maxim of pragmatism – then it is simply redundant and can be discarded. If it passes, then it can be inquired into, notwithstanding logistical issues. If we presuppose something, we rely on it in our activity, and such reliance is of the nature of a belief, so even non-truth-apt presuppositions have associated beliefs – such as a method being fit for its purpose – which generate expectations that can be frustrated.

I have not seen a typology of nominalism before, so the sketchy one in Chapter 5 may be original. What is novel in the Peircean critique of constructive empiricism is the emphasis on Van Fraassen's nominalism, avoiding the well-populated battlegrounds of empiricism, acceptance versus belief and the observable-unobservable distinction.

The Peircean critique of eliminative ontic structural realism in Chapter 6 seems entirely new.

The treatment of Pyrrhonism in Chapter 7 is partly inspired by the reading, by Mates (1996), of Sextus Empiricus as a pure phenomenologist although, when put in a Peircean

light, that is not as advantageous as Mates seems to think, and it certainly doesn't add up to a viable metaphysical quietism. With the critique of Wittgenstein, Misak (2016) and Boncompagni (2016) have looked at his work from the perspective of classical pragmatism, while Pritchard (2011, 2019, Forthcoming) has identified parallels between Wittgenstein and Pyrrhonism. However, none of them aimed at challenging the viability of Wittgenstein's views as a type of metaphysical quietism, so any originality here is more a matter of emphasis. As for global expressivism, from Peirceans there seems only to have been the criticisms of Tiercelin (2013) and Legg and Giladi (2018), so it is hoped that the critique here might contribute to building a robust case against global expressivism from the pragmaticist camp.

Chapter 2

Peirce's Categories

This chapter introduces Peirce's three categories of Firstness, Secondness and Thirdness. These are basic principles of combination and organisation¹ and are a good place to start because all activity involves combination and organisation, from doing some sums to getting drunk in the pub. Even just walking down the road involves combinations of neural firings organised so as to trigger the coordinated contraction and relaxation of muscles, and the same can be said for all motor activity. All thinking and reasoning, similarly, involves combination and organisation. They are involved in animals and plants starting, living and dying, as well as in planets orbiting stars and those stars burning fuel until they collapse under their own mass. Granted, then, that there is activity in the universe – irrespective of whether it engenders genuine change or is ultimately futile churn – then a viable metaphysics for the special sciences should accept basic principles of combination and organisation and admit all three categories, lest it impoverish the conceptual resources of those sciences, which seek to inquire into the workings of the world. How the categories are characterised is important for the content of a scientific metaphysics, and the way Peirce characterises them gives us the basis of Peircean realism, of what is maintained as real.

The categories, being of the first rank of generality – they are *basic* principles of combination and organisation – have no reductive definition, because there is nothing more primitive. Nor would it be particularly helpful to define them in terms of each other. Instead, they are characterised under several aspects. Using Peirce's architectonic (see

¹This is nearly, but not quite, stated explicitly at NEM: 3.830–835.

Section 2.2.2 and the glossary entries for Architectonic and Science), the categories start as mathematical hypotheses, gain experiential support in phenomenology then acquire further characters in logic and metaphysics. This is how the mature Peirce arranges things although, chronologically, he first elaborated the categories – in ‘On a New List of Categories’, published in 1867 (EP1: 1–10) – in phenomenological and semiotic terms (Ransdell (1989); Ishida (2009)). We are here trying to keep to Peirce’s considered, mature views, so will adopt the architectonic understanding of the categories.

Peirce was a thoroughgoing fallibilist and thought that philosophy should be more scientific, although not scientific in the sense that the special sciences render philosophy redundant. As such the categories are presented, at least in his mature work, as a scientific hypothesis subject to testing. If, in the course of inquiry, incontrovertible evidence is discovered that there are, say, irreducible relations of arity four, then Peirce would accept that the scheme needs revision.

Since Peirce’s derivation of his categories has been gone over at some length in the secondary literature – see, for example, Murphey (1961/1993, 65–92, Chap.15); Hookway (1992, Chap.3), Hausman (1993, Chap.3), Short (2007, Chap.3), Ishida (2009) – we will not dwell on that here. Nor will this chapter cover everything that could be said about the categories and their consequences – there is simply not enough space – although further elaboration will be made later in the thesis as appropriate to the context. So, for example, Chapters 5 and 6 discuss what goes wrong in the absence of one or another category, with Section 6.3 giving a brief account of causation understood in terms of the categories. And Chapter 7 goes into more detail on the Peircean understanding of phenomenology – the science of mere appearance, concerned solely with Firstness – while discussing metaphysical quietism. The aim of *this* chapter is, instead, to show how Peirce’s categories work as basic principles of combination and organisation, and thus as the basis for Peircean realism, or indeed any viable metaphysics for the special sciences.

With that in mind, we will go straight in with how the categories are characterised under four aspects, each being a stage in the architectonic: pure mathematics, phenomenology, logic and metaphysics (Section 2.1). This will be followed by a gloss explaining some of what might seem puzzling at first sight: the uniqueness of Peirce’s categories among categorial systems and his distinction between universal and particular categories; why we

have multiple aspects of the categories and his splitting of mathematics and logic; more detail about Peirce's reduction thesis, which will be described shortly; and an analogy with making marks on a piece of paper, which is intended to clarify the combination of independence and interdependence of the categories, at least under the metaphysical aspect (Section 2.2). This will bring out how Peirce's categories differ from how categories are usually considered, as well as defending the claim that Peirce's categories are basic principles of combination and organisation.

Finally in this chapter, replies will be made to a few objections against the categories: why we need categories at all; why everything cannot be done with Thirdness alone; and why the characterisations are as they are (Section 2.3).

2.1 Categories under four aspects

Peirce has three categories called, rather prosaically, Firstness, Secondness and Thirdness. Under the aspect of pure mathematics, they are characterised as relations of arity one, two and three respectively, with the understanding that there are genuine and degenerate dyads and triads, the genuine ones being irreducible to combinations of lower arity relations. Moreover, all relations of arity greater than three can be reduced to combinations of relations of arity three or lower. Thus we only need relations of arity one, two and three to account for any structure of arbitrary size and complication. This is Peirce's reduction thesis, about which more will be said, along with degeneracy, in the next section. Thirdness can also be characterised as continuity because that is the mathematical version of generality under the logical aspect (EP2: 72n, 160, 207, 345).

Under the aspect of phenomenology (or phaneroscopy as Peirce prefers it), the categories are supposed to be the 'simplest' (EP2: 149) 'indecomposable elements' (EP2: 362; CP: 1.288) of experience. The first and simplest of these – Firstness – is characterised as a non-relational quality of feeling, something that is as it is, independently of aught else (EP2: 149–150, 160, 268). Secondness is the next simplest feature and is characterised by 'struggle' (EP2: 150) or, to use a less loaded expression, by a sense of resistance to effort (EP2: 150–151, 369). It is interaction, action-reaction, agent-patient, a distinctly dyadic sense of otherness as when we are surprised (EP2: 194–195). It is as it is, independently

of what happens before or after or elsewhere: it is *hic et nunc*, here and now. It is as it is, independently of any reason or rule for it. As for Thirdness under the phenomenological aspect, this is characterised by a sense of learning, of being engaged in a process by which 'a phenomenon is found to be governed by a rule, or has a general knowable way of behaving' (EP2: 5), that is a certain repeated action has repeated results. It is a sense of persistence through time. It is a sense of there being a reason for something being distinct from other things. Peirce has a rich notion of experience, much richer than that the classical empiricists. It is not limited to a sequence of discrete sensory events but consists of everything that is in a mind in any way whatsoever, and construed diachronically. This includes hallucinations, imaginings, memories, expectations, emotions, ideas, ideas about ideas; basically everything without regard of whether it is real or figment (CP: 1.284, 1.288, 8.213, 8.301; EP2: 362).

The categories under the aspect of formal logic are very similar to those under mathematics, except relations are now interchangeable with predicates and the degeneracy conditions can be described differently; the categories can now be thought of as types of predicate. Peirce has a broad notion of logic as the science of good reasoning and, as well as formal logic, it includes his theory of meaning – broadened into a general theory of signs, semiotics – and his theory of inquiry. Here we have the additional characterisation of Thirdness as generality and Secondness as particularity.

Lastly, under the aspect of metaphysics, Firstness is characterised as possibility, pure chance, may-bes, as *sui generis* qualities and Secondness as actuality, existence, haecceity. Thirdness encompasses necessities, probabilities, would-bes, habits, laws and dispositions (EP1: 275; EP2: 501); it is that in virtue of which there is something else, a reason for events. Here the categories become modes of being:

Firstness is the mode of being of that which is such as it is, positively and without reference to anything else. Secondness is the mode of being of that which is such as it is, with respect to a second but regardless of any third. Thirdness is the mode of being of that which is such as it is, in bringing a second and third into relation to each other. (CP 8.328)

Peirce makes a distinction between what is real and what exists: existence is just a matter of Secondness – of things standing in reciprocal dyadic relations with each other – but we can have real possibilities and real probabilities as well. We'll come back to this distinction

in the next chapter.

The categories are both independent and interdependent: they all come together or not at all. Under the mathematical aspect, we need monads to have dyads, and we need dyads to have triads. Then under the metaphysical aspect qualities (Firstnesses) need objects (Secondnesses) for their instantiation, objects need habits (Thirdnesses) for their persistence and reliable behaviour, and habits need objects having some kind of behaviour for their manifestation, indeed for their establishment as habits in the first place (more on this last point in Chapter 6).

These characterisations are summarised in Table 2.1.

Aspect	Category		
	<i>Firstness</i>	<i>Secondness</i>	<i>Thirdness</i>
<i>Mathematical</i>	Monadic relation (Arity = 1) No degeneracy	Genuine dyadic relation (Arity = 2) One degree of degeneracy	Genuine triadic relation (Arity = 3) Two degrees of degeneracy
<i>Phenomenological</i>	Quality of feeling	Struggle-Resistance Action-Reaction Agent-Patient	Learning Interpretation Comprehension
<i>Logical</i>	Monadic predicate Quality	Genuine Dyadic predicate Particularity	Genuine Triadic predicate Generality
<i>Metaphysical</i>	May-be Possibility, Pure chance <i>Sui generis</i> qualities	Actual Haecceity Objects, Events	Would-be Probability, Necessity Habits

Table 2.1: Peirce's categories under four aspects.

2.2 Glossing the characterisations

There are a number of elements of the brief characterisations given in the previous section that may seem puzzling. This section will endeavour to clarify some of these. We begin by considering why Peirce's categories are unique among categorial systems, then move to why the categories are characterised under aspects, rather than being given analytical definitions, which will bring in a brief discussion of Peirce's architectonic or classification of the sciences. Next comes a quick informal run-through of the reduction thesis and the metalogical/metamathematical claim, which is that the categories are present at every

level of description and explanation. Finally, to further clarify the metaphysical aspect and the combination of independence and interdependence, an analogy will be drawn between the categories and making marks on a piece of paper.

2.2.1 The uniqueness of Peirce's categories

Peirce claims that:

the word *Category* bears substantially the same meaning for all philosophers. For Aristotle, for Kant and for Hegel, a category is an element of phenomena of the first rank of generality. (EP2: 148)

He then goes on to make a distinction between universal and particular categories:

The particular categories form a series, or set of series, only one of each series being present, or at least predominant in any one phenomenon. The universal categories, on the other hand, belong to every phenomenon, one being perhaps more prominent in one aspect of that phenomenon than another but all of them belonging to every phenomenon. I am not very well satisfied with this description of the two orders of categories, but I am pretty well satisfied that there are two orders. (EP2: 148)

As an example we can take Kant's categories, as depicted in Table 2.2. The headings for each column in this table would be Kant's universal categories in that, for any possible object of cognition, an inquiry can be pursued as to that object's quality, quantity, relation and modality, so they are all presumed to be present. Such an inquiry would then reveal which one of the three categories under that heading is applicable in that case, so the twelve entries under the headings would be Kant's particular categories.

<i>Quantity</i>	<i>Quality</i>	<i>Relation</i>	<i>Modality</i>
Unity	Reality	Inherence and subsistence (Substance and accident)	Possibility–Impossibility
Plurality	Negation	Causality and Dependence (Cause and effect)	Existence–Non-existence
Totality	Limitation	Community (reciprocity between agent and patient)	Necessity–Contingence

Table 2.2: Kant's categories. Adapted from Kant (1787/2018).

Unfortunately, as Atkins (2010) points out, this doesn't work. Apart from some well-known problems with Kant's categories – such as the headings not being mutually exclusive, and Kant not deriving them, only associating them with his twelve 'momenta'

of judgments² – the twelve entries are not of the first rank of generality, since they are derivative of the headings. We would require some more general principles according to which we have just these twelve, and it would then be *these* principles that have the better claim to category-hood, being more general (Atkins (2010, 99)).

But this consideration can be applied to the headings as well as to the entries: by what principles do we have just these four. And we don't have to stick with Kant's categories to see that this can lead to a general scepticism for systems that purport to tell us what are fundamental kinds, since a regress beckons as we try to find the first rank of generality.

However, Peirce's categories allow us to block this regress: most categorial systems give us a putative list of basic kinds, while Peirce instead gives us the basic principles of combination and organisation on which any categorial system relies (EP2: 366, CP: 8.331; NEM: 3.830, 3.832).³ This is a metamathematical or metalogical claim – although Peirce did not use these 'meta-' words as far as I am aware – and makes Peirce's categories unique among categorial systems.

Peirce's categories concern form or structure (CP: 1.288, 8.213). He reckons that there is another order of categories concerning matter or content but, having tried to ascertain it (EP2: 143), he abandoned the attempt, considering it as 'beyond my powers, or, at any rate, unsuited to my genius.' (CP: 1.288) This is indeed a tricky problem, since it amounts to asking what are the basic principles governing content, the stuff that fills out the structure, in the absence of any structure that might bind it together.⁴ Such a difficulty in finding basic principles for content is another source of scepticism concerning categorial systems.

This is a question beyond the scope of this thesis, but some work in the direction of what Peircean material categories might look like has been done by Atkins (2010, 2012a,b, 2013), who suggests an approach based on the model of the periodic table: this is apt, since Peirce held a degree in chemistry and he often appeals to chemistry for analogies.⁵

Perhaps an example of an attempt at a set of material categories might be found in the Standard Model of particle physics. However, while this does exhibit some pleasing – from

²See Ryle (1938, 197–198) for some more criticisms.

³See also Murphey (1961/1993, 305) and Burch (1991, 118–121). Conarroe (2020) has as its main theme the idea that the categories are metalogical or metamathematical principles.

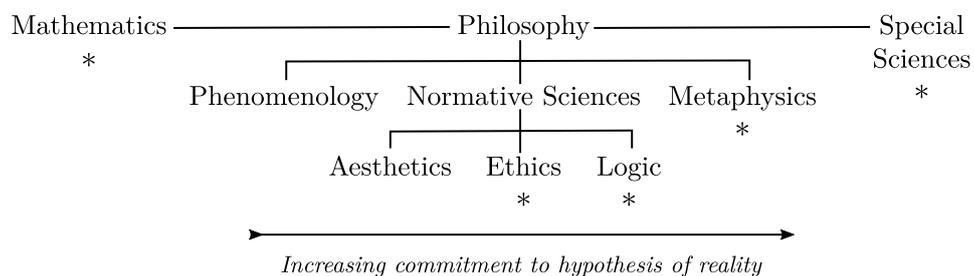
⁴It is presumed that there is such stuff, else there would be no structure for want of stuff to structure.

⁵See Ambrosio and Campbell (2017) for more on how chemistry came to influence Peirce.

the Peircean viewpoint – triadicity, it does not seem to be of the first rank of generality, which is the mark of basic categories. What we might look for are categories that vary only in the value of a single, unit-less parameter – as Peirce’s categories do with the arity of relations – even though that single variance has extensive implications. This does not seem to be the case with the Standard Model. But this is just a pointer for some future work and, as mentioned, material categories are beyond the scope of this thesis. Without them, we can still do a lot with Peirce’s structural categories, since we can apply them iteratively to generate any desired structure: see Section 2.2.3.

2.2.2 Aspects and Peirce’s architectonic

The categories have been presented here as characterisations under various aspects. This is because the categories are *basic* principles of combination and organisation, *indecomposable* elements of experience. As such, they cannot be defined reductively because there is nothing more structurally primitive in terms of which they can be defined. We could specify them in terms of each other since they lie at the same level, but this may not be very informative. Instead we have to appeal to how the categories manifest when encountered in our activities and experience. However, the categories as they appear in their mathematical aspect are, strictly speaking, purely hypothetical, without immediate ramifications for our experience of the world or how we represent it. To clarify this, we will look briefly at Peirce’s architectonic, or classification of the sciences, a portion of which appears in Figure 2.1.



* Further divisions omitted

Figure 2.1: A portion of Peirce’s architectonic, derived from CP: 1.180–1.283.

Peirce uses the word ‘science’ to mean any process or activity of truth-directed inquiry. His architectonic does not posit any merely possible sciences but rather includes only what

was extant at the time: Peirce fully expects that any classification of the sciences will change in the future as older sciences mature and new sciences are birthed from them, although he hopes that the principles by which he organises them are the best available for some time to come. His main organising principle is that a science takes its own main principles from some other sciences while taking data and examples from others: in Figure 2.1 a science takes principles from those on its left, data from those on its right (EP2: 258).

The figure only indicates what Peirce calls ‘sciences of discovery’, which is one of his top-level divisions. The other two are: sciences of review, which try to make sense of the activities and outputs of other sciences; and practical sciences, which apply general truths from the sciences of discovery in order to solve particular problems (EP2: 258). We are interested here primarily in the sciences of discovery, although the architectonic is itself a product of a science of review (EP2: 259). While the main idea is for principles to flow from left to right, and data from right to left, it would seem that the sciences of review allow for some pushback against this flow: sciences on the right of the figure can challenge principles they have received from the left, and sciences on the left can challenge data they have received from the right.

Peirce divides the sciences of discovery into: mathematics, philosophy (or cenoscopy, ordinary observing) and the special sciences (or idioscopy, special observing). Pure mathematics’ position on the far left means that it is going to play some part in all science, since it is the ultimate fount for principles (EP2: 36, 82). It is, however, purely hypothetical: it makes up its own rules and cares not for whether its theorems play out in the world (EP2: 52, 146, 259, 372; CP: 1.240). It has no commitment to the hypothesis of reality – that there are some real things⁶ – and, as such, it makes no sense to call mathematical objects ‘real’ or ‘fictional’.⁷

The special sciences include not only what we would call natural sciences – such as physics, chemistry and biology – but also what we would call human sciences, such as history, economics and sociology. They are special in the sense that they employ specialised

⁶This will be elaborated further in Chapter 3, and see the Glossary entry for ‘Reality, hypothesis of’.

⁷Russell (1917/2012, 75) agrees with this characterisation of mathematics: ‘mathematics may be defined as the subject in which we never know what we are talking about, nor whether what we are saying is true.’ Feynman (1965/1985, 55) and Bell (1987/2010, 117–118), in distinguishing physics from mathematics, echo this view. However Peirce, unlike Russell, is not a logicist (see, for example, CP: 2.197).

techniques and resources which are not, in the main, available to everyone; and in the sense that they are sciences of the particular, whereas philosophy comprises sciences of the general.⁸

Between pure mathematics and the special sciences comes philosophy, which are those sciences that do not require special resources and are concerned with the analysis and criticism, in a general way, of what is within everyone's purview (EP2: 259; 372–373; CP: 1.241). This is further divided into: phenomenology (or phaneroscopy), the science of experience in itself; the normative sciences which are concerned with distinguishing good from bad, in itself (aesthetics), in action (ethics) and in reasoning and thought (logic); and finally metaphysics, the science of reality, which is where philosophy meets the special sciences. The only normative science we are concerned with here is logic, not least because Peirce says little about aesthetics and ethics.⁹

While mathematics forms hypotheses and draws necessary conclusions from them, logic is the science of good reasoning, of 'truth and falsity' (EP2: 385), of how it is possible to obtain a true answer to a question. It is a positive science whereas mathematics is not (EP2: 146), in the sense that logic has a commitment to the hypothesis of reality absent in mathematics.¹⁰ As we move across Figure 2.1 from left to right, the commitment to the hypothesis of reality increases: mathematics has none, that of phenomenology is minimal while that of metaphysics – the science of reality – is total.¹¹ The categories derived in mathematics are *a priori*, but since this remains a hypothesis, 'the *a priori* descriptions mean little; – not nothing at all, but little' (EP2: 289), unless we find them in experience (Vernis (2007)). All sciences thus have an empirical element of some kind: even pure mathematics which involves, for Peirce, observation of, and experiments on, diagrams (EP2: 36; CP: 1.54, 1.240, 1.383, 2.65, 3.363).

The increasing commitment to the hypothesis of reality accounts for the difference in how the degeneracy conditions are specified, between the mathematical aspect and

⁸Feynman (1965/1985, 56) also makes a distinction between the general and the special: 'The physicist is always interested in the special case; he is never interested in the general case.'

⁹For more on aesthetics and ethics in Peirce, see, for example: de Waal and Skowronski (2012, Chaps. 3,4,5,7), Campos (2014), Atkins (2016b) and Liszka (2021).

¹⁰For more on Peirce's distinction between mathematics and logic see Haack (1979), Houser (1997), Grattan-Guinness (1997), Levy (1997) and de Waal (2005).

¹¹Peirce does not seem to explicitly state this gradualism in commitment to the hypothesis of reality, but it seems a reasonable inference from what he does say about mathematics, phenomenology and metaphysics; his aversion to dualism; and his doctrine of synechism – the idea that everything tends to continua.

the logical. In both cases, there is a single degree of degeneracy for Secondness and two for Thirdness (Firstness is too simple for degenerate cases). In mathematics, if we take a dyadic relation as $R(x, y)$ then its degenerate case is when $R(x, y) = A(x) \wedge B(y)$, that is, it is a juxtaposition of two monads.¹² The first degree of degeneracy for triads is where we have one or more genuine dyads, but they are juxtaposed with a monad or another dyad. So we have $R(x, y, z) = A(x) \wedge B(y, z)$ or $R(x, y, z) = A(x, y) \wedge B(y, z)$ or $R(x, y, z) = A(x, y) \wedge B(x, z) \wedge C(y, z)$. The second degree is like degenerate dyads, with juxtaposed monads: $R(x, y, z) = A(x) \wedge B(y) \wedge C(z)$.

These formulas also apply when we get to logic, but the picture of degeneracy becomes somewhat richer, since we now have to allow for reality:

A real relation subsists in virtue of a fact which would be totally impossible were either of the related objects destroyed; while a relation of reason subsists in virtue of two facts, one only of which would disappear on the annihilation of either of the relates. (EP1: 253)

Genuine dyads and triads exhibit real relations. For dyads this means that the relata are in some way affected by being in that relation with each other, to the point that they are at least partly constituted by that relation. A genuine triad involves a genuine dyad, along with a third relatum by virtue of which the dyad is a dyad. Indeed, Peirce repeatedly insists that it is of the basic nature of genuine Thirdness that two things are brought into relation by a third (EP1: 238, 280, 296; EP2: 364, 428; CP: 1.356, 1.371, 2.93, 3.63, 8.328, 8.332; NEM: 4.297.).

For the first degree of degeneracy, Peirce gives the example of a pin sticking through two things, say sheets of paper, holding them together (EP1: 254). The pin is in a genuine dyad with each of the sheets in that both have been affected by the other – each sheet now has a hole in it while the pin is blunter and has a shear stress applied to it. But there is nothing about the second sheet in virtue of which there is a dyad between the pin and the first sheet. We could remove it and the latter dyad would not change; and the same thing can be said for the first sheet with respect to the pin-to-second-sheet dyad.

¹²For notational convenience and brevity, here a relation is expressed as an n -tuple over a domain of objects. This is not, however, correct on the Peircean line where it is objects, or classes thereof, that should be considered as n -tuples, themselves ranging over a domain of available positions in relations (Dipert (2004, 302)). This has consequences for any treatment using standard graph theory: see Downard (2017, 40ff) for suggestions as to some of the changes required. In Section 2.2.3, a graphical presentation will be used for greater clarity.

As an example of the second degree of degeneracy Peirce gives us ‘Philadelphia lies between New York and Washington’ (EP1: 255). We could remove any of these three and the others would remain the same. There is nothing about Philadelphia merely being between New York and Washington that affects those cities, no matter how you choose to pair them off into dyads.¹³

2.2.3 The reduction thesis and the metalogical claim

While pure mathematics only gives us hypotheses, if there is experiential evidence such that we have good reason to believe them true of the world and not just hypothetically, then we have reason to accept the mathematical consequences of those hypotheses, since mathematics draws necessary conclusions from them. As such, a lot potentially turns on whether the Peircean reduction thesis is correct.

We will not give a full elaboration or proof of the reduction thesis nor of the metalogical claim. There is not enough space here and both have already had extensive treatments. For the reduction thesis see Burch (1991, 1997), Hereth Correia and Pöschel (2006), Dau and Hereth Correia (2006), Interdisciplinary Seminar on Peirce (2011, 2015) and Hereth and Pöschel (2011).¹⁴ The metalogical claim is the main theme of Conarroe (2020) and Koshkin (2023) tries to expel any hint of gerrymandering. Instead we will just give a quick informal treatment that will hopefully give an intuitive grasp of the two.

The reduction thesis comprises two parts: that there are irreducible relations of arity two and three and that all relations of arity greater than three can be reduced to those of arity three and/or lower. Reduction is to be understood here as recasting, without loss of overall arity, a relation in terms of other relations of lower arity. We will only consider genuine dyads and triads, because these are the ones that are meant to be irreducible.

Consider a relation as a vertex in a graph, with its arity indicated by the number of

¹³If Philadelphia historically controlled the river trade between New York and Washington – which it didn’t – then there would be a sense in which New York and Washington have been constitutively affected by Philadelphia’s position. Except that it is not just its position that is involved and we would need a much richer predicate than ‘lies between’ to express this.

¹⁴Addressing a different problem, Arnold (1957/2009) showed that any continuous function of three variables can be represented as a composite of continuous functions in two variables. A function in three variables is a tetrad – three inputs and one output – while a function in two variables is a triad. So Arnold seems to have shown that all tetrads – given certain constraints by the definition of ‘function’ in use – are reducible to combinations of triads. Peirce anticipated such a proof (NEM: 3.832).

lines emanating from it; see Figure 2.2 for some examples.¹⁵ Each of these lines, attached

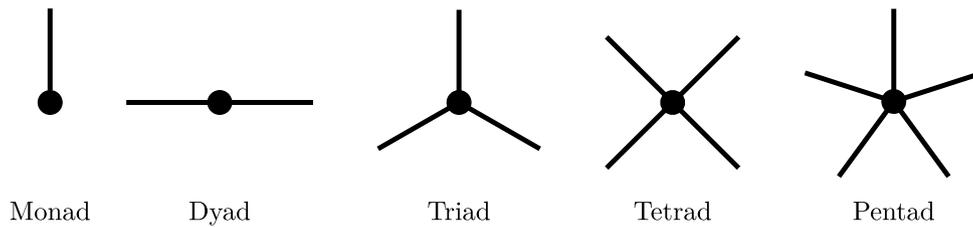


Figure 2.2: Some relations

to a vertex only at one end, we will call ‘loose ends’. Relations are combined pairwise by joining their loose ends one-to-one.¹⁶ Both relations in a pairwise combination will thus use up the same number of loose ends in that combination. The resulting combination is also a relation – though a more complicated one – with its arity given by the number of its loose ends. It can be easily seen from this – see Figure 2.3 – that neither dyads nor triads can be made from monads alone. From two monads you can only make what Peirce

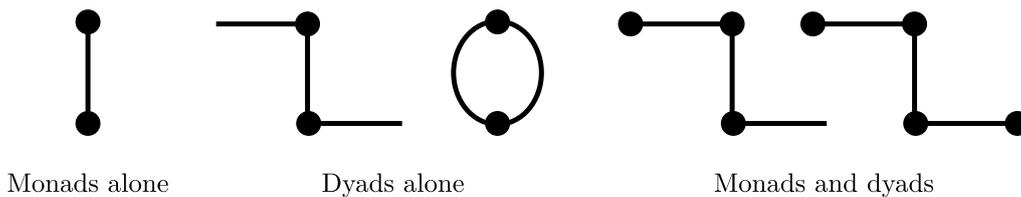


Figure 2.3: Combining monads and dyads

calls a medad, without any loose ends. From dyads alone, you can only produce dyads and medads; including a monad allows you to produce another monad. From this it can be seen, informally at least, that there must be irreducible dyads and triads, since we cannot produce dyads from monads alone, nor triads from any combination of monads and dyads. This takes care of the first part of the reduction thesis.

Slightly more formally, from the rule of pairwise connection – which seems plausible

¹⁵Without vertices at both ends these lines are not proper edges in graph-theoretical terms, instead they are half-edges.

¹⁶While, mathematically, we may not be concerned with what it is that fits into the empty slots on relations represented by the loose ends, in logic we are. When loose ends are combined, what would fill those slots on each relation, even though it remains undefined, must be the same in some relevant respect. So each time loose ends are connected, an identity relation should also be inserted that specifies that the two slots have the same content and in what relevant respect that content is the same. This relation is itself triadic – the relata being slot-A-content, slot-B-content and the relevant respect – and Peirce calls this the teridentity relation (CP: 4.561). These relations are important for the formal treatment of the reduction thesis – at the very least they make Peirce’s formal logic typed – but are omitted in this informal demonstration to avoid extra complication. We will, however, return to them in Section 3.6.2, when the dependence of same-saying on generality will be discussed.

in this context – we can obtain a formula for the number of loose ends remaining after any pairwise combination. This is $a + b - 2k$ (CP: 3.484), where a is the number of loose ends on the first relation before combination, b likewise for the second relation, and k is the number of loose ends each uses in the combination (and is thus doubled because each uses up the same number).

Once we introduce triads we can produce combinations of any required arity, just by using triads alone: see Figure 2.4 for some examples. It should be clear that we can keep

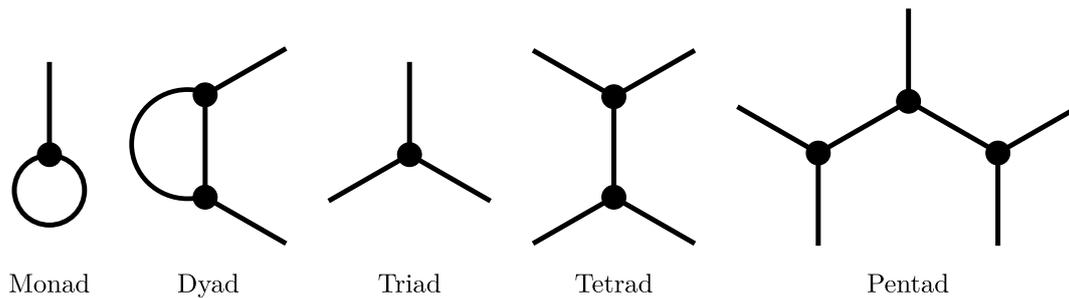


Figure 2.4: Combining Triads. (Adapted from EP2: 364.)

appending triads to increase the arity of the resulting combination by one by using up one loose end on each combinant each time.

Just to show that the process works in reverse as well, Figure 2.5 shows the reduction of a pentad to triads. At each step, the total number of loose ends remains constant: if we

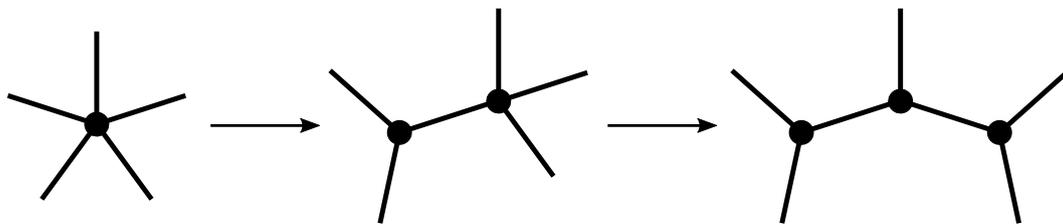


Figure 2.5: Reduction of a pentad to three triads.

tried to replace a triad with two or more dyads, we would lose a loose end and the overall arity would change. But this should already be clear from the fact that we cannot make triads from dyads alone. Just adding more loose ends to the original relation, thereby increasing its arity, clearly does not change the reduction procedure and so, by inspection, all relations of arity greater than three can be reduced to a combination of triads. This takes care of the second part of the reduction thesis and completes this informal demonstration.

As for the metalogical claim – that the categories comprise basic principles of combina-

tion and organisation and thus operate at all meta-levels – this follows from the reduction thesis. If any arbitrary structure only needs genuine monads, dyads and triads to be specified, and we consider combination and organisation structurally, then it follows that *all* combination and organisation only needs monads, dyads and triads. And this is not just true for some base level of structure, it is also true for higher-order levels, since they also involve combination and organisation.

A proposition with a monadic predicate, despite appearances, is triadic metalogically (Conarroe (2020, 89–90, 131–132)): two elements – a subject and a predicate – are combined together along with that which shows they apply to the same thing.

But it is important not to forget that no more do ‘Socrates’ and ‘is wise’ make a proposition unless there is something to indicate that they are to be taken as signs of the same object. (EP2: 310)

If we assert the proposition ‘Socrates is wise’, we claim that there is something that is Socrates and something that is wise. But we are also claiming that the something in both cases is the same, so we need a third element, an index, to point at that something. In doing so, the two pieces of information are combined, and we have a triadic relation which might be depicted diagrammatically as in Figure 2.6.¹⁷

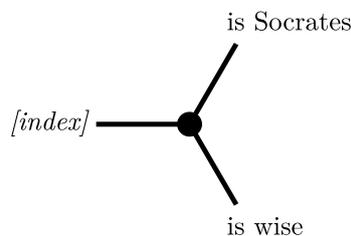


Figure 2.6: A monadic proposition as triadic relation

Quine (1954) purported to show that all relations of arity greater than two can be reduced to dyadic relations. However, both Burch (1991, 120–121)¹⁸ and Conarroe (2020, 141–146) take issue with this, in that Quine has used triadic relations to effect the reduction. Peirce himself criticised his own algebra of dyadic relations, saying that ‘though I think it is a pretty thing... the very triadic relations which it does not recognize, it does

¹⁷This is what, in his semiotics, Peirce calls a ‘dicisign’, which is where a sign, as a symbol, represents its object as a symbol according to its interpretant as an index. Stjernfelt (2015) goes into more detail into Peirce’s treatment of propositions but we will not directly address this semiotic approach here because it would add additional complications along with some obscure terminology.

¹⁸Burch also mentions Löwenheim (1915) in this context.

itself employ.' (CP: 8.331) Every combination of elements is triadic in nature: there are at least two combinants and a result, along with the relation itself, which is that in virtue of which the combinants are combined such as to produce the result: 'the very idea of a compound supposes two parts, at least, and a whole, or three objects, at least, in all.' (CP: 7.537) It might be thought that $R(x, y, z)$ – a triadic relation – can always be recast as $R(x, (y, z))$, which is dyadic. However, to effect this apparent reduction a triadic relation needs to be deployed because y and z are combined into (y, z) : the construction of a pair, whether ordered or unordered, itself involves a triadic relation. While it might be convenient notationally or computationally to bundle elements together, such bundling should not be taken to change the arity of the relations involved, even though what is involved may be disguised by a neater or more readable notation.

2.2.4 A paper and pencil analogy

To get a firmer grasp on the categories, at least under their metaphysical aspect, it might be helpful to consider this analogy. Take a piece of blank paper and place it in on a table. Imagine that the paper is perfectly smooth and represents the whole universe of possibility, as yet unactualised. In its present state, there is nothing constraining those possibilia: it is, if you like, just a chaos of possibility, nothing but Firstness.

Now take up your pencil – imagine that it has a zero-dimensional tip – and mark a dot somewhere at random on the paper. You have now, through this interaction, actualised a possibility and – because your interaction was random – without being constrained by any law as to what possibility was actualised.

Given that you could have placed the dot anywhere on the paper and thus actualised a possibility from anywhere across the whole universe of possibility, all the possibilia represented by the paper are real, in that they are capable of actualisation. They are, however, only actualised through an interaction – here between pencil and paper – and this is a Secondness. Firstnesses are thus dependent on Secondnesses for their actualisation, while Secondness is dependent on Firstness because, if there were no Firstness – no piece of paper – there would be nothing with which to interact, nothing that the pencil could mark.

Now place another random dot elsewhere on the paper and imagine there is a con-

tinuous line – it doesn't matter if it is straight or squiggly – connecting the two dots. We now have a Thirdness in that the two dots are brought into relation by virtue of a third thing, namely the continuous line between them. That line covers a continuum of possibility on the paper, but does not generate it. Rather it constrains some possibilities according to general conditions, namely the position of the two dots and the trajectory of the line. Feel free now to interact with the paper and add dots along the line, each time actualising a possibility but now not at random, but according to the rule of following a line between two dots. The line covers a continuum of possibility so, no matter how many dots are placed, there will always be room for more: a Thirdness – a general – is never exhausted by its instances.

Thirdness here is seen to be dependent on Secondness – the actualisation of the dots at the ends of the line – and to Firstness – the continuum of possibility on the portion of the paper covered by the line. The line fixes the relative position – not spatially or temporally but within the universe of possibility – of its end dots, such that a certain continuum of possibility lies between them, and any new actualisations along that line are also fixed in the same manner, so Secondness has a dependency on Thirdness. Nevertheless, while we have this interdependency, the categories are also severally independent: the line does not generate the continuum of possibility it covers, nor does it create its own endpoints. Moreover, just because there is an imagined line there does not compel us to place new actualisations along that line, so Secondness has an independence of Thirdness.

We could push this analogy a bit further by dropping the idealisations – the perfect smoothness of the paper and the zero-dimensional point of the pencil – and hoping it doesn't thereby fall apart. By doing so, we may get an analogy for how the categories behave in a real-world, rather than a hypothetical situation. Without those idealisations, a dot on the paper actualises not a single possibility, but a whole cluster of them; indeed, it covers a continuum of possibility across its width. If we zoom in on that dot, we see that it is fuzzy around the edges, and so we might imagine that real-world existents are optically vague to some extent: this is consistent with Peirce maintaining that anything entirely determinate in all respects is a fiction (CP: 8.208).¹⁹ There are possibilities that a real-world existent could actualise but does not, or not yet. For example, someone with

¹⁹Fiction is discussed in more detail in Section 3.5.3.

clear skin today could have a pimple tomorrow; they could wake up one day with an acute disease despite being healthy before; not being pregnant yesterday, they could be so tomorrow.

This vagueness extends to Thirdnesses. If, instead of imagining a line between two dots, we draw it in with our real-world pencil on our real-world paper – in analogy with how a law is instanced – and then zoom in on it we see that, although continuous in parts, it has lots of breaks in it while following a single trajectory. Moreover, it covers a continuum of possibility across its width as well as along its length and is, like the dots, fuzzy along its border. We thus might expect real-world Thirdnesses – such as laws of nature and at least in their patterns of instances – to be inexact, not exceptionless, probabilistic and subject to random deviations. This is just as Peirce characterises them (see Section 4.3).

Hopefully this section has clarified some of the more puzzling elements of Peirce's categories. We now turn to how the Peircean might reply to a handful of objections.

2.3 The categories briefly defended

In this section, some defence will be mounted against a few objections to Peirce's categories. These are: why we need categories; why everything cannot be done with Thirdness alone; and why the characterisations are as they are.

2.3.1 Why do we need categories at all?

At first sight, the question 'why do we need categories at all?' has a straightforward answer: because otherwise we simply could not engage in inquiry. We need categories to organise our material and formulate questions and plans of action. We need them to stop ourselves from disappearing into a chaotic miasma of indistinguishable material. And we need them in everyday life to distinguish, say, food from furniture. But this is not how this question is usually meant to be understood. Rather, the question intended is more like 'why do we need categories of a certain sort?' For example, Bueno *et al.* (2015) take exception to the four-category ontology of Lowe (2005):

We do need to categorize, not only to do metaphysics, but as part of the investigation of the world. However, nothing in either practice demands reification of the conceptual apparatus involved in the process. (Bueno *et al.* (2015, 243))

Here the objection is to elevating certain choice concepts to the status of metaphysical primitives. Our concepts change over time and we would be holding ourselves hostage to fortune to reckon any of them as permanent, essential fixtures of the universe. It is difficult for a Peircean to rebut this line of argument: to do so might well violate Peirce's maxim 'do not block the way of inquiry' (EP2: 48). But they have no need to.

In his architectonic, Peirce allows that sciences on the right of Figure 2.1 can challenge principles they acquire from the left through sciences of review, so metaphysical principles may be subject to amendment by, say, physics, provided that those amendments are still compatible with logical principles. It is the business of metaphysics to work out a *Weltanschauung* – a world-picture – for the special sciences (EP2: 146–147). This world-picture should be broad enough for the needs of the special sciences and there is nothing stopping a special science from constructing their own specialised ontology within the bounds of that world-picture. If it violates those bounds, this should, if it is a surprising violation, trigger a metaphysical inquiry as to whether and how the world-picture should be amended. If the metaphysical principles are already of the first rank of generality however, such a challenge will fail, unless the challenge adds or deletes principles of the same rank.

Bueno *et al.* (2015, 243–245) propose as an alternative to reification that we can just use concepts for all our categorisation needs, without any further claim that those categories are real divisions of the world. To be sure, we do not need to reify our concepts, but they do need to be in some way representational²⁰ of the world – they are about the world – however inadequately, otherwise any inquiry we conduct on that basis is not into the world but into something else.²¹ Taking the view that no concepts are in some way representational of the world amounts to adopting an error-theory towards practising scientists: physicists, biologists, geologists and all the rest are not inquiring into what they think their targets are, according to their concepts, but something else entirely.²²

Nevertheless, any genuinely fundamental metaphysical principles should be of immense

²⁰Representation is not here to be understood as some kind of magical given, some kind of transparent grasping of the world through experience. Nor is it a putative identity between sign and object. Rather, for Peirce, representations are mediated by interpretations: information from the world induces a sign, what that sign represents being a matter for an interpretant. So what is at issue here is whether information *from* the world contains information *about* the world. It would seem that we have to assume, or hope, that it does so, because only then could inquiry into the world be possible.

²¹I will not speculate as to what this something else might be.

²²Again, what this something else might be is obscure.

value to the special sciences, but we would need concepts to represent them, and the better that representation, the more useful those concepts would be, without requiring reification. Indeed, we can say that part of the aim of inquiry is to continually improve our concepts so that they better represent their objects. What we shouldn't say is that we can never have a conceptual categorisation that lines up with how the world is, because that *would* block the way of inquiry.

Is Peirce guilty of unwarranted reification in his categories? No, for a couple of reasons. The first follows from what has just been said about at least some of our concepts being about the world in some way. As mentioned at the beginning of Section 2.2.2, it can be difficult to grasp Peirce's categories because they are of the first rank of generality, which is why we have to characterise them under various aspects. The concepts we use in those characterisations are not of the first rank of generality and are subject to change and development. But the aim is to get them representing their objects as well as possible.

Secondly, Peirce's categories are not simply ontological categories. Certainly they have a metaphysical characterisation and can be used as a basis for constructing ontologies, but they are primarily basic principles of combination and organisation: as such, they are unique among categorial systems. Moreover, Peirce's categories allow us to assess metaphysical systems according to which categories they admit, a point we will come to in Section 4.2 when Peirce's seven systems of metaphysics is introduced. The alternative proposed by Bueno *et al.* still needs principles by which any conceptual categorisation is to be made, even without reification, and Peirce provides such principles. If these principles are to change, then a chunk of pure mathematics has to change as well, with appropriate knock-on effects in aesthetics, ethics and logic: it is not just a metaphysical adjustment.

2.3.2 Why can't everything be done with Thirdness?

It might be thought that we don't really need Firstness and Secondness; after all, Figure 2.4 shows how to construct monads and dyads from triads and, if we can do it in the mathematics, then that could percolate through the other aspects. The only primitive we need is Thirdness, Firstness and Secondness having only a derivative being and not being independent as Peirce maintains. This view is, however, mistaken.

Under the metaphysical aspect, some clarification has already been attempted with

the paper and pencil analogy in Section 2.2.4. Chapter 6 then discusses in more detail what goes wrong with a metaphysics that only has Thirdness. Briefly, this is because without Firstness there are no qualities to bring into relation through Thirdness and without Secondness there is nothing for Thirdness to mediate, nothing that laws can apply to or govern: in short, nothing happens. A metaphysics of Thirdness alone is not viable for the special sciences because, without an independent Secondness, there are no brute interactions and experiment – an important aspect of scientific inquiry – becomes impossible.

Under the phenomenological aspect, with only Thirdness how things seem to me would involve only some reason or rule for happenings, but it would not seem to me that there were happenings (Secondnesses) nor even any qualities (Firstnesses) to my seemings. And yet, seemings have qualities, otherwise it could not seem to me that there is a reason or rule for one quality being the same or different from another. I could not distinguish one seeming from another, nor even appreciate that a flow of feelings involved various different qualities, because there were no qualities to begin with.

Returning to the mathematico-logical aspect, the issue is why we need monads and dyads as well as triads, when triads alone can construct relations of any arbitrary arity. Peirce's reply is that monads and dyads are logically involved in triads, even when the triad is genuine and not reducible to monads and dyads. Anything logically involved can be treated in their own right, even if they are only implicit (EP2: 364–365).²³ The idea here is that the very notion of threeness involves the notion of twoness, which, in turn, involves the notion of oneness, so we couldn't even have the notion of a triad were it not for monads and dyads.

Now, while this may well *justify* having monads and dyads as required, independent elements, it may be thought that it does not *compel* us to do so, since our very conceptions of oneness and twoness may only have arisen in tandem with our conception of threeness. Also, Peirce's repeated insistence that it is of the basic nature of a genuine Thirdness that

²³This is Peirce's notion of *prescission*, which involves considering an element in isolation, but not denying that accompanying elements are absent, even though they are being temporarily ignored (see, for example, EP1: 2–3; EP2: 270). Peirce derives this from the work of Duns Scotus and it has similarities to the bracketing employed by phenomenologists. As used by Peirce, it is asymmetric: you can prescind Firstness from Secondness, and Secondness from Thirdness, but not the other way around. The reason for this asymmetry is found in the reduction thesis.

one element brings two others into relation²⁴ may be thought of as a phenomenological or logical interpretation of the triad which, as a mathematical object, is just a three-place array or a three-valent vertex in a graph. A mathematician may not feel themselves compelled to interpret it as Peirce does. Alternatively, we can read Peirce as not *interpreting* the mathematics in a certain way, but *using* it to illuminate, and help resolve, a phenomenological or logical problem (de Waal (2005)). Either way, a mathematician may just shrug and say that it simply isn't an issue for them.

However, we can argue as follows. While they share the same number of loose ends, monads and dyads constructed from triads (for examples, see Figure 2.7) are not the same as the plain versions in other respects that are mathematically relevant. A plain monad

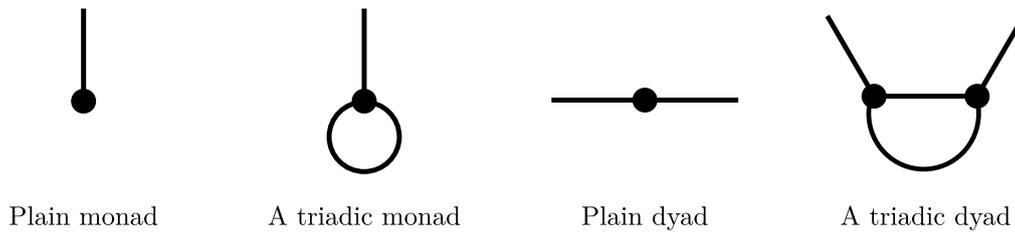


Figure 2.7: Plain and triadic monads and dyads

is a single-place array or one-valent vertex, while the triadic version involves at least one three-place array or three-valent vertex; a plain dyad is a two-place array or two-valent vertex while the triadic version involves at least two three-place arrays or three-valent vertices.²⁵ This makes plain monads and dyads unique as structural ingredients: triadic versions may be inappropriate. Their triadic cousins involve structural information that is redundant for the structural roles played by plain monads and dyads.²⁶ In the monadic case, the plain monad might be notated as $R(a)$, while the simplest triadic version is $(\exists b) : R(a, b, b)$. That extra pair of (bound) b s is structurally irrelevant: they are simply not required for a monad to act as a monad. The aim here is to find the minimum number of primitive relations required to construct any arbitrary structure. In doing so, we don't want irrelevant structural information cluttering things up or, alternatively, we want to be able to have structures both with and without irrelevant information. In either case, plain

²⁴EP1: 238, 280, 296; EP2: 364, 428; CP: 1.356, 1.371, 2.93, 3.63, 8.328, 8.332; NEM: 4.297.

²⁵Any odd number of triads can be connected together so as to have only a single loose end; any even number of triads can be connected together so as to leave exactly two loose ends.

²⁶If 'information' is too loaded a word, we can say that there are redundant glyphs or marks in the description of the structure.

monads and dyads are required: we cannot rely only on ones constructed from triads.

Against this, it might be thought that when a relation of arity greater than three is reduced to triads, some irrelevant information is produced, and so by this argument we still need those higher arity polyads, but this is not so. When such a polyad is reduced, no extra information is added, but rather structural information implicit in the polyad is made explicit.

2.3.3 Why are the characterisations as they are?

As a general answer to this question: our concepts change and develop over time, so these characterisations are not fixed but are subject to change. Indeed, it's completely possible that someone could devise an alternative set of characterisations that manage to capture the categories just as adequately, or better, than Peirce himself does. Nevertheless, the characterisations Peirce gives us do what they have to do. Firstness covers everything that can be characterised as that which is as it is, independently of any relation it might be found in. Genuine Secondness includes that can be characterised as standing in a dyadic relation, irrespective of any third element. And Thirdness is everything else, genuine Thirdness being where a dyad is brought together in virtue of a third element.

To address the phenomenological characterisation, Peirce's procedure is, by his own lights, scientific: he has formulated a hypothesis concerning categories in pure mathematics – which has certain necessary consequences such as the reduction thesis – and then looks for experiential evidence for or against that hypothesis. This evidence is initially to be found in phenomenology. Assuming that there are indecomposable elements in experience, then there are at least two worries here: that any indecomposable elements may not be the same for everyone, and that such elements are not as Peirce described them.

On the first of those, if we are going to try to analyse and criticise experience and split it into decomposable and indecomposable elements, we are in effect assuming, or hoping, that there is some kind of logic to its structure – a sort of grammar of experience – that it is not just a 'blooming, buzzing confusion' (James (1918/2018, 488)) For such an inquiry to have a hope of finding a solution, such a structure should be common to every person, indeed to every mind. While the material implementation of such a structure may vary – whether it be in neurons or semi-conductors, or as between two different lumps of

neurons or semi-conductors – the basic elements of the structure itself stay the same: it is independent of any given material implementation of it, in much the same way as the logic of $A \wedge B$ is the same however it is written, which glyphs are used, what it is written on or with, or whether it is simply thought. Peirce's phenomenology need not attempt to trace out the whole of this putative grammar of experience, the aim is only to discover its indecomposable elements.

As for Peirce's description of these elements – moving here into the first-person as required by this discipline, in which seeming is as good as it gets – it seems to me that everything in my experience has a certain distinctive quality to it, and these qualities are somehow distinct from the sensations that they accompany so that, in themselves, they seem only as possibilities for those sensations; and it seems to me that I am continuously resisted in everything I do, from the pavement resisting my feet to these keys resisting my fingers; and it seems to me that myself, and so many things about me, all seem to behave in a largely regular manner, that my pen does not suddenly evaporate when I pick it up, nor my chair change into a Ming vase when I sit on it. As far as I am concerned, I am satisfied with Peirce's characterisations. You may not be, which is why Peirce invites you to perform the experiment yourself. However, he warns that it is not an easy procedure to follow (CP: 1.287) and it can be difficult to see what 'stares us in the face' (CP: 1.134).

Moving onto the metaphysical characterisation, it might seem somewhat mysterious how we get a modal metaphysics just out of relations of certain arities. Peirce maintains that mathematics 'produces nothing but conditional propositions' (CP: 4.240): it formulates hypotheses, that is possibilities, and draws necessary conclusions from them. Its propositions have the form: 'If X then Y would be'. So it seems that we have a kind of modality in mathematics.

Working this point further, we can say that all combinations are triadic and have the character of generality, even in mathematics. For example, with addition, no list of instances of an operation can fully capture what the operation is, it outstrips its actual instances.²⁷ Rather, the operation is of the nature of a rule: if 2 were added to 7 then the result would be 9, and the same process for all other instances of the operation. As with all

²⁷Kripke (1982) shows, as an interpretation of Wittgenstein, that a rule cannot be captured just with a list of actual instances, since as yet unactualised instances might break any supposed pattern.

rules, its being lies in the future – it has an *esse in futuro*, as Peirce puts it (for example, at EP2: 153) – because it outstrips all its actual instances and its results continue into the indefinite future in the form of as yet unactualised possibilities. The same applies to all binary operators, not just addition: they have a certain modal character, of what would be the case, not what is, has been or will be the case. So we have this germ of modality in mathematics that then percolates across the other sciences.

Putting this another way: modality arises through combining and organising material. That the categories are characterised modally as may-bes, actuals and would-bes is simply a consequence of the categories being basic principles of combination and organisation.

2.4 Chapter summary

This chapter introduced Peirce's categories of Firstness, Secondness and Thirdness with the aim of showing how they work as basic principles of combination and organisation, and thus as the basis for any viable metaphysics for the special sciences. How the categories are characterised is important for the content of such a metaphysics, and Peirce's characterisations give us the basis for Peircean realism.

Since the categories are of the first rank of generality, they cannot be given reductive definitions and nor would definitions in terms of each other be very helpful, so instead they were characterised under the four aspects of pure mathematics, phenomenology, logic and metaphysics. Firstness was characterised as: relations of arity one; qualities of feeling; monadic predicates; and as may-bes, possibilities, pure chance. Secondness was characterised as: relations of arity two; reciprocal interactions; dyadic predicates and particularity; and as actualities, existent objects and events, haecceity. Thirdness was characterised as: relations of arity three and continuity; interpretation and comprehension; triadic predicates and generality; and as would-bes, probabilities and necessities, habits, rules and laws.

Further elaboration of the categories was given though brief discussion of: their unusual, unique nature; Peirce's architectonic; his reduction thesis; and a paper and pencil analogy. This was followed by a brief defence of the categories for a selection of possible criticisms: why we need categories; why everything cannot be done with Thirdness alone; and why the characterisations are as they are.

Chapter 3

Peircean realism

The previous chapter introduced Peirce's categories of Firstness, Secondness and Thirdness as basic principles of combination and organisation, as the basis for Peircean realism. These categories are hypotheses established in pure mathematics, with experiential support from phenomenology, and provide a basic pool of resources.

This chapter considers the reality of these categories, with the focus on Thirdness because the main opponent of Peircean realism is taken to be what Peirce calls 'ordinary nominalism', which denies that reality. Since this is the category of generality and habits, being committed to the reality of Thirdness results in a commitment not only to real kinds – what are typically called 'universals' – but also to there being real nomicity operative in the world. This is both an epistemic and an ontic claim because, as we shall see, reality is connected to truth through the practical activity of well-regulated, truth-directed inquiry, and this last involves agents interacting with an environment (see Section 3.5.2).

Peircean realism amounts to a form of modal realism, in that real generals, Thirdnesses, can operate as truthmakers for modal sentences, though the expression 'Peircean realism' is preferred here over 'modal realism' since the latter is already in use with an extensive literature using a concept that is quite different from Peirce's. 'Peircean realism' is also preferred over 'scholastic realism' because Peirce admits he goes further than the scholastics, becoming 'a scholastic realist of a somewhat extreme stripe' (CP: 5.470), and 'extreme scholastic realism' is a somewhat cumbersome phrase that might cover other non-Peircean positions. Moreover, Peircean realism is a realism about all three categories – may-bes, actuals and would-bes – and not just universals.

Peircean realism is opposed to nominalism, which is characterised, by Peirce, by one or more of four commitments: reality is in some sense unthinkable or inaccessible; there is only a single mode of being, usually existence; there are only individuals; there is no real generality. It is this last commitment that makes nominalism, ordinary nominalism. While nominalism will be mentioned in this chapter, a more detailed discussion and Peircean critique will be delayed until Chapter 5.

As in the previous chapter, we don't want to reinvent the wheel concerning accounts of how Peirce came to think what he did; again, this has already been gone over well in the secondary literature.¹ Instead we will state Peirce's view with only a little argument, although this is somewhat more involved here than in the last chapter. Reality, for Peirce, is entwined with truth through the practical activity of inquiry, so to state clearly what realism about Thirdness involves, we need brief accounts, not only of key features of Thirdness, but also of reality, truth and inquiry.² Moreover, for a metaphysics to be viable for the special sciences it should not undermine the activities of those sciences. At the very least, it should not prescribe presuppositions – starting-points for inquiry – that make the universe unamenable to scientific inquiry. If we think – as Peirce does (EP2: 193) – that the successes of the special sciences are evidence that the universe is comprehensible to us, we should not formulate a metaphysics that renders such comprehension impossible.

Thus we need a theory of inquiry – specifically of scientific inquiry – to serve as a guide for our metaphysics. Scientific inquiry, for Peirce, means truth-directed inquiry: aiming at truth is the best hope we have of obtaining permanently settled beliefs, that is, beliefs that would never be frustrated when relied on in action and which would survive all tests. Such a theory should also allow for metaphysical inquiry – inquiry into presuppositions – and so what regulates truth-directed inquiry becomes the starting point for a scientific metaphysics, that we have a universe that can be inquired into. This last point will be addressed in more detail in the next chapter; here we are more concerned with that theory of inquiry.

This chapter thus aims to show that Peircean realism is a viable metaphysics for the special sciences, not only because it admits all three categories and thus does not starve

¹See, for example: Murphey (1961/1993, Chaps.7,17); Hookway (1992, Chaps.2,7,8); Hausman (1993, Chap.1); Legg (1999) and Forster (2011, Chaps.4–8).

²For more extensive treatments see, for example: Misak (2004) and Lane (2018).

the special sciences of resources, but also because it allows for a universe that is knowable and in which scientific inquiry is possible. Moreover, it accounts for prominent features of scientific inquiry: explanation, successful prediction and reproducibility.

First we will state some key features of Thirdness and then address how Peirce characterises truth and reality. Because these are connected through inquiry – and this is critical to a viable metaphysics for the special sciences – Section 3.3 takes some time making clear the Peircean theory of inquiry. With all that in hand, Section 3.4 gives a clear statement of Peircean realism. Of course, with the brevity of the treatments in the previous sections, there will probably be some things that are not clear enough and Section 3.5 aims to rectify this on a few points: a worry about a regress of explanations; the question of whether Peirce’s is an epistemic or ontic account (it is a zetetic account that cuts across the epistemic-ontic distinction); and how a Peircean might deal with fiction so it does not threaten the reality-truth connection.

Section 3.6 then discusses some of the advantages that adopting Peircean realism brings, of some of the problems it solves or dissolves. These are: the world is rendered intelligible; it makes sense of reproducibility in experiment; it provides truthmakers for modal sentences; and we are able to explain successful prediction and successful rational action. Because Peircean realism is a variety of modal realism, Section 3.7 makes it clear why David Lewis’s theory of real possible worlds – which often goes by the name ‘modal realism’ – is simply not a type of modal realism, by Peirce’s lights. It is, instead, an instance of what Peirce calls ‘nominalistic Platonism’, which is a position that has often been called realism – because it is what a nominalist tends to call ‘realism’ – and that will be the topic of Section 3.8.

3.1 Key features of Thirdness

The first key feature is that, following from the understanding that the categories are basic principles of combination and organisation, we have Thirdness whenever two things are brought into relation in virtue of some third thing: this is the basic idea of all Thirdness. When confronted with a supposed dyadic relation, we should always ask: ‘in virtue of what do we have this dyad?’ This is the case whatever the third thing might turn out to

be, whether it is a personal habit of someone coming into contact with a cup of coffee at certain times of day, or a cultural convention of associating particular words with certain events, or a law of nature governing the orbit of a planet around a star.

Secondly, Peirce's characterisation of Thirdness – as generals, would-bes, habits – goes further than the scholastic notion of a universal: Peirce called himself a scholastic realist 'of a somewhat extreme stripe' (CP: 5.470). Generals are not just that which can be predicated of many things – though they are certainly that – but in addition, generals outstrip all of their instances, they are not exhausted by any sum of their particular manifestations (EP2: 183); they cover continua of possibility for their manifestation.

Something exists in a given moment because of the interactions it has with other things: this is a matter of Secondness, of reciprocal dyadic relations. But it persists across many moments – or rather, through a period – only because those interactions have become habitual, which is a matter of Thirdness. We have a habit simply when, *if* certain conditions obtain, then there *would* be a certain result, or rather – since probability is included as well as necessity under the metaphysical aspect of Thirdness – it is better to say that a habit is a *tendency* that a certain general result would occur if certain general conditions obtain. It does not matter if the result never actually occurs³ because habits outstrip their actual manifestations,⁴ and so Thirdness has modal force: Peircean realism is a variety of modal realism. Peirce's extreme version of scholastic realism is also manifested in his acceptance of three modes of being, corresponding with the categories, whereas even Duns Scotus, the most noted mediaeval realist, only seemed to accept a single mode of being and was thus separated from nominalism 'only by the division of a hair' (CP: 8.11).

The third point is that, while Secondness is brute and needs no reason, no general to justify itself, every Thirdness is explicable:

Indeterminacy, then, or pure firstness, and haecceity, or pure secondness, are facts not calling for and not capable of explanation. Indeterminacy affords us nothing to ask a question about; haecceity is the *ultima ratio*, the brutal fact that will not be questioned. But every fact of a general or orderly nature calls for an explanation; and logic forbids us to assume in regard to any given fact of that sort that it is of its own nature absolutely inexplicable. (EP1: 275)

³For a possibility, a Firstness, to be real, it should be capable of being actualised, even if it never actually is: see Section 2.2.4.

⁴While something has to happen more than once for a habit to become established, before that establishment we cannot say that the habit has manifested.

Putting that another way, Firstnesses and Secondnesses are too simple, structurally, for an explanation to be possible: they do not, by themselves, involve a mediating element that can be used as a hook, so to speak, off which to hang an explanation. As is made clear in Sections 3.3 and 3.4, every explanation involves a general which, in turn, can be explained, so there may be a worry here with a regress of explanations: this worry will be addressed in Section 3.5.1.

And finally, Peirce makes no distinction between laws, habits, dispositions, counterfactuals, capacities, causal powers or any other way nomicity can be expressed⁵ – all of these are, so to speak, species of which Thirdness is the genus – nor does he make a sharp distinction between nomicity and normativity. While each of these might be more appropriate according to context – for example, we might use ‘disposition’ for an innate, evolved tendency and ‘habit’ for one that an individual has learned – there is no difference in kind between them: they are all generals, Thirdnesses.

When these features are combined, it leads to a commitment to laws of nature as mutable and explicable, which sounds odd and is quite different from how such laws are usually construed. But this is indeed Peirce’s position, which follows largely from the characterisation of the categories in the last chapter: more will be said on this in Section 4.3. For now though, since we are interested in the reality of Thirdness, we need to look at how Peirce characterises reality.

3.2 Reality and truth

Peirce has two ways of specifying reality. The first is that the real is that which is as it is, irrespective of what anyone may think *about it* (EP1: 88, 120, 136–137, 139; EP2: 342–343, 409, 434, 456–457, 532n12).

That is *real* which has such and such characters, whether anybody thinks it to have those characters or not. (EP2: 342)

This could be taken as a mind-independence requirement for realism, and then everything hinges on how mind-independence is interpreted (EP1: 88; de Waal (1996, 425–426); But-ton (2013, 65–67)). However, Peirce’s notion of the real does not involve an opposition

⁵Briggs and Forbes (2019) have called this the ‘nomological package’.

between the physical and the mental: the occurrence of a dream, a mental event, is just as real as that of any physical event, such as a rock rolling down a hill. And nor does it involve an opposition between the natural and the artefactual: a house, once built, is as real as any tree. Rather, the real is contrasted with the fictional, the characters of which are just as someone imagines them to be and can change on someone's whim.

Moreover, 'mind-independence' is not the appropriate expression here. In adhering to his doctrine of synechism – the 'tendency to regard everything as continuous' (EP2: 1)⁶ – Peirce considers that mind and matter are to be understood as portions of a continuum, over which certain features vary in degree (EP2: 2; CP: 6.277); in particular Firstness is strong in mind, while Thirdness is strong in matter. He says much the same thing about internal and external, that they are 'merely vicinities' with no real boundary between them (CP: 7.438; NEM: 4.355).

The second way of specifying reality is that 'a realist is simply one who knows no more recondite reality than that which is represented in a true representation' (EP1: 53). By 'representation' Peirce means a sign and, to avoid a long discussion of semiotics, it's enough just to say that a proposition is also a sign, and so we can say that that which is signified by a true proposition is real. This is not to say that it is the subject of a proposition that is real because, in his formal logic, Peirce puts all the informational content of a proposition in the predicate. What is real in a true proposition is that which is predicated of a subject, the subject itself being referenced indexically (CP: 1.27).⁷

Peirce combines these two specifications:

To say that a thing is *Real* is merely to say that such predicates as are true of it, or some of them, are true of it regardless of whatever any actual person or persons might think concerning that truth. Unconditionality in that single respect constitutes what we call Reality. (EP2: 456–457)

It might be wondered if these two specifications can come apart, and whether reality can come apart from truth. The answer to the first of these, given by Lane (2018), is that they do not, because they specify the same concept, but to different grades of clarity. Peirce

⁶Synechism might also be thought of as a metaphilosophical attitude: when making distinctions, do not think you are identifying real, genuine dichotomies; rather, you are marking portions of a continuum, in much the same way as the electromagnetic spectrum is roughly portioned into radio-waves, microwaves, infra-red and the rest. See Haack (2005) for examples of how this works.

⁷See Figure 2.6 for an example of how Peirce understands propositions.

has three grades of clarity (EP1: 124–132; CP: 3.457). The first grade is simply familiarity with the use of a concept. The second involves making explicit the relations a concept has with other concepts through definition, defining a concept in terms of others. The third grade of clarity is attained through applying the maxim of pragmatism. More will be said on pragmatistic clarification in the next section, but it will suffice for the moment to say that it involves connecting the concept in question to action – by considering what possible experiential consequences would arise from application of that concept – such that the concept can be used in inquiry. What it doesn't do is generate a new concept, only adding practical hooks, so to speak, thus improving our grasp on a concept that was insufficiently clear.

Lane argues that the first specification of reality – it is as it is irrespective of anyone's opinion about it – is reality clarified to the second grade; and the second specification – a reality is represented by a true representation – is the clarification to the third grade, connecting reality to the practical activity of inquiry. So the two specifications do not come apart because they are clarifications of the same concept.

As to whether reality and truth can come apart, Hookway (2012, 63) argues – with textual support – that in the later Peirce the connection between reality and truth becomes weaker, even to the point where we can be 'a realist about some truths and an anti-realist about others.' (Hookway (2002, 80)). Lane (2018, 169–172) takes issue with this and argues, again with textual support, that Peirce never weakened the connection between truth and reality, and proposes instead that Peirce thought that there were *lacunae* in reality, and where there is a gap in reality, there is no truth.

It will be argued shortly that neither fictions (Section 3.5.3) nor the problem of lost facts (Section 3.6.1.1) threatens the Peircean connection between truth and reality, and it is lost facts that both Lane and Hookway take as motivation for their views. Having said that, it does seem to follow as a consequence of Peirce's cosmology (see Section 4.4) that there are gaps in reality; although the cosmology is a metaphysical hypothesis – albeit one with problems – not a logical one, and the point Lane wants to make is logical, and so would then be reflected in the metaphysics. And it seems that Hookway is also correct insofar as Peirce talked about 'different kinds of truth':

... the different sciences deal with different kinds of truth; mathematical truth is one thing, ethical truth is another, the actually existing state of the universe is a third... (EP2: 87)

And he then goes on to say that what is common to these truths is that which would be the output of well-regulated inquiry. But the question remains that if we have different kinds of truth, do we have different kinds of reality? But then, even if there were that wouldn't seem to license anti-realism, unless we have truths that don't represent anything.

There is not space here to properly examine this issue but – to very briefly sketch an alternative suggestion – appeal might be made to the varying degrees of commitment to the hypothesis of reality across Peirce's architectonic, as mentioned in the previous chapter. Where there is no commitment to the hypothesis of reality, it simply makes no sense to claim something is real or fictional, or even to adopt a realist or anti-realist position, since such claims and positions rely on accepting the possibility of *something* being real. Pure mathematics deals only in hypotheses and cares not whether its outputs have any real bearing. The only commitment of phenomenology to the hypothesis of reality is that there are experiences – that are just as they are – the content of honest first-person reports of feelings not being truth-apt in the sense that they pick out a reality. However, once we get to metaphysics, with its total commitment to the hypothesis of reality, every true proposition is expected to say something about reality. Thus we do not have to posit gaps in reality to account for kinds of truth that seem to differ according to the discipline in which they are attained.

Nevertheless, however this point might be resolved, Peirce's notion of reality remains intimately related to truth and this makes reality a concept of interest to logic – in Peirce's sense of the science of good reasoning, of 'truth and falsity' (EP2: 385) – which includes his theory of inquiry, of how we can best go about acquiring true propositions. We'll state Peirce's position on truth, then take a little longer over inquiry.

Peirce accepts that a true proposition corresponds with reality as a 'nominal' definition of truth, truth at the second grade of clarity: the question then is what this correspondence consists in (EP2: 379–380). Peirce answers this by saying that a true proposition is what *would* emerge from a well-regulated process of inquiry *if* that inquiry were pushed to its ultimate issue. Such a process is conceived as being pursued by a community, or successions

of communities of inquirers, unbounded in space, time, or indeed species. (EP1: 54, 89, 120, 138–139; EP2: 323, 342–343, 457). This is not to claim that the endpoint of any inquiry into a particular question *will* actually arrive, but rather that *if* inquiry were properly pursued sufficiently far, then a true answer *would* emerge. Responding to the claim by some of his contemporary pragmatists – in particular William James and F. C. S. Schiller – that what was true was what was satisfactory to believe, Peirce wrote:

...if Truth consists in satisfaction, it cannot be any *actual* satisfaction, but must be the satisfaction which *would* ultimately be found if the inquiry were pushed to its ultimate and indefeasible issue. This, I beg to point out, is a very different position from that of Mr. Schiller and the pragmatists of today. (EP2: 450)⁸

There is a third characterisation of truth: true beliefs are those that, if solely relied upon in action, would result in successful action, avoiding disappointment or surprise (CP: 2.173, 5.569). This might be construed as a pragmatistic clarification of truth – truth in its third grade of clarity – in that it connects truth, as a true belief, to practical consequences.

Thus, apart from its second grade of clarity – its definition in terms of other concepts – truth is characterised modally, and is intimately bound up with the process of inquiry, Peirce’s theory of which we now turn to.

3.3 Inquiry

Peirce initially presents his theory of inquiry as the best way of settling belief when there is a genuine doubt, though if inquiry is pursued in a genuinely scientific spirit, as Peirce requires, belief may never be permanently settled on issues that provoked a genuine doubt. He is a thorough-going fallibilist and that scientific spirit is expressed in his first rule of logic – ‘that in order to learn you must desire to learn and in so desiring not be satisfied with what you already incline to think’ – and its corollary – ‘do not block the way of inquiry’ (EP2: 48). And so although an ideal theory – that is, one reached through a properly conducted inquiry and which would survive all tests, even ones we haven’t even

⁸As a historical side-note, this illustrates that a split had opened, right at the beginning of the pragmatist tradition, between a realist wing represented by Peirce, and a nominalist wing exemplified by James and Schiller. This split persists to more recent times with, for example, Susan Haack and Cathy Legg on the realist and Richard Rorty and Huw Price on the nominalist. Misak (2016, 282) uses the phrases ‘truth-directed’ and ‘truth-denying’ to mark this distinction.

conceived of yet – would be true,⁹ we could be mistaken in recognising it as such and may well keep on testing it and proposing alternatives. As Rydenfelt (2019) points out, such fallibilism is just the flipside of the Peircean view on reality: honestly admitting you could be wrong on an issue is to accept that the issue has characters independent of your thinking of it. For a whole community of inquirers to admit they were mistaken – as happens when a major shift takes place in a special science – is for that community to accept that their target of inquiry has characters independent of their opinion of it.

The best way to settle belief, according to Peirce, is a method of inquiring such that: our beliefs are caused by something unaffected by our opinions; this something must affect everyone; everyone would eventually concur in their conclusions; and the practice of the method does not conflict with its basis, nor block the way of inquiry. The basis on which this method stands is the fundamental *hypothesis* that there are real things (EP1: 120): this is the hypothesis of reality. Because of the link between reality and truth, if we want a true answer from our inquiry, we have to accept, as at least possible, that there are some real things. In other words, all genuine – that is, truth-directed – inquiry should adopt the hypothesis of reality if any headway is to be made on finding a true answer to a question. This is not meant as some kind of transcendentally necessary condition for inquiry: rather it is of the nature of a regulative assumption or hope, and is not to be taken as true simply because we need it for inquiry, although it can be somewhat vindicated whenever we obtain confirmation of a hypothesis.¹⁰

Peirce gives his own account of inquiry that implements these requirements but, since he was a committed fallibilist, this is not to be taken as the only way of going about it; it is not an *a priori* prescription but rather how he has come to see things through his mathematical and logical work and his experience as a practising scientist for the US Coast and Geodetic Survey. It is, if you like, an idealisation – a model – of what scientific practice had evolved into by the end of the nineteenth century.

In this model, inquiry begins when a surprising circumstance is experienced (CP: 6.469). Such a circumstance leads us to doubt one or more beliefs that we were relying on, so our expectations are frustrated by the surprise. To start resolving the doubt, hypotheses

⁹This avoids what Button (2013) calls ‘Cartesian angst’: the worry that an ideal theory could be wrong.

¹⁰For more on Peirce’s use of regulative assumptions see Misak (2004), although Lane (2018) argues that she mischaracterises at least one of them. For a distinction between assumptions and hope, see Stern (2023).

are proposed as possible explanations of the circumstance. One of these is selected for testing, consequences of that hypothesis are deduced and those consequences are tested using experiment and statistical method. From these results we can adjust or reject that hypothesis, or even formulate a new one. The process then goes back to the selection stage and keeps going round. We thus have: surprise, hypothesis, selection, deduction, induction, revision and then back to selection. It's not as straightforward as that sounds, because there are places where there can be feedback between the stages, as illustrated in Figure 3.1. Also, a single inquirer need not follow the whole process through: we can have a division of labour. Some inquirers can look for surprising phenomena while others do theoretical work on hypotheses while still others do experimental testing, and this last can involve contrastive testing as well as testing hypotheses singly. There is thus considerable flexibility about what an individual inquirer can get up to and still fall within the model.

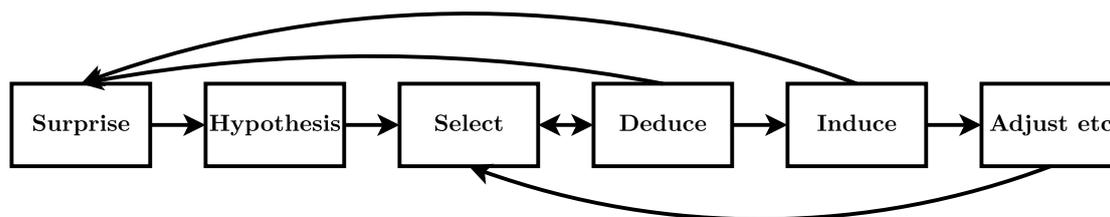


Figure 3.1: Peirce's model of inquiry.

On this model, inquiry is recursive, the basic process being much the same on each pass as new results are built on old ones and, moreover, it is reflexive: the process can be turned on itself, without collapsing, so as to discover better ways of inquiring.¹¹ Inquiry is a diachronic process, and at each iteration we learn something more, enriching our concepts, so it never returns to exactly the same place. Even if one line of inquiry is found to be mistaken, that itself is a new piece of information which we take with us on the return to find a new line. We have, if you like, a zetetic helix, its strands reaching toward a true answer to the question under consideration but never overlapping.

Something more now needs to be said briefly about each of the stages of inquiry.

We are surprised when our expectations are frustrated (EP2: 87–88), and this raises

¹¹Dudley Shapere has argued that scientific inquiry is recursive and reflexive, that we learn how to learn better: 'Science has *become* – has been, as a matter of contingent fact, *able to become* – more and more rational, the more it has learned (the more beliefs it has accumulated that have proved successful, doubt-free, and relevant): the process of learning about the world has simultaneously been one of learning *how to think* and *how to learn* about nature, as well as of *learning about it*.' (Shapere (1984, 694))

a doubt about one or more of our beliefs. Beliefs, for Peirce, are not only a holding of something to be true – ‘belief’ to the second grade of clarity – but also what we rely on in our actions¹² – ‘belief’ clarified to the third grade. They are, in effect, habits of action. What we expect to happen in any given circumstance depends on what we believe, so if our expectations are frustrated, one or more of our beliefs may be thrown into doubt. What is surprising is an unexpected regularity – be it accidental or non-accidental, we do not know until we inquire into it – but what looks like another habit that is at odds with those habits, our beliefs, that led us to expect something that did not transpire (EP2: 88–89).

The next two stages we will take together because Peircean abduction, though mainly concerned with the formulation of hypotheses, also drifts into the selection stage in that it includes the initial ranking of hypotheses based on *prima facie* plausibility.¹³ The rest of the selection stage is the domain of the economy of research where it is decided – considering that over any given period we only have limited resources and thus want to expedite the inquiry as much as possible – in what order the hypotheses are to be tested. Here theoretical virtues – such as *prima facie* plausibility, strength, simplicity, systematicity, elegance – come into play. These virtues do not, in of themselves, advert to the truth of a hypothesis, but help us judge whether we are likely to get a result reasonably quickly from testing, irrespective of whether that result turns out to be for or against that hypothesis (EP2: 107–118; CP: 5.598–5.600; McKaughan (2008); Haack (2018)). So, if in our list of hypotheses we have a highly implausible one that is easy to test, we might want to test that first, just to get it out of the way should the test go against it (CP: 7.83).¹⁴

Such virtues raise an expectation that inquiry would be expedited, but inquiry can be expedited by finding a hypothesis false as well as finding evidence for its truth. For example, adhering to systematicity in choosing a hypothesis to test might result in that hypothesis being shown to be false, thus threatening other hypotheses that were so far well-evidenced and opening up new directions in inquiry. The discovery that the universe’s

¹²Peirce attributes this view to Alexander Bain, quoting him as saying that a belief is ‘that upon which a man is prepared to act.’ (EP2: 399)

¹³This drift has led to a conflation of Peircean abduction with inference to the best explanation, understood as being truth-conducive. As the main text shows, they are *not* the same thing: see also McKaughan (2008); Mcauliffe (2015); Nyrup (2015).

¹⁴Peirce gave a formal treatment of the economy of research (CP: 7.139–7.157) and Nyrup (2015) offers another.

expansion started re-accelerating after a period of deceleration throws into doubt a cluster of theories that have been otherwise well-evidenced, and thus appealing to systematicity on the basis of that cluster would be unwise if we think that that virtue adverts to truth. But such an appeal can nevertheless be made because it could lead to results that show in what ways that cluster is false.

The hypothesis stage is taken up by abduction which, as an inference, has the form:

The surprising fact, C, is observed
 But if A were true, C would be a matter of course
 Hence, there is reason to suspect that A is true. (EP2: 231)

So in formulating a hypothesis we only, at most, suspect that it might be true. We need the rest of the inquiry process to lend any weight to that suspicion. But despite its lack of security as far as truth goes, abduction is the only way that science generates new ideas (EP2: 205).

A hypothesis, to be acceptable as a hypothesis, has to fulfil a couple of criteria. The first is that it must explain the surprising circumstance that led to its being proposed: hypotheses *are* explanations. The second is that the hypothesis must be testable (EP2: 107; CP: 7.220). There is a third criterion: that the hypothesis should have consequences other than the surprising circumstance. However, this can be considered either as part of the second criterion or else as a theoretical virtue: a hypothesis that only explains a one-off circumstance probably cannot be tested because it only applied to that one, never-to-be-repeated situation. This criterion follows from the consideration that every hypothesis contains a general – which is hoped to be real – and every general outstrips its instances. So if the hypothesis were true, and thus the general real, we would expect there to be other instances; and even though such instances may be hard to come by in everyday life, they may be induced in the laboratory.

None of these criteria are particularly onerous, but something further needs to be said about the second. It could rather be stated as the hypothesis cannot be in principle untestable. There may well be many hypotheses that we cannot currently test because we lack the practical wherewithal to do so – there are what might be called logistical issues – but are nevertheless not in principle untestable. Peirce picks on Auguste Comte's claim that we could never know the composition of the fixed stars, but:

... the ink was scarcely dry upon the printed page before the spectroscope was discovered and that which he had deemed absolutely unknowable was well on the way of getting ascertained. (EP2: 49)

A more modern example is string theory, which even its adherents have had difficulty finding a way to test, and there is some controversy over whether it is testable at all (see, for example, Woit (2011)).¹⁵ If it is simply a matter of the energies required for testing being far beyond what can currently be achieved with our largest accelerators, or even what might be foreseeably achieved, this is not by itself grounds for rejecting the hypothesis as untestable: future inquirers may yet find a way. The issue is whether it is untestable *in principle*.¹⁶

Peirce's main guide to testability is his maxim of pragmatism, which is a way of clarifying concepts such that they become usable in practical reasoning. It does this by appending, to a concept, the conceptions of its conceivable experiential consequences. Since such conceptions involve tentative answers to modal questions such as 'what would happen if...?', the initial concept, through clarification, becomes modal or, at the very least, acquires modal features.¹⁷ Any concept that cannot be clarified according to the maxim will not be usable in practical reasoning, and so be unusable in experiment, hence frustrating inquiry at the induction stage. So any hypothesis that uses unclarifiable concepts will be *ipso facto* untestable.

It might be thought that this sounds like verificationism, but Peirce is *not* a verificationist in the style of the logical positivists: he does not say that the meaning of a proposition is its method of verification. Indeed, a proposition needs to have some kind of meaning before we can decide whether it is testable, before it can be clarified by the maxim of pragmatism. Despite the way Peirce sometimes states his maxim, it is not the basis of a general theory of meaning, but rather a way of clarifying concepts. The maxim gives what Peirce calls the third grade of clarity of a concept, the first being familiarity with the use of a concept and the second being a definition in terms of other concepts

¹⁵Smolin (2008) is concerned that string theorists have been blocking the way of inquiry by forming a closed shop of inquirers on quantum gravity, starving researchers of other approaches of funding. This is indicative of the various factors that can stall inquiry, but there is no space here for further discussion of this point.

¹⁶Cabrera (2021) argues that the disputes over the adequacy of string theory are, at base, not a matter of the violation of epistemic or methodological norms, but rather a disagreement about pursuit-worthiness. In Peircean terms, they are a matter for the economy of inquiry.

¹⁷There is a similarity here with what Brandom (2014, 130) calls the 'Kant-Sellars thesis': that all empirical concepts are implicitly modal.

(EP1: 124–126). We need the first grade to have the second – otherwise we simply don't understand the definition given in the second grade – and we need the first two grades of clarity before we engage in a pragmatistic clarification: we need some grasp of a concept so we understand what it is that we are clarifying according to the maxim. Moreover, we cannot discard or change the definition – the second grade of clarity – without thereby changing the subject of the pragmatistic clarification (Lane (2018, 45)). We need to have all three grades of clarity available to have the best grasp of the meaning of a concept.¹⁸ So a concept – and thus any sentence or proposition that involves that concept – can still have meaning but be insufficiently clear to be used in inquiry.

It might be wondered if the hypothesis of reality itself is testable because, even though that hypothesis is the basis of Peirce's method of inquiry, it cannot be demonstrated by that method without circularity. But this hypothesis *can* be pragmatistically clarified – and Peirce claims to do so at EP1: 136–139 – and so passes that testability test. Furthermore, since the hypothesis of reality is an auxiliary hypothesis for all truth-directed inquiry, we can appeal to confirmation holism and claim that it would be confirmed whenever a main hypothesis is confirmed.¹⁹

Of course, as inquiry proceeds some of our concepts grow and change – see, for example, how the concept of the electron has changed over time – so hypotheses that had been rejected on this ground may yet get another go, though what gets tested later is almost certainly not what had been originally proposed. Indeed, it seems quite difficult to have a hypothesis that has no experiential consequences at all – and thus cannot be clarified pragmatistically – since experience is inextricably entwined with so many of our concepts. One way of doing so is through its proposer ruling out experiential consequences entirely, in which case we could have an instance of what Peirce calls 'nominalistic Platonism' (see Section 3.8).

The next stage is deduction, in which consequences of the chosen hypothesis are deduced.²⁰ There is some feedback here with the selection stage in that once we work out

¹⁸Peirce's full account of meaning is to be found in his general theory of signs, his semiotics, in which the maxim of pragmatism provides a variety of interpretant.

¹⁹Another hypothesis of Peirce's that might seem untestable is the more specific one that there are real generals. He puts this forward as a scientific hypothesis to explain predictive success and it gains inductive support every time a prediction comes out correctly: see Section 3.4.

²⁰For an overview of Peirce's account of deductive logic, see Shin and Hammer (2016).

the consequences of a hypothesis, we might want to revise where in the testing order it should come.

After the deduction stage comes the induction stage, in which the consequences deduced from the hypotheses are tested using experiment and statistical reasoning. Something needs to be said here about Peirce's understanding of induction because, with the introduction of abduction as a distinct stage of inquiry, there is a change in what is commonly understood as induction.

There are (at least) three common notions of induction. The first is an inference from the observation of some event to some rule governing that event. Peirce regards this not as induction but as an abduction, the framing of a hypothesis such that the event would follow from the hypothesis 'as a matter of course' (EP2: 231).

Secondly, we have a prediction of some unobserved event from previously observed ones. This is the notion that leads to the so-called 'problem of induction' (see Section 3.6.4) but for Peirce this is not an induction, but an abduction followed by deducing other consequences from that hypothesis, one consequence of the hypothesis being the already observed event (EP2: 95, 96–97; CP: 2.96). This notion of induction is thus not distinct from abduction and deduction and has little security, what is inferred being a consequence of a mere hypothesis.

The third notion is that of a statistical inference – where the distribution of a pre-designated feature in a population is inferred from the distribution of that feature in samples from that population – and it *this* that Peirce regards as induction, as being distinct from abduction and deduction.²¹ So long as the dictates of statistical hygiene are adhered to (EP1: 177, 179), this statistical inference should be self-correcting over the long run (EP2: 43–44, 97, 205, 216, 298, 443; CP: 1.67, 6.100). But for Peirce it is not a source of predictions. Nor is it an ampliative inference in the sense of originating new ideas; on that it is on a par with deduction (EP2: 106, 205; CP: 1.67). For Peirce, inductions:

... are mere processes for testing hypotheses already in hand. The induction adds nothing. At the very most it corrects the value of a ratio or slightly modifies a hypothesis in a way which had already been contemplated as possible.
(EP2: 106)

²¹There are further nuances to Peirce's account of induction – see, for example, EP2: 97–106, 442; Mayo (2005); Burch (2010) – which we ignore here.

The last stage of inquiry uses the results of the inductive stage to revise or reject the hypothesis under question, or maybe even suggest a new hypothesis if experiment threw up a surprise that was not already considered as a possibility. The process then returns to the selection stage and goes round again.

3.4 Peircean realism

We are now in a good position to clearly state the doctrine of Peircean realism. As well as real Secondnesses such as individual existents, there are also real Firstnesses – may-bes, possibilities, vagues – and real Thirdnesses – generals, types, would-bes.²² This an *extreme* form of scholastic realism because, while the *formalitates* of Dun Scotus have reality as modes of determination of existents, and are logically separable from existents, they seem to have no being independent of those existents that they determine (at least according to Peirce: EP1: 92–93). This is why Peirce says Scotus: ‘was separated from nominalism only by the division of a hair.’ (EP1: 87) Peircean realism, by contrast, maintains that the categories have modes of being independent from each other, although they are interdependent: they all come together or not at all.

Such realism arises from the zetetic understanding of reality – a reality is represented by a true answer to a question achieved through well-regulated, truth-directed inquiry. Such an answer can represent not only existents but also possibilities and generals, in the form of habits and laws, so we should accept that such things are real. For example, in answer to the question ‘why do the planets orbit the sun as they do?’ a roughly true answer could be: because the sun is a massive body that warps space-time according to some rules (expressed mathematically in the general theory of relativity); the planets then follow geodesics of this curved surface, like marbles spinning around the inside of a bowl.²³ If this answer is true, then the proposition it expresses – without the visualising metaphor at the end – represents a reality that includes a sun, planets, space-time and rules. At least three of these are general terms in that they express a type that covers a continuum

²²Here we are concerned mainly with real Thirdness, real generality. Understanding real Firstness can be difficult but see, for example, Champagne (2009, 2014, 2016) for one approach.

²³This leaves out the complication that all massive bodies – including planets, satellites and asteroids – warp space-time, and a better answer would involve the interactions of many warpings, producing a complicated curved surface that the bodies follow.

of possible instances. For ‘sun’ and ‘planets’, the instances – the tokens of the type – are existents. For ‘rules’, the instances are ways those existents are or behave. The only one which may not be a general term is ‘space-time’, but Peirce treats space and time as nomically governed continua.²⁴

All truth-directed inquiry requires the hypothesis of reality: you cannot hope to find a true answer to a question – one that would pass all tests – unless you hope that there are real things. Moreover, we have to hope that at least some generals are real because we use these in explanation, and without them we cannot explain anything and truth-directed inquiry cannot get going for want of hypotheses; for an explanation to be true the general or generals they represent would have to be real.

Hypotheses are explanations and it is clear from how they are formulated in abduction – as a general situation or principle from which the surprising situation would follow as a matter of course – that they are explications in the realist sense. That is, they appeal to a general principle of which the circumstance is an instance. This is distinct from the nominalist style of explication that merely redescribes the circumstance (CP: 6.273) or claims that the circumstance is relevantly the same or similar to another that is, supposedly, better understood. Cathy Legg makes this distinction clear when she says that:

To explicate a phenomenon (‘X’) in a nominalist spirit is to locate (or postulate) *an entity, or set of entities*, with which X may be *identified*. . . .
On the other hand, to explicate X in a realist spirit is to *provide general principles of which X-like phenomena are a special case*. (Legg (2020, 591, 592))²⁵

Nominalistic explication is not properly called explanation because it does not generalise into new situations – ‘particulars don’t generalise’ (Legg (2020, 592)) – and thus has no modal force. A further problem – explored in Sections 3.6.2, 5.2.1 and 5.2.2 – is that nominalists have difficulty with similarity because of their denial of real generality, and so have difficulty in finding relevantly similar situations.

If a hypothesis is true, then what it represents – namely the general principle involved in the explanation – is real. So a true hypothesis involves a real general:

²⁴See Chapter 6 for why we cannot have Thirdnesses, types, alone, but also need the instances, the Secondnesses.

²⁵More will be said about problems with nominalistic explication in Section 5.2.1, that make it inappropriate for truth-directed inquiry.

...any habit, or lasting state that consists in the fact that the subject of it *would*, under certain conditions, behave in a certain way, is *Real*, provided this be true whether actual persons think so or not; and it must be admitted to be a *Real Habit*, even if those conditions never actually do get fulfilled. (EP2: 457)

Since every explanation involves a general, we need real generals to explain the world truthfully. If there are no real generals, we simply could never give a true account of the world, and the long-term hopes of science would be scuppered.

In a lecture of 1903, Peirce proposed an experiment to demonstrate that there are real generals (EP2: 181–183). He held up a stone and predicted that, if he released it, it would fall to the floor, and he could show that his prediction was correct by releasing the stone. This was a ‘very silly experiment’ because of course everyone accepts that he knows that the stone would fall; indeed everyone in the audience would make the same prediction. But how could they all know this because it amounts to knowledge of a not yet extant event?

Peirce proposes two hypotheses to explain this puzzling circumstance. First, that it is just down to chance that the stone falls, as it was down to chance every other time we observed things falling and knew they would do so: we just guessed right every single time and one stone falling gives no ground for expecting the next one to do the same. Second, that the uniformity of stones falling is due to an ‘active general principle’ operative in the world. He thinks you would be mad to accept the first hypothesis because thousands of predictions are confirmed every day, about all sorts of things in our ordinary daily activities, and you would have to suppose them all to be just down to luck. So you should accept that there are real generals.²⁶

While it might be thought that this argument may be an ancestor of Hilary Putnam’s no-miracles argument (Putnam (1975, 73)) – in that it would have to be some kind of miracle for us to guess right so often if there were nothing that governed the occurrence of events – that would not be quite right. Peirce is proposing ‘there are real generals’ as a hypothesis to explain predictive success. This hypothesis gains inductive support every time a prediction comes out correctly and loses some for a particular case if the prediction fails, while the alternative hypothesis could only be confirmed if across all cases we were

²⁶For further commentary on Peirce’s ‘silly’ experiment with the stone see Haack (1992), Legg (1999, 136–140) and Rosenthal (2004).

sometimes right and sometimes wrong with a uniform distribution. He is thus pointing out that a nominalist – in this case, someone who rejects real generals – cannot distinguish accidental from non-accidental regularities, that a run of heads in a sequence of coin tosses and stones always falling are just the same to someone who denies real generals: in both cases they have no expectation of the same result next time. This means that a nominalist cannot explain predictive success and gets caught out by Hume’s problem of induction. We’ll return to this in Section 3.6.4.

3.5 Some clarifications

This section will address a few points that might be puzzling or worrying with the Peircean account. First, we will look at the worry of a regress of explanations and argue that this is not vicious. Next, we will look at whether the Peircean notion of reality is epistemic or ontic and argue that it is both. And finally in this section, a worry concerning fictions will be addressed: whether their seeming to having truth values threatens the connection between truth and reality. It will be argued that it does not.

3.5.1 Regress of explanations

As already mentioned in Section 3.1, the requirement that all generals – all Thirdnesses – can be explained, combined with the style of realist explication – that all explanations involve a general – gives rise to a worry that we have here a never-ending regress of explanations. Every fact of a general nature is explained by invoking another general which, by its nature, is itself explicable. Peirce insists on this, for it is no explanation to pronounce something inexplicable (EP2: 49): indeed doing so is – as we shall see in Section 3.6.1 – self-stultifying and blocks the way of inquiry. Rather, the Peircean approach is to embrace the regress – ‘Explicability has no determinate and absolute limit’ (EP1: 219) – but maintain that it is not vicious.

The regress can be considered in two temporal directions, this being justified on the basis that inquiry is a dynamic process occurring in time. The regress is not vicious in the future direction because this is just how inquiry works: explanation follows explanation as the inquiry proceeds towards a true answer to the question at issue. Nor is it vicious in the

past direction: the explanations get vaguer, less precise and sometimes just plain wrong because, as we go back, we have less and less data to work with, and the techniques and methods of inquiry become cruder until, at some hypothetical past limit of investigation, we can do no better than make random guesses. It could be said that, as we go back, so generality becomes vaguer, ultimately dissolving into pure chance. This is a key point in Peirce's cosmology which, as will be argued in Section 4.4.2, can be taken as an example of a piece of scientific metaphysical theorising because it is modelled on inquiry.

3.5.2 Is Peirce's account of reality epistemic or ontic?

It might be thought that Peirce's notion of reality is purely epistemic, that he is simply saying that what is real is that which is objective. This could lead to the Peircean account being considered a kind of internal realism, like that flirted with, and then rejected, by Hilary Putnam.²⁷ But internal realism is difficult to distinguish from subjective idealism, with its slide into solipsism and its nominalistic attitude toward reality: this latter feature being enough for Peirceans to reject it. So while it is more or less correct to say that Peirce thinks that the real is objectively determinable, it is not correct to say that his position is purely epistemic.²⁸ This is because his zetetic notion of reality cuts across the epistemic–ontic distinction in that it involves interaction with the environment.

Inquiry, in its experimental-inductive stage, involves, so to speak, asking the world questions and hoping to interpret the answers correctly (EP2: 215). Inquirers are active agents in an environment, deliberately acting on that environment in certain ways and observing the reactions, whether they are as expected or not. The predictions deduced from a true hypothesis would always be correct when put to the test against the environment, so what a true answer represents is whatever there is in the environment that enables, or allows, those predictions to come out correctly. It is in this sense that the zetetic notion of reality is ontic, as well as epistemic.

The degree of involvement of the ontic element, however, can vary according to how much a discipline relies on deliberately inducing reactions from the environment, and this

²⁷See Button (2013) for commentary on Putnam's position.

²⁸Cheryl Misak seems to read Peirce as an internal realist (in, for example, Misak (2004) and Misak (2016)), even saying that Putnam's internal realism 'is a kind of Peircean pragmatism' (Misak (2013, 238)). She has been challenged on this by Lane (2018) and Howat (2020).

variation is tracked by the degree of commitment a discipline has to the hypothesis of reality. Pure mathematics is entirely hypothetical and its commitment to the hypothesis of reality is nil. Mathematics *qua* mathematics cares not whether its conclusions play out in the world and so those conclusions, while they may be perfectly objective – in that everyone who inquires on a question agrees on its answer – they have no ontic component: there need be no worldly reality that the answer represents. The situation is quite different for the special sciences, which are completely committed to the hypothesis of reality. Here the epistemic and ontic elements line up, because of the responses of the environment to actions of the inquirers: the world has to say ‘yes’ for an answer to be true and for that answer to represent a reality.

The zetetic notion of reality cuts across the epistemic-ontic distinction and, while this distinction may be convenient in some situations, it can be argued that it is not a genuine dichotomy. Every inquiry has to start somewhere and so is immediately laden with presuppositions. These, along with any other ontic commitments taken up later, form the subject matter of metaphysics. Moreover, when an epistemologist asks questions such as ‘is there any knowledge?’ and ‘what is knowledge like?’, they seem to be doing metaphysics (EP2: 257) – these look like typical metaphysical questions – but without first deciding on how best to inquire into such questions.

The distinction to be drawn here is then not between the epistemic and the ontic, but between the subject matter of metaphysics – the presuppositions – and any inquiry into it. A metaphysical quietist, keen to maintain a sharp distinction between the epistemic and ontic, might say that any inquiry into that subject matter is futile, and this will be discussed further in Chapter 7. For the moment I will say only that this is like someone who hires a jeep in Morocco for a solo crossing of the Sahara, knowing only how to drive but without a clue as to how a jeep works or how to fix it if it breaks. That it will get them across the desert is taken for granted – it is a presupposition of driving a jeep that there is a functioning jeep – and what they don’t need to know, so the quietist seems to claim, they cannot know. So when the jeep breaks down in the middle of nowhere, they are simply lost.

We can also challenge the semantic-ontological distinction with respect to truth – that it is not a genuine dichotomy – because the very notion of a meaning involves agents

interacting with an environment.²⁹ Truth may very well belong ‘exclusively to propositions’ (EP2: 379),³⁰ but to decide on a proposition’s truth we need to understand its meaning, which involves clarifying the concepts it uses. Peirce’s first grade of clarity – familiarity with use – presupposes the existence of a community of concept users, in much the same way the private language argument of Wittgenstein (1953/1967) does; so we already have an ontic commitment related to the semantics of a proposition. The second grade of clarity – making explicit relations between concepts through definition – only seems to add a commitment to a certain kind of behaviour among those concept users. The third grade of clarity obtained by applying the maxim of pragmatism – what would be the experiential consequences if a proposition involving the concept were true – requires that there be an environment responsive to an agent’s actions, such that an agent’s expectations can be fulfilled or frustrated: so we now have agents interacting with an environment.

The pragmatistic clarification of truth given earlier – that reliance solely on true beliefs would always lead to successful action – depends on the environment against which those actions occur being a certain way such that they come out successfully, all action being interaction with an environment. This cuts across the usual semantic-ontological distinction, because the two sides of the distinction are not easily separable in the Peircean account.³¹

Now, a deflationist about truth, in attempting to save the semantic-ontological distinction, might reply that to say ‘that p is true’ is simply to assert ‘that p ’: truth is a feature of a certain type of speech act and connecting truth to an action is all that is required of pragmatist truth. The response to this is that the deflationist has forgotten that all actions are interactions, and speech acts are no exception. For Peirce, when someone asserts a proposition, they take responsibility for the truth-value of that proposition, they make themselves liable for the consequences that ensue should the proposition turn out to be false (EP2: 278; CP: 5.546). They could, for example, find themselves in jail for fraud or perjury, or lose their job as a Member of Parliament. Speech acts are not isolated from the world: assertion does not take place in a vacuum but is an interaction with an environment, just

²⁹Legg (2014, 206–207) challenges this dichotomy on slightly different grounds.

³⁰While Peirce’s focus is on propositions, it seems possible that his notion of truth could be applicable to uses such as ‘the true grail’, ‘straight and true’ and ‘a true friend’, in which truth seems to be of something other than a proposition. We will not explore this possibility here because it would take us too far afield.

³¹Haack (1976) maintains that pragmatist truth involves a correspondence element and Howat (2020) argues that Peirce’s account of truth is a correspondence account.

like all actions.³²

3.5.3 Fiction

Peirce opposes his notion of reality not to the mental or the artefactual, but to the fictional. While he does say something about the character of fictions, how we might recognise them, he does not fully flesh out an account of fictions as he does for reality: crucially, he does not give us a pragmatistic clarification for fiction.

Without such a clarification, the worry here is whether reality and truth can come apart because there are fictional sentences, and sentences involving fictional entities, that seem to be true, such as: ‘Harry Potter has a facial scar’; ‘Sherlock Holmes lives at 221b Baker Street’; and ‘Naruto is a popular manga/anime character’. If such sentences are true then the propositions they express should, by Peirce’s lights, represent realities. But Harry Potter, Sherlock Holmes and Naruto are nowhere to be found in the flesh: they are not real and this seems to threaten Peirce’s account by driving a wedge between truth and reality.

However, even though Peirce does not explicitly meet this challenge head-on, he does provide enough resources to mount a suitable defence. This basically says that there are realities associated with the creation of fictions – discoverable through well-regulated, truth-directed inquiry – which are the only realities represented by fictional sentences. Such inquiry can also reveal the reality represented by sentences in which a fictional entity is recontextualised, such as in ‘Naruto is a popular manga/anime character’. This will, it is hoped, be enough to save the reality-truth connection, although it is also the germ for a properly Peircean account of fiction, for which there is no room here to elaborate completely: philosophy of fiction is a vast topic, and this will only scratch the surface.

Peirce characterises fictions in several ways, by which we can recognise them. A fiction is that which is exactly as someone imagines it to be (EP1: 88, 136). It has predicates such as it has been fabricated to have (EP2: 497). Its attributes and any possibly true assertions concerning it can vary according to how someone thinks about it. It has being only insofar as someone imagines it (CP: 6.328). If a question about something turns out

³²Another objection to deflationism – that it attempts to split truth from reality through the introduction of a mystery – is given in Section 5.1.4.

only to be a question of how someone happens to conceive that thing, then we are dealing with a fiction (CP: 8.153). And anything that is completely determinate in all respects is a fiction (CP: 8.208).

All these characterisations are definitions, they are in the second grade of clarity; we would like the third grade, a pragmatistic clarification. Let us try: a fiction would eventually be found out by well-regulated, truth-directed inquiry. Such inquiry involves asking the world a question and, for fictions, at some point the world just says ‘no!’. Similarly, a belief in a fiction is a false belief, and reliance on false beliefs in action would eventually result in failed action. An expectation that, on visiting Baker Street, 221b will be found, is going to lead to frustration. This is contrasted with true beliefs: if in action we rely solely on true beliefs, then those actions would always be successful.

A dramatic example of a fiction being found out is the case of Edgar Maddison Welch, who staged an armed raid on a pizza restaurant in Washington DC. This restaurant was at the centre of a conspiracy theory, dubbed ‘Pizzagate’, that claimed that US establishment figures organised a child-sex ring and the restaurant had tunnels going to the Capitol. Welch said he went to ‘self-investigate’ the claims and found that not only were there no tunnels, there wasn’t even a basement. Welch surrendered to police and was later sentenced to four years jail time (BBC News (2016, 2017)).

We now have our pragmatistic clarification for fiction, though this just seems to say that fictions always fail to represent realities; it does not tell us how sentences concerning fictions can be, or seem to be, true. The answer to this is that there are realities left behind by the real process of the creation of a fiction. Peirce says:

It is true that when the Arabian romancer tells us that there was a lady named Scheherazade, he does not mean to be understood as speaking of the world of outward realities. . . Nevertheless, once he has imagined Scheherazade and made her young, beautiful, and endowed with a gift of spinning stories, it becomes a real fact that so he has imagined her, which fact he cannot destroy by pretending or thinking that he imagined her to be otherwise. (EP2: 209)

So every fiction has an associated reality, which is that the fiction’s creator really did imagine it thus-and-so. And where an author has expressed what they imagined, we can discover these realities through truth-directed inquiry, since there are artefacts – books, films, paintings – recording that expression.

If we want to answer the question ‘does Harry Potter have a facial scar?’, we are going to run into problems because Harry Potter does not exist: we cannot bump into him and check his face for scars. If we look for Harry Potter the fiction would be found out as a fiction. The only evidence we will find to answer that question is that his creator, J. K. Rowling, said that he has such a scar, and of course she should know, since she created him. So what are true concerning fictions are sentences of the form ‘the creator of X said that X is ___’. All sentences of this form thrown up by inquiry give the canon of a fiction.

So everything an author says in the process of creating their fiction, that is about that fiction, forms the canon of that fiction, which are the only true sentences of that fiction because they are the only ones that represent a reality. Moreover, an author only says a limited number of things about their creation, and that is all there is to say about it, at least as far as reality and truth is concerned. One of Peirce’s characterisations of fiction is that anything completely determinate in all respects is a fiction (CP: 8.208), and those respects and determinations are entirely specified by the canon. So the number of true answers there are available to questions concerning a fiction is strictly limited by the canon. If we pretend that a fiction is real, there are many questions we could ask and hope to obtain a true answer, such as ‘does Anna Karenina have a mole on her left shoulder?’ But such questions have no answer because they are not specified by the canon.

Now, there are a number of questions concerning canons, such as: who has the authority to contribute to the canon? are only explicit statements canonical, or should we allow well-evidenced intentions, even if not given explicit voice? are *extra opera* comments by the author canonical? what, if any, role does the audience play in establishing a canon? is background information, assumed by the author to be shared by the intended audience, part of the canon? is anything logically inferred from the canon also part of the canon? and do unreliable or deceptive narrators make it difficult to discern authorial statements, thus undermining a definite canon? All of these questions would require answers for this to be a full Peircean account of fiction, properly engaged with the philosophy of fiction literature. But there is not space here for that, and for the moment we are only concerned with whether fictions undermine the Peircean reality-truth connection, and all we need for that is to maintain that there is a canon comprised, at least partly, of realities.

There might be a worry that an adherence to canons seems to be in tension with

Peirce's claim that fictions can change as someone's opinion about them changes. There are a couple of ways to alleviate this tension. The first is that someone who has authority to alter the canon may do so. Assuming the original author has just such authority, some examples are: Arthur Conan Doyle killed off Sherlock Holmes at the Reichenbach Falls and then resurrected him later; the character Kenny in the animated series *South Park* often dies in an episode, only to reappear, without explanation, in the next; characters in the television sitcom *The IT Crowd* often suffer grievous harm in one episode only to reappear hale and hearty – again without explanation – at the beginning of the next.

The second is that individual interpretations may differ between people – and thus the fiction changes – without the realities, what the canon says, changing. So someone can interpret Kirk and Spock from *Star Trek* having a sexually intimate relationship behind the scenes,³³ without that affecting what the authors of *Star Trek* have said. Hamlet can be considered an ingenious power-player or as suffering from schizophrenia without either view disturbing what Shakespeare said, even though the different interpretations seem to result in different fictions.

This approach using canons seems to be fine when the sentences involved are in a fictional context, such as 'Harry Potter has a facial scar', but does not work when the fiction is transplanted to a real context, such as 'Harry Potter is the most widely known fictional wizard'. J. K. Rowling's in-work statements about her creation have little effect on the truth of this second sentence. But the procedure here is the same: we engage in an inquiry. Before, this resulted in a canon for the fiction; in the recontextualised case we could, say, ask lots of people around the world which wizards they have heard of from a list. The reality associated with a recontextualised sentence can be discovered through inquiry, just as the realities associated with a fictional sentence can: reality and truth do not come apart when they are connected through inquiry.

There is, however, a residual issue. Both 'Rowling says that Harry Potter has a facial scar' and 'Harry Potter is the most widely known fictional wizard' refer to something that doesn't exist, namely Harry Potter. This is the problem of fictional being. For the Peircean, however, this is dealt with fairly straightforwardly, because something can have being without existing.

³³This appears pretty often in the style of fan-fiction known as 'slash'.

Certainly Harry Potter, Hamlet and Naruto do not exist: they lack Secondness. They are not like trees, tables, terrapins or Trevor Taylor down the road. I cannot bump into Harry Potter, Hamlet or Naruto and ask them if their respective authors wrote them right. And nor can anyone else, past or future. But fictions are not nothing, they do not lack being. If they did, then every sentence involving a fiction would be empty through trying to ascribe some feature to nothing, which has no features and cannot have any. Moreover, nothing is the same nothing everywhere, so if fictions have no being, we could not distinguish ‘Harry Potter is the most widely known fictional wizard’ from ‘Gandalf is the most widely known fictional wizard’. Fictions can motivate action, as in the case of Edgar Maddison Welch mentioned earlier, and nothing motivates no-one, so fictions are not nothing.

Fictions are, on the Peircean line, Thirdnesses – and thus have being – but they are generals that cover possibilities that can never be actualised. The fictionalised instances of a fictional general have no being, no Secondness, independent of that general. Such instances – such as Harry Potter himself – are not to be found in the world, but what their creator says of them can be, and those are the realities associated with that fiction.

3.6 Some advantages of Peircean realism

In this section I briefly discuss a few problems that can be resolved or dissolved under Peirce’s system. This is not meant as a demonstration of the truth of the claim that there are real generals, but rather to raise the plausibility of that claim, considered as a hypothesis, so as to be make it more attractive in the economy of inquiry.

3.6.1 The universe is rendered intelligible

A nominalist accepts that we use generality to organise and make sense of our experience: without generality, our own experience would be unintelligible to us. They, however, deny that generality is present in the world more widely and so, since generality is what allows us to make sense of things, the world is ultimately unintelligible to us for want of real generals.

The position of the Peircean realist is quite different: while not every general that

we can contrive is going to be real – it is a function of inquiry to distinguish reals from figments – some generals *are* real and the presence of real generality in the universe ensures that it is intelligible to us. We use generality to organise and make sense of our experience, so rendering it intelligible, and we do so according to basic principles of combination and organisation – that is, Peirce’s categories – and the same principles apply everywhere in the universe, no matter the material that is so combined and organised. Thus there can be no in-principle block on the world being intelligible to us, at least as far as its structure is concerned. There may be logistical difficulties, but as long as we pursue truth-directed inquiry, and accept that there are real generals, then we can hope that such difficulties would eventually be overcome.³⁴

There is, moreover, a problem with unintelligibility more generally. We cannot think something unintelligible when we already have enough material about that thing such that we can think of it:

The sole immediate purpose of thinking is to render things intelligible; and to think and yet in that very act to think a thing unintelligible is a self-stultification. (EP1: 275)

This view has been expressed more recently in the context of reference by Tim Button, who calls the worry that our words might fail to refer ‘Kantian angst’:

How can I worry that my words express nothing about the world? Really: *How?* If the worry is right, nothing could express it. No worry could be more self-stultifying. (Button (2013, 60))

In other words, it is futile to try and claim that something is unintelligible, since it has to be intelligible enough for you to even begin to claim that it is unintelligible.³⁵ You have already identified that which you then claim is unintelligible, it has already become an object of thought. If someone says ‘reality is unintelligible’ – and similarly with ‘incognisable’ or ‘unknowable’ – they are referring to reality and yet, in the same breath, claiming that no reference to reality is possible. Peirce says:

³⁴Putting the same argument in semiotic terms, Peirce claims that everything is of the nature of a sign (EP2: 380, 394). We are sign users and sign transformers, just like every other living thing, and the basic principles of semiosis are the same everywhere – again, they are Peirce’s categories. The result is that there can be no in-principle block on intelligibility, though there may be logistical obstacles to understanding such as the use of different languages – different sign systems – be they human, animal, fungus or plant.

³⁵Trying to speak of something which is purportedly unintelligible is a core issue in Bartlett (2021) and may be behind Frank Ramsey’s famous remark: ‘you can’t say what you can’t say, and you can’t whistle it either’ (Ramsey (1929/1990, 146); see also Misak (2016, 126, 189, 191)).

A word can mean nothing except the idea it calls up. So that we cannot even *talk* about anything but a knowable object. The unknowable about which Hamilton and the agnostics talk can be nothing but an Unknowable Knowable. The absolutely unknowable is a non-existent existence. The Unknowable is a nominalistic heresy. (CP: 6.492)

For Button, what is expressed by such sentences is internally incoherent, while for the Peircean these claims are symptomatic of a nominalistic attitude towards reality, which can manifest as what Peirce called nominalistic Platonism (see Section 3.8).

3.6.1.1 The problem of lost facts

Peirce's claim that everything is in principle intelligible is not only that everything is representable, but also that everything is knowable. An objection to the knowability claim – which Peirce himself raised early on (EP1: 139) – is that there could be lost facts. There are, so the objection goes, questions that can be asked, which seem to have possible definite answers and thus an associated reality, but to which inquiry could never find a true answer. Peirce's own suggested examples include a flower that blooms and withers unnoticed in the desert, and a diamond destroyed before its hardness can be tested (EP1: 132, 139).

This issue has received considerable attention by Peirce scholars³⁶ and Legg (2014, 211) gives a selection of examples from other sources: 'Winston Churchill sneezed twice more on a certain date in 1941 than did Franklin Roosevelt' (Smart (1986, 302)); 'the number of cakes on a particular tray at a specific time during a party held years ago' Johnston (1993, 91); and the exact number of dinosaurs that lived (Field (1982, 556)). And we have another example from Hookway (2002, 51): 'how many leaves there were on the tree in my garden at exactly 10 a.m. yesterday'. This last one is particularly interesting because Hookway argues that the vagueness of any answer allows truth and reality to come apart (Hookway (2002, 57–59)): we will return to this after looking at the general Peircean replies to the lost-facts objection.

A common thread to all these examples is a fixation on past – often long-past – occurrences, although we might contrive something for the future: if the expansion of the universe were to continue at its current rate, according to our best current science,

³⁶See, for example, Hookway (1992, 184–188); Hookway (2002, 51–61); Misak (2004, x-xii); Howat (2013, 452–453); Legg (2014, 211–212).

we would gradually lose epistemic touch with more and more of the universe because there is a maximum rate of communication of information, namely the speed of light. In other words, the observable universe is expected to shrink. Another common thread is a claim that no-one could come to know the fact in question because some critical piece(s) of evidence have gone permanently missing, and this comes with a suggestion that only an in-person, direct acquaintance with the situation described could have rescued that evidence.

What this objection thus amounts to is the claim that there are evidence-transcendent realities. Accepting that there are such realities has been taken as a mark of realism (by, for example Dummett (1978)) and a Peircean account might be thought insufficiently realist if it does not accept them. But, from the Peircean point of view, an insistence on there being evidence-transcendent realities seems to be a product of a nominalist attitude towards reality, of how a nominalist thinks realism should be.³⁷ While it does not say that *all* reality is inaccessible, it does say that some of it is. Moreover, it is blocking the way of inquiry by ‘maintaining that this, that, and the other can never be known.’ (EP2: 49) So a Peircean has good reason to resist this objection.

Peirce has a couple of responses to the challenge of supposedly lost facts.³⁸ The second, which we will come to shortly, stems from his version of modal realism, but the first is that we cannot suppose in advance that a given inquiry will fail:

it is unphilosophical to suppose that, with regard to any given question (which has any clear meaning), investigation would not bring forth a solution of it, if it were carried far enough. . . . Who can be sure of what we shall not know in a few-hundred years? Who can guess what would be the result of continuing the pursuit of science for ten thousand years, with the activity of the last hundred? And if it were to go on for a million, or a billion, or any number of years you please, how is it possible to say that there is any question which might not ultimately be solved? (EP1: 140)

Never allow yourself to think that any definite problem is incapable of being solved to any assignable degree of perfection. (EP2: 188)

As an example, there is Comte’s failed prediction that the composition of the fixed stars could never been known (EP2: 49, 188; CP: 6.556), which was mentioned earlier. We could also mention the resurgence of interest in cosmology after the discovery of the cosmic

³⁷The nominalist attitude towards reality is discussed in Chapter 5.

³⁸There is another, early reply – calling an untested diamond ‘hard’ is just a way of speaking (EP1: 140) – that Peirce later rejected as too nominalistic (EP2: 356).

microwave background radiation (CMB), which held the promise of evidence for and/or against some theories. Moreover, practitioners of historical sciences, such as cosmology, archaeology and palaeontology, do not seem particularly put off of their inquiries by worries that they are missing critical evidence.

In another example of how he understands inquiry, Peirce talks about reports, from ancient historians and biographers, that Aristotle could not pronounce his ‘r’s (CP: 5.542). Do we have to consider such pronunciation a lost fact? No, because these reports raise in us an expectation that we hope can be tested, and:

Give science only a hundred more centuries of increase in geometrical progression, and she may be expected to find that the sound waves of Aristotle’s voice have somehow recorded themselves. If not, it were better to hand the reports over to the poets to make something pretty of, and thus turn them to some human use. But the right thing to do is to expect the verification. It is the degenerate pronunciation that is to be expected; the occasion is when Aristotle’s voice shall become virtually heard again or when we shall have some other information which shall confirm or refute those reports. (CP: 5.542)

This also raises the point that every event that actually occurs – in the Secondness sense of interacting with the environment – leaves traces that later inquirers might detect and interpret appropriately. The lost-fact objectors do not deny this, but say that the traces have completely worn away: ‘we believe that there were real events which had real effects, but which have not affected our current cognitive states.’ (Hookway (2012, 70)) But, again, this seems to require that no-one could ever find a way to detect and interpret those traces, which seems to be too hasty: after all, we have the CMB, which is almost as ancient as a trace could be. And it also seems to miss the point that the lost-facts objection only has significant force if the supposedly unknowable facts are unknowable for every possible inquirer. Hookway (2002, 52) thinks this first Peircean reply is too weak, that it only says that we cannot rule out the possibility that evidence *might* yet be found for the question under consideration. But this reply *is* strong enough to rebuff the extreme claim that no inquirer could ever come to know a certain fact.

Certainly, there may be logistical obstacles on the ability of inquirers in some spatio-temporal portion of the universe to acquire data relevant to their inquiries. But Peircean inquiry is not limited by space, time or species and, when considering *all* possible inquirers, we have to include not only past and future humans and human successor species, but

also possible inquirers elsewhere in the universe. Just as when humans look out into the universe they are looking back in time, so are inquirers on distant planets looking at the Earth. Such inquirers may well be able to answer many of the questions about the past that make up most of the examples of supposedly lost facts: they could certainly help with the dinosaurs. They could also help with the problem of the expansion of the universe: inquirers local to some portion can still inquire in that portion and the expansion may yet reverse, since its mechanism is not understood. It might be objected to this that inquirers on distant planets can never be part of the same epistemic community as humans on Earth. But the two groups of inquirers might, at some point in the future, exchange notes. It is only a matter of how long it takes to make contact, and Peircean inquiry is not limited by time. Admittedly, some facts may never become known by any inquirer, for various reasons including a complete lack of interest in the relevant question: we can well imagine that inquirers on distant planets might be even less interested in Churchill's sneezes than we are. But what does in fact become known and what is knowable are different issues; the issue here is with the knowable.

For a fact to be unknowable to all possible inquirers – like the ‘enigmas’ of Johnston (1993, 96–97), and as noted by Legg (2014, 211–212) – it must lack all possible experiential consequences for everything in the universe. But in this case, such a fact cannot be pragmatically clarified and it cannot be relevant to any surprising situation that frustrates expectations, because something would have to have experiential consequences for it to surprise us. Since such surprise is the motivator for inquiry, a fact of this kind cannot motivate inquiry. Nor can it be considered relevant to any inquiry because of its lack of experiential consequences. Indeed, such a fact looks like a piece of redundant ontology, of no possible relevance to anyone or anything in the universe, and its positing is a piece of bad metaphysics.

This talk of possible inquirers links into the second of Peirce's replies to the problem of lost facts. This stems from his modal realism: that there are real possibilities and real would-bes abroad in the world, as well as real existents. Thus to say that a diamond is hard is just to say that if it were interacted with in certain ways, then there would be certain experiential consequences: it would not be scratched by a steel blade or a corundum (EP2: 356–357). We can extend this to any situation in which there is, or was, a possibility of

experiential consequences and say that, if an inquiry on a question had been started at the appropriate spatio-temporal location, then a true answer would eventually emerge. If there was a reality to be found, it ‘would have been found if inquiry could have been, and had been, sufficiently pushed in the right direction’ (EP2: 457). So if there had been someone in the forest, the falling tree would have made a sound; if there had been someone counting leaves on Hookway’s tree yesterday morning, then an answer would have been found.

Lane (2018, 56) is not happy with this – what might be called Peirce’s modal solution – arguing that a possible inquirer in the past is still limited by the technological resources of that time. But the modal solution only requires that the inquiry be *started* at the appropriate time, so as to have in-person, direct acquaintance with the situation as it was. The inquiry can continue forward from that time, armed with the additional information, which may only become recognised as evidence later. There is here, though, the thought that there are windows of opportunity for certain types of technologically assisted investigations – such as genome sequencing and radio-carbon dating – and the window can close as, for example, organic samples degrade, eaten by mould. This window may, however, be pretty wide: the two techniques just mentioned have become ever more sophisticated and genomes can be, at least partly, extracted from tiny, old samples and dating using isotopes of carbon, or some other element, has become more precise. The worry then is whether the possible inquirer preserved relevant samples and – since we are not defending the claim that everything *will* be known, but the claim that everything is *knowable* – all we need say is that they might have done.

Hopefully that is enough argument, for the moment, in favour of knowability and against the nominalistic doctrine of evidence-transcendent reality. However, to finish this discussion of the problem of lost facts, we’ll return, as promised, to the example of the leaves on a tree, given by Hookway (2002, 51). He accepts that the modal solution works in this case, but raises an issue concerning a certain kind of semantic vagueness in any proposition that might represent the reality of the number of leaves on the tree (Hookway (2002, 57–59)). This would be a problem for any inquirer, actual or possible, and seems to weaken the link between a true proposition that results from inquiry and the reality it represents. The worry concerns the vagueness in the term ‘leaf’. Is it to include only

healthy, complete leaves, or is it to include also leaf nodes, buds, young leaves, damaged or dying or dead leaves? Hookway maintains that there is a determinate reality but, whatever we choose to include as a leaf, our supposedly true proposition is too vague to line up with that reality and, in this way, truth can come apart from reality.

There are a couple of replies to this. First is that during the process of inquiry, the language we use for the situation can change so as to better approach the reality: we may find that ‘leaf’ is not the appropriate word, it does not pick out the relevant concept. This would, of course, also involve changing the question to use language that better represents the situation so as to find a true answer, but the connection between that answer and reality is not damaged.

The second reply is that maybe the reality is not as determinate as Hookway insists: it is difficult to draw a boundary between leaf and non-leaf because that boundary is ontically fuzzy. Peirce insists that there are real vagues, as well as real existents and real generals (EP2: 354), and that anything perfectly determinate in all respects is a fiction (CP: 8.208), so this seems a perfectly acceptable Peircean move. We can then say that what is real in this case is a continuous process in which leaves are gradually produced, maintained, and then wither, die and fall away, without any sharp boundaries between those stages. We might also want to include the action of various microbes and insects on the state of the leaves, also as continuous processes. A true answer to the question ‘how many leaves are on the tree?’ is then not a single integer – the reality is not determinate in that way – but a range, say, 8,500–9,200.

The same kind of vagueness can be applied to the dinosaur example of Field (1982). It is not clear where the boundary between living and non-living should be drawn – do we, for example, include embryos still in the egg, those that were stillborn, those with a birth defect, those in the throes of being eaten – so we have semantic vagueness. And we have ontic vagueness because what is real is a continuous process of dinosaur production, maintenance and death, and the transitions between those stages are ontically fuzzy, with no sharp boundaries. So a true answer to the question of how many dinosaurs lived – in total or through any given period – is going to be a range, not a single integer. Nor can we get a single integer if we take a single time-slice because the transitional zones would be occupied.

The upshot of this is that if we accept that reality can be vague, then we need not conclude that semantic vagueness threatens the connection between true representations and the reality they represent.

3.6.2 Same-saying and generality

Any two things can be similar or different in any number of respects. A hawk and a hacksaw both have brown bits and sharp bits, but that doesn't automatically make them relevantly similar: I cannot cut some wood with a hawk, nor catch a rabbit with a hacksaw. Moreover the word 'hawk' shares all its letters with those of the word 'hacksaw', and is in that sense contained within 'hacksaw', but this doesn't make 'all hacksaws are hawks' an analytic truth.³⁹

For same-saying we need generality, and the same goes for claims about similarity. To claim that any two things are the same we need a third thing in virtue of which they are the same, that specifies in what respect they are the same, otherwise anything might be identified with anything else, much as we can identify a hawk and a hacksaw; or life and a grapefruit:

'Life,' he said, 'is like a grapefruit.' 'Er, how so?' 'Well, it's sort of orangey-yellow and dimpled on the outside, wet and squidgy in the middle. It's got pips inside, too. Oh, and some people have half a one for breakfast.' (Adams (1985, 125))

This third thing naturally needs to be general, since it needs to be applicable to more than one thing. For example, if there are two animals that I want to say are the same, or similar, in the respect that they are both cats, then 'cats' is a general term.⁴⁰ No two things are identical, according to Peirce, because all existents have haecceity. Some thing is the same as itself, but this identity is a degenerate dyadic relation: a thing does not stand in a reciprocal dyadic relation with itself. So two things are the same as or similar to each other only in virtue of a third thing, which is a general.

This is an instance of what Peirce calls a teridentity relation – $x = y = z$ – and it highlights the requirement that when we wish to say that two things are the same or similar, we have to specify in what respect they are the same or similar. In the case of

³⁹Of course, this is also a use-mention mistake. But nor is 'all "hacksaws" are "hawks"' analytic.

⁴⁰What 'cats' represents may be real or figment, and we would need an inquiry to decide that.

the hawk and hacksaw we might say: *portion-of-hawk = portion-of-hacksaw = brown*; or *portion-of-hawk = portion-of-hacksaw = sharp*. For the two things to be *relevantly* the same or similar, the general used should have some bearing on the situation in which there is a claimed similarity: that the hacksaw's handle is brown like some of the hawk's feathers has no bearing on the hawk's ability to catch rabbits, and the hawk's talon's being sharp like the hacksaw's blade has no bearing on the hacksaw's utility in cutting wood.

This way of handling similarity neatly sidesteps the typical nominalist complaint that two things can be similar but not because of some third thing called 'similarity'. It does so because similarity is not construed as a monadic predicate but as a triadic relation of the form ' is similar to in respect of '. Moreover, this triadic approach is born of Peirce's formal logic, whereas resemblance nominalism is all too often a metaphysical thesis (see, for example, Rodriguez-Pereyra (2002)). Metaphysical inquiry comes after logic in Peirce's architectonic and must be founded on a sound logic because, otherwise, we couldn't understand what we were talking about in metaphysics (more on this in the next chapter).

The dependence of same- and similar-saying on generality is important for a number of reasons. Firstly, special scientists, and philosophers of science, want to determine whether two experiments are relevantly similar, a determination required for the reproducibility of experiments. To achieve this we need a third thing in virtue of which two experiments are relevantly similar and this third thing is a general, since it must be predicable of both experiments. Moreover, we would like it not to be exhausted by any fixed number of experiments, but to be applicable to all future experiments, whether they are actually performed or not, because we want the results to be indefinitely reproducible, if the hypothesis they support is to be true. The general involved must therefore have modal force. On top of this, we want this general to be real, because otherwise whether the experiments are relevantly similar would be just a matter of opinion. These are the conditions of reproducibility we want in the special sciences, and Peircean realism is able to secure them.

Secondly, this has an impact on the nominalistic style of explication which, as mentioned earlier, involves either just a redescription of the phenomenon or a claim that one situation is the same, or relevantly similar, to another one. This claim requires a general by which the two things are the same and, for that claim to be true – in the Peircean

sense that it would survive all tests – that general needs to be real. Since nominalists deny real generals, their explications can never be true in this sense. We will return to this issue in Chapter 5 when we go into more detail with the problems explanation poses for nominalism.

And thirdly, this dependence raises issues for a nominalistic account of prediction, if that is reliant on supposedly real regularities. Again, this will be covered in more detail in Chapter 5, but briefly: to say that there is a regularity is to say that one situation is relevantly similar to another and, for it to be a real regularity, the general involved has to be real, and this last is just what a nominalist denies.

3.6.3 Provides truthmakers for modal sentences

Peircean realism provides truthmakers for modal sentences in a straightforward way. Such sentences are made true by real generals, which are peculiarly suited for this role in that they outstrip their actual manifestations (Section 3.1): a general covers a continuum of possibility that is never exhausted by individual actualisations, because there are always more that can be actualised. This cannot be said of particular facts, these being the fact of a single event or circumstance. There is not enough space here to fully elaborate how this Peircean approach to modality works, so we will, for the moment, just work through an example.

If I am at the races and my horse loses and I mutter ‘aargh, but my horse could have won’, this sentence can be made true by the habit of the horse to tend to win under certain conditions. This is not to say that we cannot find individual exemplars of truthmakers: perhaps the horse had indeed won on previous occasions. But it is not the fact that it has won in the past that makes the sentence true now, not least because conditions have changed. Certainly that fact may assure us that the sentence is truth-apt insofar as at one time the indicative mood recasting – ‘my horse won’ – was true. But this just tells us that the truth conditions for the sentence were available at that time, it does not guarantee they are still available now. We want those conditions to be present at the time my horse lost so it were possible to have said truly ‘my horse won’. As just mentioned, to say that the two situations are the same or relevantly similar we need generals and for the conditions in those situations to be able to operate as truth conditions, those generals need to be

real. Once the appropriate conditions are established, and the sentence is truth-apt, the truthmaker of the sentence is then the habit of the horse to tend to win under those conditions. So, under the Peircean approach to modality, particular facts may be good enough as truthmakers for indicative mood sentences, but for modal sentences – ones in the subjunctive mood – the most they can give us is a suggestion for the truth conditions: we need generals to establish the truth conditions and the truthmakers themselves are real habits, real generals.

We establish those conditions and truthmakers by engaging in an inquiry, which itself engages with the subject matter of the sentence, as far as possible. So to discover whether ‘my horse could have won’ is true, I would talk to trainers and jockeys to discover how my horse behaves under various conditions, observing the horse myself and comparing notes with other observers. This is quite a different procedure from that using Lewisian possible worlds, which seems only to require that we imagine what the truthmaker might be: more on this in Section 3.7.2.

3.6.4 Successful prediction can be explained

For philosophy of science, an important class of modal sentences are predictions from theories. Peircean realism allows us to explain successful prediction: the hypothesis from which the prediction was deduced somehow represents a real general, however inadequately or imprecisely. Nominalists find it difficult to explain how predictions can be correct because of the so-called ‘problem of induction’ or ‘Hume’s problem’ (see, for example, Henderson (2020) and Howson (2000)) as well as the related difficulty of distinguishing accidental from non-accidental regularities.

The problem of induction is simply not an issue for Peirce and he hardly touches on it.⁴¹ This is not just because he has real generals to do the work, but also because of the introduction of abduction as an additional form of inference along with deduction and induction. According to him, what we call the problem of induction arises, partly through nominalism and partly through a confusion of the elements in scientific reasoning:

Nothing has so much contributed to present chaotic or erroneous ideas of the logic of science as failure to distinguish the essentially different characters of

⁴¹He gets close at EP1: 168–169 and CP: 6.99–6.100

different elements of scientific reasoning; and one of the worst of these confusions, as well as one of the commonest, consists in regarding abduction and induction taken together (often mixed also with deduction), as a simple argument. (EP2: 106)

After all, scientists themselves seem to have no problem with making predictions and ascertaining whether they are successful. This by itself suggests that the analysis of predictions in terms of induction – or rather, what has passed for induction – might be faulty.

Forty years after Peirce's death, Nelson Goodman illustrated – with his 'new riddle of induction' (Goodman (1954/1983)) – what can go wrong with relying on induction (as commonly understood) as the source of predictions. One way to state this problem is that our empirical data alone is not enough to form projectable predicates, that is predicates suitable for prediction: we need some kind of guide as to which predicates are suitable.

Harris and Hoover (1980) suggest that Goodman is presenting, in a different way, the motivation for Peirce's introduction of abduction into scientific reasoning, that Goodman's paradox is, in effect, a statement of what goes wrong when we confuse abduction and induction. Misak (2004, 97–98) also argues that this is an issue of abduction not induction: hypotheses are the source of predictions, not inductions. We have to specify the feature to be inductively tested before we start testing, and this feature is suggested by the predictions deduced from the hypothesis in question: it is the hypothesis that gives us an appropriate predicate. It may be that we have different observations, at different times, of supposedly the same or similar situations, and this itself may be surprising and lead us to formulate a new hypothesis, which will give us a predicate that is suitable for prediction because that predicate is general and, as such, would outstrip its actual manifestations.⁴²

As for distinguishing accidental from non-accidental regularities, nominalists have trouble with this, as demonstrated by Peirce's experiment with the stone (Section 3.4). Peirce, on the other hand, achieves this distinction easily by saying that non-accidental regularities are the result of the operation of real generals while accidental ones are not. This is not to deny that there are accidental regularities: what may initially seem to be a regularity may simply be a chance occurrence, such as a tossed coin coming down heads ten times in a row. But in this case we must not confuse induction and abduction. Instead

⁴²Goodman's own solution includes the requirement that the feature under investigation be pre-designated but, as a nominalist, he could not appeal to real generals, instead settling for predicates that were compatible with prevailing linguistic conventions.

of trying to infer the future behaviour of the coin from the observation of ten heads in a row, we make a hypothesis as to the probability of it landing heads, tails or on its edge. This will ascribe a probabilistic disposition, a propensity,⁴³ to the coin tossing situation which we can then test inductively. Without a guiding hypothesis, ten heads in a row might seem significant, while the hypothesis suggests that what we should be looking at is the long-run ratio of heads to tails to edges; the order in which the heads, tails and edges occur in the sequence of tosses is irrelevant. But a nominalist in this situation would not be willing to ascribe a propensity, insofar as it is a real general. They are stuck with not really being able to distinguish chance from lawlike behaviour. Nominalistic predictions are like nominalistic explications in that they are not really predictions at all: they are just redescriptions of past events with no expectation as to the character of future events.

3.6.5 Successful action can be explained

Prediction can be understood as a form of practical reasoning: if I perform experiment X, I would expect result Y. So just as Peircean realism allows us to explain successful prediction, it can also account for how, more widely, action resulting from practical reasoning can be successful.

Any piece of practical reasoning involves a modal link between the premisses such that the conclusion is a rational course of action. To take a simple example:

p1 I want to arrive in Canterbury before 11 a.m.

p2 The 10.15 a.m. train from my local station arrives in Canterbury at 10.30 a.m.⁴⁴

p3 10.30 a.m. is before 11 a.m.

c Take the 10.15 a.m. train

The premisses here are just statements of particular facts; there is nothing that makes the conclusion a rational course of action. What is missing is the reason for the conclusion, which can be provided by inserting a modal statement, so that the agent is now acting for a reason:

⁴³The young Peirce had a frequentist view on probability, which he later abandoned in favour of a propensity view better aligned with his variety of realism. This view is similar to the one later expounded by Popper but with some significant differences, which are discussed by Miller (1975) and Suárez (2013).

⁴⁴Of course, any train arriving before 11 a.m. would do, but the reasoning is the same.

p1 I want to arrive in Canterbury before 11 a.m.

m1 If I were to take a train that would arrive in Canterbury before 11 a.m. then I would arrive in Canterbury before 11 a.m.⁴⁵

p2 The 10.15 a.m. train from my local station arrives in Canterbury at 10.30 a.m.

p3 10.30 a.m. is before 11 a.m.

c Take the 10.15 a.m. train

Naturally, the agent hopes the action recommended by this reasoning would be successful: if they did not they would probably not have bothered to reason in this way and just gone to the train station at some random time and hoped for the best.

Now, all actions are interactions between an agent and their environment. Just as an agent, in acting, affects their environment and thereby hopes to obtain some end, so there is a reaction of the environment back on the agent. This is the principle of Secondness and is the conduit through which an agent comes to recognise whether their action has been successful. So to account for successful action, we have to pay attention to those features of an agent's environment that allow for an action to be successful. In particular, for it to be so, the modal involved in the reasoning – or some functional analogue thereof – would have to be present in the environment in which the agent acts. There needs to be what might be called a modal affordance in the environment that the agent can exploit: the environment needs to be reasonable in much the same way that the agent is. At the very least, an agent should hope that this is the case, else their action cannot properly be called rational, insofar as rational action is not only acting for a reason, but for a reason that would lead to success.

These modal affordances are habits of (re)action operative in the agent's environment: they are generals, Thirdnesses. So Peircean realism explains successful action thus: an action is successful because the agent exploits a real general operative in the environment. The distinction between accidental and non-accidental success can also be made, the latter being where the reason employed by the agent somehow represents a real general, however inadequately or imprecisely; the former not.

⁴⁵An indicative mood conditional would not be satisfactory here because its truthmaker is a not-yet-extant future fact; more on this in Section 5.3.4.

3.7 Genuine Modal Realism is not modal realism

Peircean realism is a form of modal realism, and we have already seen how it provides real truthmakers for modal sentences (Section 3.6.3). However, while there are several flavours of modal realism in the literature, what is usually understood by that is Genuine Modal Realism (GMR), David Lewis's theory of real possible worlds, which was intended as a solution to the problem of truthmakers for modal sentences and as a way to make sense of everyday modal talk.⁴⁶ This is quite different from Peircean realism and it is here contended that GMR is not modal realism at all since its core idea is not an acceptable hypothesis and the worlds and their contents it posits look very much like fictions. It is not even realism, but an instance of what Peirce calls 'nominalistic Platonism', which is what a nominalist thinks realism ought to be. GMR is typical of a nominalist approach: it denies primitive status to Thirdness, attempting to reduce it to Secondness, to matters of particular fact; and it employs nominalistic explication, pointing to something that is supposedly the same as or similar to the problematic situation.⁴⁷

GMR is well known with an extensive literature – both for and against – so we will only briefly pick out those of its features relevant for our purposes, before turning to the Peircean critique. Such a critique does not seem to have been made explicit yet – GMR merits a couple of lines and a footnote in Haack (1992, 33, 47n24), and a few lines in Legg (2020, 591) – perhaps because, to a Peircean, the title of this section is an obvious truism.

3.7.1 Basic features of GMR

The basic motivation for GMR comes from the way Lewis understands being. He does so in the Quinean quantificational sense: to be is to be the value of a bound variable in our best theory, and the only things that fit that description, and thus have being and can be real, are concrete objects and sets. Lewis is certainly committed to concrete objects as real, but to sets less so than Quine, preferring, where possible, 'innocent plural

⁴⁶Lewis (1986) is the most complete account of GMR, building on and consolidating earlier work – such as Lewis (1973/2001) – and incorporating replies to some objections.

⁴⁷On different grounds than those used here, Plantinga (1987) argues that GMR is not modal realism but modal reductionism, while some other authors – for example, McDaniel (2006) and Marshall (2016) – make 'modal realism' synonymous with 'modal reductionism'. This latter is unfortunate, since it presumes a nominalist attitude toward reality, and thus seems to preclude non-nominalist positions – such as Peircean realism – from being called 'modal realism'.

quantification' over individuals (Lewis (1986, 50–51n37)). Our best theory of the semantics of modal logic quantifies over possible worlds and so, possible worlds being values of bound variables, they would have to be real for sentences of modal logic to express functioning propositions. Given that we would like sentences of modal logic to be true or false, we better have real possible worlds, and they had better be concrete. Here Lewis, and Quine, agree with Peirce that we need a connection between reality and truth, although they differ as to their construals of reality.

Possible worlds, according to Lewis, exist, they are as real as our world, and they exist in the same way that our world does. Indeed, for an individual in another possible world, our world would be another possible world. They are irreducible entities in their own right and are unified by the spatio-temporal interrelations of their parts. There is no spatio-temporal overlap between worlds, and nor are there any causal links between worlds: they are isolated in both senses. The word 'actual' has a special use for Lewis: it is an indexical that picks out the world in which the speaker is situated. And then there is no trans-world identity of individuals: each individual is stuck in one world and there's no movement between worlds. So when we are talking about what is possible or necessary concerning individuals, we have to do it through counterparts, which merely resemble each other.⁴⁸ It is the counterparts that provide the truthmakers for modal sentences, while the real possible worlds provide the truth conditions.⁴⁹

3.7.2 GMR is not modal realism, by Peirce's lights

To the Peircean, GMR is just not a form of realism because, firstly, the other worlds and their contents look a lot like fictions and, secondly, because GMR does not meet the criteria for an acceptable hypothesis.

To take the charge of fictions first: each and every world in GMR, including this world, comprises an isolated spatio-temporal extent filled with individual existents. But there is nothing intrinsic to such a world that makes those existents possibilities for the contents of other worlds: each world's contents is just a load of stuff. Nor does it help to collect a

⁴⁸There is a situation where Lewis prefers duplicates to counterparts (Lewis (1986, 88–89)) but this does not affect the argument here.

⁴⁹Stone (2009, 2011) and Divers (2014) have argued that real possible worlds and counterpart theory are incompatible, while Watson (2010), Conee (2011) and Michels (2018) have replied to this charge. However, I ignore this dispute here because the argument does not turn on its resolution.

lot of these worlds together because there does not seem anything intrinsic to a collection of however many of these worlds that their contents are possibilities for the contents of other worlds: we just have even more individual existents, just more stuff. Suppose I sort my stationery into boxes: there is nothing intrinsic about that sorting or the boxes or their contents that makes the drawing pins possibilities for the pencils, the paper clips for the ink cartridges. I might imagine it so but that does not make it so. Similarly, the only reason we have for thinking the contents of worlds are possibilities for the contents of other worlds is that Lewis has said so, because there is nothing about the worlds themselves or their contents which makes it so. Indeed the worlds, without Lewis's fiat, seem to have no modal force whatsoever.⁵⁰ Now, something that has its features only because somebody said so, is a fiction.

Further marks of fiction in GMR can be found in the Lewisian procedure for finding a truthmaker for a modal sentence, which goes roughly as follows. With your modal sentence in hand, imagine some other worlds which have exactly the features you require for truth conditions for the sentence in question. Then imagine one or more counterparts in those worlds with exactly the features you require for a truthmaker for the sentence. Both worlds and counterparts are exactly as you imagine them to be and are thus, by Peirce's lights, fictions. There can be nothing to challenge how you imagine them to be because the worlds are completely isolated from you – spatio-temporally and causally and with no trans-world relations such as identity. We cannot perform an inquiry on the worlds to determine whether they are, in fact, as you imagine them, because the worlds cannot answer our questions, they cannot respond to our experiments. Certainly, we could imagine worlds and counterparts thus-and-so, and perform an experiment on them in our imagination; but any response is also entirely imaginary because the other worlds cannot themselves respond. Just as the only realities associated with a fiction are that its author said such-and-such about it (see Section 3.5.3), so the only reality that inquiry can unearth about some Lewisian possible worlds and counterparts is that someone was reported as

⁵⁰Hymers (1991) argues that the contents of Lewisian worlds seem to need some mysterious representative power for them to act as possibilities for the contents of other worlds, which is just what Lewis (1986, 174-191) argues against, calling it 'magical'. Hymers concludes that Lewis faces a dilemma: 'Either, Lewis-worlds are possibilities simply because we may choose to regard them as such, in which case it is unclear how they explain modality and, hence, why we should believe that there are such things; or, Lewis-worlds are possibilities in and of themselves, in which case we seem to be "explaining" modality by resorting to something even more mysterious – intrinsically representational objects.' (Hymers (1991, 263))

imagining them thus-and-so.

The Lewisian procedure also seems to make finding truthmakers for modal sentences far too easy: imagining them so makes them so. Compare the Lewisian and Peircean procedures for the example mentioned earlier: ‘my horse could have won’. In the Lewisian procedure all we need do is imagine some other world with horse-like things engaged in race-like activities which have win-like conditions. Just imagining that gives truth conditions to the sentence, and picking one of those imagined horse-like things to act as a counterpart for my horse gives a truthmaker. Whereas in the Peircean procedure, we have to engage in an inquiry as to whether my horse – not some imagined, other-worldly horse-like thing – has a habit for winning actual races – not imagined win-like conditions of imagined race-like activities – under the conditions that did in fact prevail on that occasion. If we have such a real habit for my actual horse, then we have the truthmaker for the sentence. Such an inquiry can be performed entirely in this universe, without recourse to otherworldly entities.

Now, Peirce does allow experiments in the imagination in pure mathematics – experiments on diagrams – but pure mathematics is purely hypothetical and has no commitment to the hypothesis of reality. GMR is not mathematics, even though mathematics might be applied to it: it is a metaphysical thesis and is completely committed to reality. Lewis insists that the other worlds and their contents are real in the only sense a nominalist accepts, namely they exist as particulars. So Lewis cannot be excused, and he would not want to be, on the grounds that his worlds are purely hypothetical. Instead, on the Peircean line, GMR is a fiction and not any kind of realism.

The inability to respond to our experiments leads into the second Peircean objection to GMR, that it does not meet the criteria for an acceptable hypothesis: it is neither an explanation, nor can it be clarified pragmatistically. For the Peircean, GMR is just bad metaphysics.

It is not an explanation because it merely redescribes the situation at issue in terms more congenial to Lewis, terms that he thinks we understand better. While it may be a perfectly legitimate move to claim that a puzzling situation is the same as another, well-understood situation, that is not, by itself, an explanation: it is, rather a nominalistic explication. For it to be an explanation, he has to at least show how the situations are

the same and this requires generals – as discussed earlier – and these generals have to be real for, say, counterparts to be able to act as truthmakers for modal sentences.⁵¹ Moreover, it does not seem to be an adequate nominalistic explication either. The *explicans* – which is supposed to be better understood than the *explicandum* – is placed in another, spatio-temporally isolated world. Such isolation may well be ungraspable to us (Rosenberg (1989)), rendering the *explicans* not at all well understood. Moreover, these other worlds could be populated with things like talking donkeys and flying pigs, and it is not clear why these things are better understood than their more familiar taciturn and earthbound cousins. GMR thus seems to fail both as an explanation in Peircean terms and as a nominalistic explication.

GMR fails the second criterion because, as a hypothesis that purports to explain modality, it cannot be pragmatistically clarified: it lacks the third grade of clarity required for a truth-directed inquiry.

It was mentioned earlier that this is a fairly easy criterion to fulfil, the only way it could fail initially is if the proposer explicitly excluded all possible experiential consequences. But this is just what Lewis does, in making his worlds completely isolated – spatio-temporally, causally and with no trans-world relations. It seems that, for Lewis, this has to be the case because, otherwise, the worlds and their contents would affect each other, could not be individuated and thus could not fulfil their function as a metaphysical basis for modal logic. But this also means that whatever happens in one world has no, and can have no experiential consequences for anything in any other world. The third grade of clarity is obtained by considering the conceivable, possible, practical consequences of the hypothesis and GMR simply doesn't have any. It doesn't make any practical difference to you, me or anything else in the universe if Lewisian worlds and their contents are there or not. As such, there can be no experiment that could confirm or disconfirm the hypothesis, because the other worlds cannot respond to our probings. Inquiry into whether GMR is true is thus blocked.

Lewis (1986, Chap.1) does offer arguments to try and raise the plausibility of GMR by appealing to theoretical virtues. But such appeals do not advert to the truth of a

⁵¹This might be a way for counterparts to have the mysterious representational power that Hymers (1991) thinks Lewis requires for other worlds to be possibilities. But Lewis would reject this because we would then have unreduced generality in the account.

hypothesis, instead they only improve its ranking in the queue for testing: they are a matter of the economy of inquiry. The hypothesis still needs to make predictions that can be tested, and which distinguish it from other hypotheses, but no such predictions can be forthcoming because we cannot clarify GMR pragmatically.

There is a certain irony to this: as a nominalist, Lewis is committed to Secondness, to individual existents, but there is no Secondness between the worlds or between contents in one world and that in another. So, from the perspective of any one world, the other worlds and their contents simply do not exist: they are, at best, fictions. We might even think that the modal fictionalism suggested by Rosen (1990)⁵² is redundant since Lewis's 'realism' will do as well. On the Peircean line, there is nothing to choose between them because they are both nominalistic.

GMR is a good, if extreme, example of nominalistic explication, as Legg (2020, 591) notes, even if such explication fails because the *explicans* is no better understood than the *explicandum*. Unable to find suitable candidate entities in this world – that fulfil his nominalistic criteria – by which to explicate modality, Lewis feels obliged to posit untold numbers of otherworldly entities. These are, however, fictional by Peircean criteria, and they don't seem to have any modal force anyway: if individual existents in this world were not suitable candidates for explicating modality, it is mysterious how adding more is supposed to help such explication. The Peircean line instead suggests that what we need are real generals that encompass *continua* of possibility, that are never exhausted by individual existents, no matter how many are posited; such generals are a perfectly ordinary feature of *this* universe.

Lewis also exhibits an attitude toward reality that is characteristic of nominalism, that reality is in some sense unthinkable, and that only individual existents are real.⁵³ Thus the only candidates for truthmakers are individual existents. Lewis may well agree, with Peirce, that a true answer to a question represents a reality, but would only accept that ontically where what is represented is an individual existent. Where what is represented is a possibility or a general, then some other strategy has to be adopted. The strategy that

⁵²Daly (2008, 433–440) raises a problem for this style of fictionalism in the form of a trilemma. *Either*, the fictionalist finds themselves committed to the existence of some abstract objects; *or*, nominalism alone might find a solution, though it hasn't yet, which makes fictionalism redundant; *or*, a hybrid solution of both fictionalism and nominalism, which weakens the case for both.

⁵³Characteristics typical of nominalism, according to Peirce, are explored in more detail in Chapter 5.

Lewis adopts – and which nominalists call ‘realism’ because of their attitude towards reality – is to place the *explicans* for the *explicandum*, in this case modality, in an inaccessible realm. This is a strategy Peirce calls ‘nominalistic Platonism’.

3.8 Nominalistic Platonism

GMR is an instance of what Peirce calls ‘nominalistic Platonism’ (EP1: 85, 99–100), which is where a nominalist, because of their attitude towards reality, places a putative *explicans* of an *explicandum* into an inaccessible realm.⁵⁴ This *explicans* is thus unknowable and ‘the imagination can play about as it pleases’ (EP1: 100).

This is one of a number of strategies nominalists have for dealing with their view of reality (see Section 5.1.1 for some others). We find it in Berkeley – who puts generals in the unknowable mind of god – in Hume with his unknowable causes and in Kant, with his thing-in-itself. For a prominent more recent version, we have the secular Berkeleyanism of the original Copenhagen interpretation of quantum mechanics, as propounded by Bohr and Heisenberg.

Nominalistic Platonism is the position that Dummett (1978) calls ‘realism’, that Putnam (1981) attacks under the name ‘metaphysical realism’, and that Button (2013) rebrands as ‘external realism’, which he considers to be incoherent. For the Peircean, such a position is mischaracterised as ‘realism’ because it is nominalistic.⁵⁵

But the nominalist does not think they are doing anything wrong here, because nominalistic Platonism is one variety of what nominalists genuinely think realism is: if you call yourself a realist, this is just such a position they think you espouse. Nominalism has been so pervasive in Western philosophy for so long – Howat (2020) thinks it is hegemonic still – that the notion that reality is that which we cannot access epistemically has become widely accepted. And yet, as was pointed out in Section 3.6.1, to hold such a position is self-stultifying. Moreover, it is not the genuine realist that believes in metaphysical fictions

⁵⁴Peirce also use the phrase ‘nominalistic Platonism’ when dismissing the view that universals are individual existents (CP: 5.503). But it is not clear in that passage whether nominalistic Platonism is that view or something else that he considers the result of unclear thinking. Here, we are relying on what he says at EP1: 85, 99–100.

⁵⁵This is not to claim that the work of these authors was wasted: it most certainly was not because it has contributed to showing that nominalistic Platonism is an unsustainable position. It was, however, unfortunate that the word ‘realism’ was associated with this position.

with real generals; rather it is the nominalist that deals in metaphysical figments (EP1: 53), with their inaccessible reality for which, conveniently for the nominalist, we can obtain no evidence: if we could, it would not be inaccessible.

Because of the relation between truth and reality – as maintained by Peirce – the nominalist finds themselves having to refer to this unintelligible or epistemically inaccessible reality in order to say anything true. All the nominalist’s real truthmakers are shut away from us, rendering us unable to establish or justify any truth claims through inquiry. Genuine realists, such as Peirce, reject this characterisation of realism and strive to find a better one, which makes better sense of both reality and the special sciences, and allows us to approach the truth denied to us by the nominalist. Peircean realism is just such a view, allowing the universe to be intelligible and explaining successful prediction: it is a viable metaphysics for the special sciences.

3.9 Chapter summary

This chapter goes into more detail on Peircean realism. While this is a realism of all the categories – of may-bes, actuals and would-bes – the focus here is on the reality of Thirdness, of there being real generality. The aim of this chapter was to build the viability, and plausibility, of Peircean realism as a metaphysics for the special sciences, while criticising a key opponent in David Lewis’s Genuine Modal Realism.

Some key features of Thirdnesses were picked out: they involve a third thing bringing two others together; they cover continua of possibility and are not exhausted by individual manifestations; they are explicable; and Thirdness is the genus of which ways to express nomicity – such as laws, dispositions and causal powers – are species.

The Peircean understanding of reality and truth were presented along with an account of Peirce’s theory of inquiry. These are important because a viable metaphysics for the special sciences has to permit a universe in which scientific – that is, truth-directed – inquiry is possible. Then some clarifications were made on the matters of: regress of explanations; whether Peirce’s account is epistemic or ontic and maintaining that it is both; and on how fiction can be handled so the truth-reality connection does not come apart.

Some advantages of Peircean realism were discussed: the universe is rendered intelli-

gible, with a further discussion of the problem of lost facts; it makes sense of reproducibility in experiment; it provides truthmakers for modal sentences; and we are able to explain successful prediction and successful rational action. This was followed by an argument that David Lewis's account of real possible worlds, which is often called 'modal realism', is nothing of the sort by Peircean lights. It is instead an instance of what Peirce calls 'nominalistic Platonism', which was then briefly discussed.

Peircean realism is a viable metaphysics for the special sciences because it allows for a universe that is knowable and in which scientific inquiry is possible. Moreover, it accounts for prominent features of scientific inquiry: explanation, successful prediction and reproducibility.

Chapter 4

Towards a scientific metaphysics

In the previous chapter Peircean realism was discussed and argued for as a viable metaphysics for the special sciences. There are, however, a couple of outstanding issues for the case to be made in favour of Peircean realism.

The first is more a cluster of related issues: why do we need a scientific metaphysics, what should it be like, and what basis should it have? The second is what does real Thirdness, real generality look like, so to speak, in the wild? If we are looking for, say, laws of nature, how are we to recognise them? What would be their general characteristics? If we want a metaphysics that is viable for the special sciences, these issues ought to be addressed.

This chapter will thus attempt to address them. The first by saying, in effect, that metaphysics is unavoidable: every inquiry has to start somewhere – with presuppositions – and we want to be able to inquire into those presuppositions – through metaphysical inquiry – because the original inquiry may throw doubt on one or other of them. The basis of that metaphysical inquiry – since it too has to start somewhere – are the hopes that regulate truth-directed inquiry, which is part of Peirce's broad sense of logic.

Metaphysics, for Peirce, is the science of reality (EP2: 459) and its commitment to the hypothesis of reality is total: if there were no real things, there would be nothing for metaphysics to inquire into, so a scientific metaphysics takes as part of its basis that there are real things. How we best inquire into the universe so as to arrive at true propositions tells us something about the universe, such that it can be inquired into in that manner. As our ways of inquiry improve – Peirce's theory of inquiry is reflexive – so our metaphysics

improves. And so what regulates truth-directed inquiry, at some time in the evolution and development of the best way to inquire, forms the basis of our metaphysics at that time, such that metaphysical inquiry is possible.¹ This will be the topic of Section 4.1.

The second issue is the topic of Section 4.3, and will be addressed by comparing a couple of characterisations of law: the necessitarian one as might be illustrated by, for example, Laplace's Demon; and the second being Peircean. Where the former has laws as universal, eternal, immutable, exact and time-reversible, the latter has them as local, mutable, probabilistic in nature, inexact and temporally oriented. It will be argued that the necessitarian position does not look like a piece of scientific metaphysics, whereas the Peircean position does. One place where the necessitarian view seems to fail is in providing an account of how it is that laws are the way they claim. Peirce, by contrast, does provide such an account in his evolutionary cosmology. Section 4.4 gives a brief account of the cosmology and argues that, while it has problems, it still counts as scientific metaphysics in the sense established in Section 4.1.

Between addressing the two issues, in Section 4.2, Peirce's seven systems of metaphysics – a way of classifying metaphysical systems according to the categories they accept – is introduced as a framing device for this chapter and the next two. The Peircean account, naturally, uses all three categories and thus does not starve metaphysics and the special sciences of the resources they require.

4.1 What metaphysics should be like

Metaphysics, as it is understood here, has presuppositions as its subject matter and, as a discipline, involves inquiry into those presuppositions. Peirce had some of the positivist, anti-metaphysical sentiment of his time, denouncing the then-current state of metaphysics as a 'puny, rickety and scrofulous science' (EP2: 375). If metaphysics is engaged in that which is beyond our ken – that which makes no experiential difference to anything – then it immediately blocks the way of inquiry and is not a discipline of inquiry but rather just idle – even if entertaining – speculation.

Peirce considered that his own pragmati(ci)sm would sweep away all the 'meaningless

¹Forbes (2023) gives five elements as starting points for what he calls 'basic projects', of which the regulative hopes of inquiry are one.

gibberish' and the 'downright absurd' (EP2: 338) in ontological metaphysics. However, unlike Comte before him, Clifford, Mach and Pearson in his own time, and the logical positivists that followed, he did not want to completely obliterate metaphysics. He maintained that once all the absurdities and gibberish were cleared away – once we had stopped claiming to know about that which was beyond our ken, that which we couldn't know – we would be left with clear and distinct problems that could be addressed scientifically, that would require 'solid and industrious investigation', and he goes on to give a sample list of eighteen such questions (EP2: 375).

There is, in other words, a distinction between good and bad metaphysics, the distinction being made with the help of the maxim of pragmatism: if there are no possible experiential consequences for a metaphysical hypothesis, then it is bad and can be discarded. Good metaphysics – that which is fit for the special sciences – should allow for the truth-directed inquiry required by the special sciences; indeed, it should itself be open to scrutiny on the same basis. Bad metaphysics is that which does not allow such scrutiny. This does not make metaphysical inquiry the preserve of the special sciences: they do not have a monopoly on empirical matters. Indeed *all* truth-directed inquiry involves some empirical elements: philosophy is concerned with inquiry of a general nature involving experience available to everyone;² even pure mathematics is empirical in that it observes and performs experiments on diagrams (EP2: 36; CP: 1.54, 1.240, 1.383, 2.65, 3.363). It is bad metaphysics that disallows empirical elements.

Metaphysics is concerned with presuppositions and, as such, is unavoidable:

Whether we have an antimetaphysical metaphysics or a pro-metaphysical metaphysics, a metaphysics we are sure to have. And the less pains we take with it the more crudely metaphysical it will be. (EP1: 108)

That is, since we rely on presuppositions, we should strive to make them as good as we can. We cannot just ignore metaphysics:

Those who neglect philosophy have metaphysical theories as much as others – only they [have] rude, false, and wordy theories. Some think to avoid the influence of metaphysical errors, by paying no attention to metaphysics; but experience shows that these men beyond all others are held in an iron vice of metaphysical theory, because by theories that they have never called in

²Feynman (1965/1985, 56) says 'The physicist is always interested in the special case; he is never interested in the general case.' By contrast, the metaphysician is interested in the *general* features of reality.

question... Since, then, everyone must have conceptions of things in general, it is most important that they should be carefully constructed. (CP: 7.579)

Everyone of us ‘has a metaphysics, and has to have one’ (CP: 1.129) because we all operate according to a raft of pre-theoretical suppositions that are taken on trust, just to get by in everyday life. And this is no less true of scientific inquirers:

Find a scientific man who proposes to get along without any metaphysics – not by any means every man who holds the ordinary reasonings of metaphysicians in scorn – and you have found one whose doctrines are thoroughly vitiated by the crude and uncriticized metaphysics with which they are packed... Far better, then, that that metaphysics should be criticized and not be allowed to run loose. (CP: 1.129)

As an example, Peirce criticises Kelvin and Maxwell for presuming, without critical reflection, that Newtonian mechanics was scale invariant, that they cannot get away with just presuming that tiny objects behave exactly as large ones (CP: 1.129). More recently, Reynolds (2014) has directed the Peircean critique of unexamined metaphysics towards Hawking and Mlodinow (2010) who:

seem to identify the history of science with the establishment of scientific determinism, and insist ‘These laws should hold everywhere and at all times; otherwise they wouldn’t be laws’ (Hawking & Mlodinow 2010: 171). (Reynolds (2014, 454))³

Such a metaphysical position concerning the nature of laws is what Peirce calls ‘necessitarianism’ and he is concerned to offer an alternative, one that might be susceptible to truth-directed inquiry, as we shall see.

Every inquiry has to start somewhere with ‘an immense mass of cognition already formed’ of which ‘there is much that you do not doubt, in the least’ (EPT 336): these are the presuppositions that comprise the subject matter of metaphysics and include pre-theoretical notions about what there is and what it’s like. As starting points for inquiry, these do not need justification because they are not genuinely doubted. Nor need an inquirer be fully appraised of *all* their commitments just to engage in inquiry, no more than I need to know the precise composition of toothpaste to brush my teeth. However,

³They also seem to be nominalists, perhaps even drifting into subjective idealism: ‘There is no model independent test of reality. It follows that a well-constructed model creates a reality of its own.’ (Hawking and Mlodinow (2010, 172)). Subjective idealism is one strategy a nominalist may adopt to try and avoid the problems of their metaphysics: see Section 5.1.

presuppositions should be amenable to scrutiny because one or other of them may become doubtful. If I keep getting mouth ulcers while using toothpaste that is supposed to promote gum health, then something has clearly gone awry and I may look to its composition for an explanation, even though I previously had no reason to doubt its efficacy. Similarly, if an inquirer keeps getting surprised or frustrated during their inquiry, then something may be wrong with their presuppositions.

It would seem that this requires all presuppositions to be of the nature of beliefs, of holding some propositions as true, because only something truth-apt can be doubted. And yet not all presuppositions seem to be truth-apt because they could include, for example, attitudes, values and methods. However, if a presupposition has no possible experiential consequences – if it fails the test of the maxim of pragmatism – then it is simply redundant and can be discarded. If it passes, then it can be inquired into. This works because, if we presuppose something, we rely on it in our activity and to rely on something is to have an expectation that that something has an effect on the outcomes of our actions. If it has no effect, then it cannot be said that we are relying on it. On the Peircean line, such reliance is of the nature of a belief: beliefs are both a holding something to be true and that which we rely on in action, the former being belief to the second grade of clarity, the latter to the third;⁴ it is beliefs that generate expectations. So seemingly non-truth-apt presuppositions have beliefs associated with them that generate expectations that can be frustrated. If there are no such beliefs, then it is a mistake to say that we are relying on the presuppositions.

Attitudes and values can be judged on their appropriateness for an inquiry, and their associated belief is that they are so appropriate. It is this belief that could become doubtful. For example, some attitude could lead to biases in inquiry, such as excluding certain sections of a population from sampling, or ignoring results from those sections. This may well undermine the inquiry's ability to get to the truth of the matter, and the attitude become doubtful through different results of other inquirers on the same question, performed without that attitude. Here the attitude is making an experiential difference; if it doesn't, if there are no possible experiential consequences for it, then it is a redundant presupposition, a piece of bad metaphysics.

⁴On grades of clarity, see Sections 3.2 and 3.3.

As for methods, these are aimed at achieving some purpose, and can be judged on how well they perform to that end. In this case, the associated belief is that the method is good for that purpose, and it is this belief that can become doubtful. For example, a system of units – such as SI – might have as its purpose the reliable exchange of data and results between inquirers. We adopt such a system because we believe it is a good way to achieve that end. This belief could become doubtful if data exchange is unreliable while relying on this method. The same can be said for anything that is presumed as a means to some specified end, that is, it is presumed to be useful.⁵

In Peirce's architectonic (see Section 2.2.2), metaphysics – that is, metaphysical inquiry, metaphysics as a science, even though its subject matter precedes any inquiry – lies between logic (in Peirce's broad sense) and the special sciences. It is, if you like, the bridge between ordinary-seeing and special-seeing, between sciences of the general and those of the particular. Metaphysics as a science has to follow logic – which includes theory of inquiry and theory of meaning – because, if it doesn't, then we literally don't know what we are talking about when we engage in metaphysics. Since the logic tells us about good and bad reasoning, we wouldn't be able to talk about what is reasonable or rational about our presuppositions. As Peirce says:

The only rational way would be to settle first the principles of reasoning, and, that done, to base one's metaphysics upon those principles. (CP: 2.166)

The logic provides a *logica docens* – a reasoned logic – as opposed to a *logica utens*, which is our evolved reasoning capacity. We cannot blindly rely on this latter when pursuing an inquiry into our presuppositions, because that would most likely just end up back where we started: our evolved capacities and our initial presuppositions are inextricably linked. We need a *logica docens* to understand and criticise those presuppositions, to engage in metaphysical inquiry.

It is the business of metaphysics to 'study the most general features of reality and real objects' (EP2: 375) and in doing so must follow the principles established in the normative sciences, and logic in particular: 'Metaphysics consists in the results of the absolute acceptance of logical principles not merely as regulatively valid, but as truths of being.' (CP: 1.487)

⁵More will be said about usefulness in Section 7.4.1.3.

What regulates our best truth-directed inquiry becomes the basis for our best efforts at metaphysics which, like any inquiry, has to start somewhere. For us to obtain an answer to a question, we have to hope the subject matter is intelligible to us and then, for us to obtain a *true* answer, we have to hope that there is some reality about the subject matter (see Chapter 3). As Peirce puts it:

Nature only appears intelligible so far as it appears rational, that is, so far as its processes are seen to be like processes of thought. (CP: 3.422)

But it is a Postulate, – a hope, – of science and of all sound reasoning that any given fact to which our attention may be directed shall turn out to be intelligible. (CP: 7.601)

If we do not so hope, then there is no point in us inquiring. These regulative hopes of inquiry become the starting presuppositions for metaphysical inquiry. They are how the universe would be such that we can inquire into it according to our best theory of inquiry: so the universe is intelligible to us and at least some of it is real, not fictional. This basis for a scientific metaphysics is fallible: by inquiring into our theory of inquiry – Peirce’s is reflexive – we can learn how to inquire better and becoming better at truth-directed inquiry leads to better metaphysics.

On the Peircean line, the universe is rendered intelligible by acceptance of all three categories of Firstness, Secondness and Thirdness (see Section 3.6.1). So metaphysical inquiry starts with those three categories – basic principles of combination and organisation – in place. Of course, a *scientific* metaphysics has to play by the rules of truth-directed inquiry (see Section 3.3). In particular, metaphysical hypotheses have to meet the criteria for being acceptable hypotheses: they must explain the puzzling circumstance at hand and they must have possible experiential consequences. As we saw in Section 3.7.2, David Lewis’s Genuine Modal Realism (GMR) fails as a scientific hypothesis by these criteria. If a metaphysical hypothesis cannot meet these criteria, then it is a piece of bad metaphysics: either it fails to explain what it purports to explain, or it is irrelevant, making no difference to anything in the universe, or both.

Certainly there may be logistical obstacles to testing some hypothesis and it may not be clear initially what the possible experiential consequences might be exactly. Evidence might only be gleaned through contrastive testing or confirmation holism although, in both cases, the hypothesis in question would still have to have some distinct experiential

consequences for it to affect the results of testing in some way, even if it were not initially clear exactly what that effect was.

However, provided that the hypothesis does not deny the possibility of experiential consequences – in much the way that GMR does – then it might be hoped that, as inquiry proceeds, some might come to light. Although at that later time, since our conceptual resources would have been enhanced through the inquiry, what the hypothesis means may have changed.

Importantly for us, Peircean realism and nominalism have different experiential consequences. A nominalist should be surprised if they can reliably make predictions, and when a piece of practical reasoning results in successful action. They can have no expectation that a prediction can be reliably fulfilled because they cannot account for how predictions can be successful (see Sections 3.6.4, 3.6.5 and 5.2.2). A Peircean realist, by contrast, is not surprised by a successful prediction because they can account for that success. Surprise in the one case and lack of surprise in the other is a difference in experiential consequences, and so these two metaphysical theses can be distinguished experientially.

A scientific metaphysics produced along these lines provides the special sciences with presuppositions concerning the general nature of reality, of what is to be expected when encountering Firstness, Secondness and Thirdness in the wild, so to speak. How real Thirdness, real generality, manifests in the universe is particularly important because, for Peirce, scientific inquiry always involves trying to ascertain the reality or otherwise of some general, and the special sciences would thus benefit from guidance as to what kind of thing they should be looking for, how they might recognise it, what, if you will, laws of nature look like. As Adlam (2022, 2) says: ‘the ideas we have about what laws look like inevitably shape the types of laws which scientists formulate.’ Moreover, this is not only a concern for those special sciences, such as physics, that are explicitly looking for fundamental ways in which the world works: every (realist) explanation involves a general that the explainer hopes is real, not fictional, so some guidance on what generals should look like is important for all special sciences.

This is especially important where the domain of inquiry does not concern slow-moving, proximate, medium-sized objects, domains to which our commonsense, evolved instincts involving such objects are inapplicable. We are much less likely to guess right in domains

where the affordances against which we evolved are missing. As Peirce says:

The further physical studies depart from phenomena which have directly influenced the growth of the mind, the less we can expect to find the laws which govern them ‘simple’, that is, composed of a few conceptions natural to our minds. (EP1: 287)⁶

Having such guidance allows special scientists to make informed judgements on the plausibility of hypotheses (Hookway (1992, 202)), thus expediting inquiry. Without such guidance, scientists would just be flailing around, coming up with all sorts of hypotheses and engaging in costly experiments, without any confidence that any given hypothesis is likely to be confirmed or disconfirmed, without any idea why any one hypothesis should be more plausible than another and might thus justify more resources for testing. Inquiry would slow to a crawl as every single hypothesis has to be tested, because every hypothesis would initially be at the same level in the plausibility rankings, in the queue to be tested. They couldn’t even put hypotheses to the back of the queue as being too wacky, since they would have no criteria for wackiness. Metaphysics should help special scientists guess right and, of course, it must remain compatible with their evolved instincts in the domains to which they are applicable.

There might be a worry with this notion of a scientific metaphysics that it is too unidirectional or bottom-up, in that it seems to be entirely specified by logical principles and the special sciences don’t get much of a say. The question is: can a Peirce-style metaphysics come under pressure from the special sciences, or is it somehow invulnerable?

In reply, logic (in the broad Peircean sense) is a normative science and gives us only the general character of metaphysics, not its exact contents. It gives us the basic starting points of a scientific metaphysics – such that inquiry into presuppositions is possible and makes sense – and this involves accommodating the metaphysical aspects of the three categories of Firstness, Secondness and Thirdness. There could, however, be many metaphysics that conform to those constraints. Peirce’s logic does not tell us exactly what possibilities, existents or habits there are, only that there are possibilities, existents and habits. It tells us nothing about whether this or that proposed law, or whether this or that material object is real. Such questions have to be decided by truth-directed inquiry, and the content of the question would determine which discipline is appropriate to conduct that inquiry.

⁶Ladyman *et al.* (2007, 2) also make this point.

Logic is a science of the general – and gives us the general outlines of metaphysics – whereas the special sciences are sciences of the particular and, so to speak, fill in the details of that outline. Indeed, each special science may adopt its own bespoke ontology, and this is just fine provided these ontologies are compatible with the logic.⁷ Nevertheless it may be that, if all such suitably constrained metaphysics are exhausted, evidence might still suggest a metaphysics quite at variance with our current logical principles. In this case we then have a pragmatistic reason to re-examine our logic, since it no longer seems to be doing its job. As already mentioned, the logical basis for a scientific metaphysics is fallible and the theory of inquiry is reflexive: it can be applied to itself without collapsing. The conduit for this backwards pressure on logic, via metaphysics, is the sciences of review in the architectonic, as mentioned in Section 2.2.2. So the Peircean metaphysical account is not entirely unidirectional but can be put under pressure from the special sciences: it is a two-way street, although logic does tend to get more right-of-way, simply because the special sciences need a useable logic for their own disciplines to function correctly as truth-directed inquiry.

This then is the proposal for a scientific metaphysics, one that follows the principles of truth-directed inquiry and is capable of inquiring into, and making sense of, presuppositions. Such a metaphysics would be a viable one for the special sciences and Peircean realism meets these criteria. As argued earlier, it allows for truth-directed inquiry, making the universe intelligible and accounts for the success of predictions and rational action. Peircean realism, being founded on logic – the science of good reasoning – is a metaphysics that involves all three categories. It is a metaphysics of ‘I II III’, this nomenclature coming from Peirce’s rough classification of metaphysics into seven basic systems.

4.2 The seven systems of metaphysics

In his 1903 Harvard lectures, Peirce himself introduces the seven systems of metaphysics as a framing device: a rough-and-ready way to classify different systems of metaphysics. He has three categories – which are basic principles of combination and organisation – so there are seven basic systems of metaphysics, each marked by the unique combination

⁷John F. Sowa has devised a scheme for generating bespoke ontologies, including more than just Peirce’s categories in his top-level lattice (see Sowa (2000, Chap.2); Sowa (2001)).

of categories that a system accepts. In figure 4.1, ‘I’, ‘II’ and ‘III’ indicate Firstness, Secondness and Thirdness, respectively.

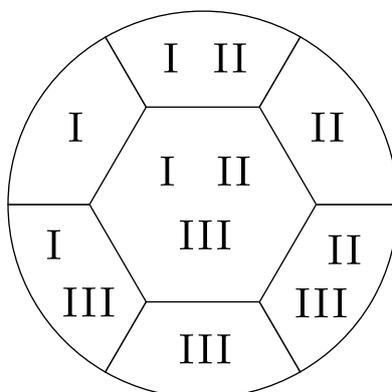


Figure 4.1: Peirce’s seven systems of metaphysics. Adapted from EP2: 149, 164, 180.

Peirce claimed it was a matter of historical fact that there were just these seven systems (EP2: 149) although he, and we, are not relying on this classification being exact but only as a dialectical device (EP2: 164).

Naturally, we would like our metaphysics to be as simple as possible, so when assessing metaphysical theories, Peirce recommends we first try those that use the fewest categories. Once the single category systems ‘have worked themselves out into absurdity’ (EP2: 164) we should next try the two-category ones and then, once these too are found wanting, we are left with only those schemes that use all three categories, which includes Peirce’s own. Table 4.1 gives Peirce’s suggested classification of some historical schemes, although he doesn’t justify this: we’ll just take them as illustrative suggestions and not provide any further commentary.

System	Historical Examples
I	Condillac, associationalism, nihilism, idealistic sensualism
II	Helmholtz, corpuscularianism, Lutosławski, Mickiewicz
III	Hegel
I II	Ordinary/moderate nominalism
I III	Berkeleyanism
II III	Cartesianism, Leibniz, perhaps Spinoza and Kant
I II III	Kant (in certain moods), Aristotle (on certain interpretations), Reid

Table 4.1: Some historical metaphysical schemes, as classified by Peirce (EP2: 164–165, 180)

Peirce’s categories are basic principles of combination and organisation. They provide the minimal set of resources for any metaphysics so we will look, in the next two chapters,

at what goes wrong when one or another is missing: the absence of Thirdness in Chapter 5 – with what Peirce calls ‘ordinary nominalism’ – and the lack of Firstness and Secondness in Chapter 6.

In this chapter we are concerned with a metaphysics of ‘I II III’, that being a viable one for the special sciences, and how such a metaphysics deals with the issue of what real Thirdness looks like, which is what we now turn to.

4.3 What laws are like

As already mentioned, it is a function of a scientific metaphysics to give the characteristics of real generality, of what laws are like, so special scientists have a grasp of what they are looking for when they look for laws. One possibility – as a contrast with the Peircean view which we will come to shortly⁸ – comes from the doctrine of necessitarianism: the view that the universe could not have been any other way and there is no difference between possibility and actuality.⁹ This entails a kind of determinism as described by Peirce:

[T]he state of things existing at any time, together with certain immutable laws, completely determine the state of things at every other time (for a limitation to *future* time is indefensible). Thus, given the state of the universe in the original nebula, and given the laws of mechanics, a sufficiently powerful mind could deduce from these data the precise form of every curlicue of every letter I am now writing. (EP1: 299)

For this to work, the universe should be deductively closed under laws that are universal, eternal, immutable, exact and time-reversible (EP1: 299–300): this is what we will call the necessitarian view of laws. This is the notion of laws that Hawking and Mlodinow (2010) seem to subscribe to: even though they need not be completely committed to all the consequences of necessitarianism, they are certainly committed to some kind of determinism (Hawking and Mlodinow (2010, 32, 34, 72, 171)). We will shortly come to how they deal with the threat that quantum theory poses to that determinism.

⁸Contrasts could also be made with the best-systems approach of David Lewis (Lewis (1973/2001, §3.3), Lewis (1994)) – which has a metaphysics of ‘I II’ – and the necessary-relations-between-properties view of Armstrong (1983/2016), Dretske (1977) and Tooley (1977). There is, however, not enough space here to do so.

⁹This has recently been defended by Karofsky (2022) and seems to yield a metaphysics of ‘II III’, as does the dispositional essentialism of Mumford (2002) and Bird (2005), this last having laws as necessarily necessary whereas the Peircean view has them as contingently probable. We will say no more here specifically about a metaphysics of ‘II III’, but see Section 6.2 for what goes wrong when there is no independent Firstness.

If laws were like this then, if we could discover them, they would be very useful since they potentially allow for unlimited prediction and retrodiction. Indeed, with laws like this, the Peircean realist claim that nothing is unknowable (see Section 3.6.1) might seem perfectly achievable, at least in principle.

However, there is a problem. We want our metaphysics to be scientific, in the sense elaborated earlier, and this presupposition – that laws are universal, eternal and the rest – does not sit well in such a metaphysics. It is not a regulative hope of inquiry so does not enter metaphysics as a basic starting point. It *is* a regulative hope that there are real Thirdnesses – habits, rules, laws – that mediate interactions, and what is required for them to do so becomes part of the presuppositions of metaphysical inquiry. For laws to mediate interactions, they do not need to be as the necessitarian presumes: this presupposition is not part of logic but is rather a metaphysical hypothesis. As such a hypothesis, however, it does not fare well since, according to Peirce, we have plenty of evidence against it, or at least, very little if any in favour (EP1: 304–305).

For instance, no experiment performed gives a result exactly in accordance with prediction, there is always some deviation, no matter how precise the measurements or how carefully supposedly extraneous factors have been excluded. Peirce says:

We are accustomed to ascribe these, and I do not say wrongly, to errors of observation; yet we cannot usually account for such errors in any antecedently probable way. (EP1: 305)¹⁰

While experiment provides evidence that a certain law is operative, it does not provide evidence that that law is exact, let alone universal or eternal (EP1: 304); and every time an experiment is performed the result varies and, although we can give a range in which the deviation from prediction is expected to be found, we cannot decide in advance what the actual, measured deviation will be. This is not what we would expect if laws were exact, as the necessitarian supposes.

Another issue is that these characteristics that the necessitarian ascribes to laws are general facts about laws and, according to Peirce, every fact of a general nature is susceptible to explanation: general facts are not brute (EP1: 275). To claim that laws are a certain way, and then claim that the fact they are so is inexplicable is nominalistic and blocks the

¹⁰There are similar remarks at EP1: 243, 274 and 288–289.

way of inquiry. It is no explanation of a general fact to pronounce it inexplicable (EP2: 67–70; CP: 6.613) and it is nominalistic and inquiry-blocking because it insists there is something that cannot be known.

We are owed an account from the necessitarian of how it is that laws are universal, eternal, immutable, exact and time-reversible, and it is not enough to say that god made it so: ‘for we cannot tell what God would do’ (CP: 6.613). Nor can they appeal to a multiverse in which different universes have laws with different characteristics, this move failing for the same reasons as GMR: the other universes are fictions, they are just as someone imagines them to be, designed for a certain argument; and nothing about another isolated universe has any bearing on what the character of this universe is.¹¹ Such an appeal has no place in a scientific metaphysics.

A problem here is that the necessitarian seems to imagine that laws sprung into being, fully-formed, at the beginning to the universe – indeed, that seems to be the only way that they could be eternal – and so would have to appeal to something extra-universal to account for their general features. It would thus be natural for them to have recourse to fictions or things beyond our ken. But again, this is bad metaphysics by Peircean lights.

In light of these difficulties, we might wish for an alternative notion of what laws are like, one for which an explanation might be more readily forthcoming. Peirce provides such an alternative in which laws are, for the most part, local, mutable, probabilistic in nature, inexact and temporally oriented. Most of these features follow from what has been said in the previous two chapters. Laws are Thirdnesses, generals, that specify what *would* happen – they are would-bes, concerned with the future – and that only in general terms: how a law is instanced in a situation varies according to the particularities of that situation, which is a matter of Secondness rather than Thirdness.¹² We thus expect laws to be temporally oriented and inexact. They are expected to be probabilistic in nature because a general covers a continuum of possibility, and possibility is Firstness: pure originality or chance. We expect mutability because all Thirdnesses are explicable and so have been brought about in some way, and are thus subject to change (EP1: 219). Locality is the only feature that does not seem to follow from what has already been said, and this arises through

¹¹See Section 3.7.2 for the details of these arguments against GMR.

¹²More on this last point is found in Section 6.3, which considers what goes wrong without any Secondness.

Peirce's account of how real laws come to have these features – his evolutionary cosmology – which we will come to in Section 4.4.

Evidence, for Peirce, that laws are probabilistic in nature comes from the laws of Boyle and Charles, as well as Boltzmann-style statistical mechanics (EP1: 221), in all of which chance plays an important role in the random movement of molecules. Brownian motion might also be taken as evidence that there is real chance abroad in the universe, although Peirce seems to have been unaware of Einstein's work on this topic. He was, however, aware of the spontaneous nature of radioactive decay, and this too can be taken as evidence for real chance. Further evidence for the probabilistic nature of laws might be found in quantum theory – 'Nature permits us to calculate only probabilities' (Feynman (1985/1990, 19)) – even though its first proper formulation came after Peirce's death.¹³

The necessitarian might respond to such evidence in at least two different ways. First, they might maintain that the result obtained is still entirely determined by exact laws, although it appears to be random. They could point to, as an example analogy, the chaotic portions of deterministic functions, suggesting that laws are very sensitive to small variations in inputs, but the output is always exact depending on an exact input. An example of this kind of response is de Broglie-Bohm mechanics – an alternative to standard quantum mechanics – that, in addition to the standard wavefunction, proposes an additional, global guiding function that exactly determines the positions and velocities, and thus the trajectories, of particles.¹⁴

A second response – the one adopted by Hawking and Mlodinow (2010, 72) – is to concede that laws output probability distributions, not exact values, and thus give up part of the necessitarian package: no entity, no matter how well informed about one state, can exactly specify another; they can only specify the probabilities of certain states. However, the necessitarian can maintain that the laws specify the distributions, and thus the probabilities, exactly.

Neither of these responses address Peirce's worry with the deviation from exactitude in experiment. Even if the laws specified the result exactly, we could only approximate it

¹³Peirce was aware of work that led up to the theories of relativity and to quantum mechanics – such as that of Lorentz and Poincaré – although towards the end of his life, his poverty and lack of access to institutional library resources meant he was not well informed of the latest developments. See Reynolds (2002, 138–141) for a brief summary of Peirce's awareness of the new physics.

¹⁴See, for example, Bohm (1952a,b) and Bohm and Hiley (1993).

to some arbitrary degree in experiment, never consistently alight on it exactly. And even if the laws specified the distribution exactly, we could never determine exactly the shape of that distribution, only approximate it. Nor do they help with an account of how it is that laws are as the necessitarian thinks they are.

Moreover it is not just the nature of induction – understood as statistical inference – nor also the likelihood of errors in observation that concerns Peirce. He thinks it an open possibility that the facts under investigation deviate randomly from their supposedly law-governed course (EP1: 274, 289). These deviations may be minute (EP1: 289) but could partly account for differences between the results of repeated experiments, and where different results are obtained, by different routes, for the same predicted value.

In this context, Peirce makes a distinction between ordinary and absolute, or pure chance. Ordinary chance is a feature of a distribution: it is, if you like, chance as bounded by law, Firstness as derivative of Thirdness. The one in six chance of a particular number coming up on a throw of a perfectly fair die, the one in thirteen chance of an ace being the top card of a well shuffled deck, and the fulfilled or frustrated expectation of a bus arriving as the minutes drag past the timetabled time are all features of a distribution, are all examples of ordinary chance. Ordinary chance is also what we have in quantum mechanics where the probability distribution for finding an electron at a certain position is governed by the wavefunction.

Absolute chance, by contrast, is chance unconstrained by law. It is pure Firstness (EP1: 275), pure potential or originality (EP1: 244). It is responsible for those minute deviations between predictions and experimental results, not entirely accounted for by the vagaries of statistical inference and observational errors. By Peirce's lights, we cannot have only ordinary chance – chance as derivative of laws – because this would be to deny the independent being of Firstness. As mentioned in Chapter 2, the categories are both independent and interdependent: they all come together or not at all.

It is also key to his account of how it is that laws have the general features they do, his evolutionary cosmology. As Peirce says:

'Explicability has no determinate and absolute limit. Everything being explicable, everything has been brought about; and consequently everything is subject to change and subject to chance.' (EP1: 219)

We now turn to that cosmology and endeavour to show that – whether it is thought perfectly plausible or utterly bizarre – it is nonetheless an example of a piece of scientific metaphysical theorising in the sense elaborated in Section 4.1 because it is modelled on the theory of inquiry, and thus follows the logic.

4.4 Evolutionary cosmology

There are many problems with Peirce’s evolutionary cosmology – not least because it does not seem complete – but there is not room here to address them in sufficient depth: various elements would have to change and it would have to be brought up to date with thinking in both philosophy and cosmology, while remaining true to the basic Peircean picture. It would require a thesis all of its own, something along the lines of: ‘Peirce’s Evolutionary Cosmology Reassessed and Reconstructed in the Light of Modern Developments’. Even though I believe that many of the issues can be adequately addressed, nothing like that will be attempted here: the aim is not to defend Peirce’s account nor change it to one that is more easily defended.¹⁵

Instead the approach taken is inspired by those prepared to take Peirce’s cosmology seriously in some respects – such as Hookway (1992, Chap.9), Hookway (2002, Chap.6), Forster (2011, Chap.9–10), Reynolds (2002, 2014) and Ibri (2017) – who endeavour to show that, whatever else the cosmology might be, it is at least consistent with some other portion of Peirce’s thought. In a similar vein, we will here strive to show that whatever you may think of Peirce’s cosmology – from perfectly plausible to completely crazy – it is, nevertheless, an example of a piece of scientific metaphysical theorising, in the sense elaborated in Section 4.1.

We will start by giving a brief sketch of the cosmology as presented by Peirce, along with some notes mentioning only a selection of problems. This will be quite abstract and the problems will not be addressed for the reasons just mentioned. Then we will show that this cosmology can be understood as following the model of inquiry in Peirce’s theory of inquiry: it follows the logic and is thus an example of a piece of scientific metaphysics. Taking our best theory of inquiry as the basis for our cosmological model effectively ensures

¹⁵The idea of an evolutionary cosmology has recently been revived by Lee Smolin (Smolin (2014, 2015); Unger and Smolin (2015); Smolin (2018)).

that that latter model would be intelligible in that we could inquire into it, since Peirce's theory of inquiry is itself reflexive. Of course, for Peirce all reasoning is fallible, so this is just the initial starting place for a cosmology, but it is a good one for a scientific metaphysics.

4.4.1 The cosmology

Peirce conceives of the universe as being in continual evolution, starting from – in the infinitely distant past – a state of pure Firstness – pure possibility, pure chance, boundless freedom – and ultimately ending – in the infinitely distant future – in a state of pure law, static and dead (EP1: 243, 277; CP: 6.217, 8.317).¹⁶ These start and end points can be thought of as the asymptotically approached limits of a hyperbola: they are different from each other but are never reached (EP1: 251; CP: 6.585, 8.317). Peirce claims that this is a 'rational physical hypothesis, which is calculated to account, or all but account for everything in the universe except pure originality itself.' (EP1: 244) Pure originality, pure Firstness, neither calls for an explanation nor can be explained, because it lacks the mediating element that allows for explanation (EP1: 275).

Laws are habits that the universe, or portions thereof, fall into, analogously to habits that humans or other organisms fall into. The evolution of the universe – from one asymptotically approached limit to the other – is mediated principally by the habit of habit-taking (EP1: 243, 277). This habit is distinguished from others as being the only one that need arise from pure chance alone (EP1: 277).

Evolution is a process mediated by meta-laws, of which the habit of habit-taking is one. In addition to this we have four modes of evolution, but only two of these could properly be called laws.¹⁷

There is what might be called the 'default' mode in which a habit becomes stronger – governs more behaviours, or the behaviour of more existents – the more it is instanced. The habit of habit-taking is itself a habit, and becomes stronger the more habits are taken

¹⁶To the charge that Peirce's cosmology violates the second law of thermodynamics, I will say only that entropy should not be thought of disorder or disorganisation (Denbigh (1989)) and that the second law is itself a habit that the universe has fallen into. Peirce regards the second law as evidence that laws are temporally oriented (CP: 7.470). See also Reynolds (1996) for further discussion of Peirce's relationship with the laws of thermodynamics.

¹⁷A problem here is that, since we have three categories, we might expect there to be three modes.

by existents. This mode can be properly regarded as a law. The other three modes (EP1: 358–363) correspond roughly to the categories. There is *tychism*, which is pure chance and associated with Firstness and, while this counts as a mode, it is not a habit so is not properly called a meta-law. Next we have *anancism*, understood as mechanical or mathematical necessity or compulsion, and associated with Secondness. This shouldn't be regarded as a law, since it is brute compulsion.¹⁸ The last mode is *agapism*, which is a tendency for habits to become mutually consistent and is associated with Thirdness. This is the other mode that can be properly regarded as a law.¹⁹

Time and space are the first generals to appear, although 'before' time, we only have logical rather than temporal sequence (CP: 6.214) and, before space, only logical rather than spatial proximity. The germ of time arises from pairs of random actualisations, the pair forming a logical sequence. The germ of space arises from pairs of random actualisations that are logically non-sequential.²⁰ The actualisations are random from the Firstness of pure chance, and they come in pairs because actuality is a matter of Secondness. Initially, both time and space will have a very jerky character, but this will settle down – according to the default mode – as further pairs of actualisations occur (EP1: 278–279).²¹

As time and space tend toward nomic continua, so further pairs of actualisations start to form aggregates, now to some extent oriented temporally and spatially, and habits form of ways of aggregation (EP1: 279), ways of moving and ways of interacting. Some habits may not be consistent with others, and thus we can have regions of the universe with different laws from others. The modes of evolution come into play to resolve such conflicts.

However tychism – as pure chance – cannot reliably operate in a reconciliatory fashion

¹⁸However, it does look like a law. There is a problem in calling anancism 'necessity', when it is associated with Secondness. Necessity for Peirce is a matter of Thirdness – it is the asymptotically approached limit of probability – while Secondness is brute. This mode needs to be finessed to grasp the notion of Secondness as compulsion not involving nomic necessity.

¹⁹There are a raft of issues with meta-laws that need to be dealt with adequately, such as: are meta-laws necessary and in what sense? how are they to be explained? how do they arise? can they change or are they somehow inviolable? could they disappear entirely and, if so, what happens then?

²⁰It is not clear how 'logically sequential' and 'logically non-sequential' are to be understood. We could think of them as premisses in an argument and they are 'sequential' when the order matters and 'non-sequential' when it doesn't. Or we might appeal to partially ordered sets – as used in causal set theory (see, for example, Dowker (2005)) – for an analogy for these notions.

²¹Peirce leaves it as an open, mathematical possibility that multiple universes could be generated with different timelines, but a scientific metaphysics can have no interest in these other universes because they are inaccessible (EP1: 278; RLT: 263).

and may well lead to further conflicts. Anancism, for its part, may only be a stop-gap, not so much fixing a problem as reshaping it. Imagine tectonic plates colliding, a conflict that is ‘resolved’ by one subducting and pushing the other upwards: we now have mountains but the earthquakes continue. Or think of the genetic mutation that produced resistance to the malaria parasite, only also to produce sickle-cell anaemia.

It is only agapism that can properly resolve a conflict by making the habits consistent with each other. Agapism, as a habit, becomes stronger – by the default mode – as it is instanced and so, ultimately, it is agapism that would come to dominate over the other modes of evolution and, at the infinitely distant future limit, have pulled the universe together into perfect nomic homogeneity: static and dead, devoid of any chance or brute interactions.²²

We are somewhere between the two limits of the universe’s evolution. Here, there are laws that may be nearly exact, but none that are perfectly so, and there is still pure chance abroad in the universe.

This, then, is Peirce’s account of how laws have come to be as he conceives them: local, mutable, probabilistic in nature, inexact and temporally oriented. Their locality is due to different regions of the universe evolving slightly differently. When the habits of those regions come into conflict, tychism and anancism may keep them apart although, ultimately, the operation of agapism would ensure their eventual mutual compatibility. Laws are only universal at the infinitely distant future limit, and we are not there.

Laws are mutable because they are products of evolution and thus subject to change. The evolution has not yet stopped, although the variations in our spatio-temporal portion of the universe may be very small. For much the same reason, laws are probabilistic in nature and inexact: what started as weak, random favouring of one way rather than other, over repeated instances became stronger. Only at the infinitely distant future limit would they become fully deterministic and exact. As for temporal orientation – as well as spatial orientation – time and space are logically prior to other habits. Every actualisation and every instance of any habit, reinforce the habits of time and space. They are thus always ahead in their evolution toward perfect nomic continua. Other habits, via agapism, then tend to become coordinated with the development of time and space, and so become

²²See Section 4.4.2 for some issues with agapism.

increasingly temporally – and spatially – oriented.

Since this is meant to be a scientific hypothesis, we would hope to deduce some predictions from it and while, as already mentioned, the cosmology needs further development, there is one prediction we can make now. According to the hypothesis, the universe is, at base, a matter of pure chance, pure Firstness. We would thus expect – if this hypothesis be true – that as we drill down, so to speak, into the fundamentals of the universe, we would find it becoming increasingly vague, more and more a matter of chance. This seems to be borne out to some extent with quantum theory and its associated experiments, but it is too early to make a definite assessment.

Now, whatever you may think of this cosmology and its consequences, we now move to show that it is a piece of scientific metaphysical theorising, in that it can be modelled on the theory of inquiry.

4.4.2 Cosmology as inquiry

As argued for in Section 4.1, the basis of our metaphysics should be our logic, in Peirce's broad sense of that word. Theory of inquiry provides its regulative hopes as starting presuppositions for metaphysical inquiry, but it also provides a ready-made model for any processes, namely the model of inquiry; to repeat what Peirce says:

Nature only appears intelligible so far as it appears rational, that is, so far as its processes are seen to be like processes of thought. (CP: 3.422)

So if we want to model a cosmology – or indeed any theoretical process – such that it is intelligible and it might be hoped to approach the truth of the matter, then a good starting place would be our best current model of truth-directed inquiry, for that demonstrates how we best reason. Of course, this is only our starting model, and the analogy with the process under consideration may not be exact, so we may need to supplement the basic model with some additional hypotheses appropriate to the target being modelled.

We will take the best model of inquiry as Peirce's and – to briefly recap some of Section 3.3 – this proceeds as in Figure 4.2. It starts with a surprising circumstance that frustrates expectations. Hypotheses are made that explain the circumstance and the hypotheses are ordered for testing. Consequences of the hypotheses are deduced which are then tested inductively. Hypotheses are then adjusted, discarded or carried through for further testing.

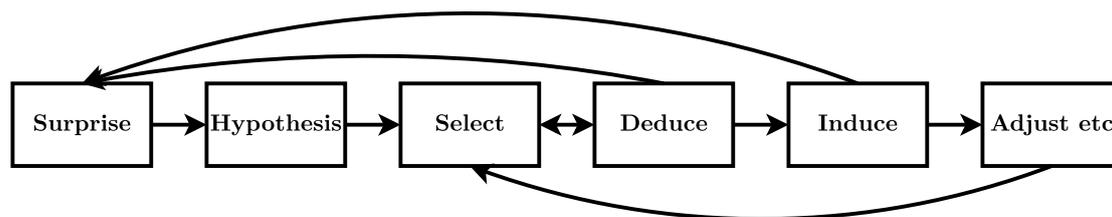


Figure 4.2: Peirce's model of inquiry.

If we take this as a model for cosmology, then we should think of the universe evolving in the manner in which inquiry proceeds, and Peirce's cosmology largely follows this pattern. To show this, first consider that taking inquiry as our model would make us wary of any claim that the universe is *deductively* closed, because theory of inquiry involves not only deduction, but also induction – understood as statistical inference – and abduction – creative formulation of explanatory hypotheses. The necessitarian makes just this claim and Peirce explicitly rejects it, maintaining that we should consider that the universe developed according to analogues of induction and abduction, and not just deduction (CP: 6.218). If the universe is to be such that we can inquire into it, we should expect analogues of all three modes of reasoning – of all three main stages of inquiry – to be abroad in the universe.

Abduction can be taken as the analogue of tychism – pure chance or originality – because it is the only way science generates new ideas (EP2: 205). Deduction, insofar as it involves mathematical necessity – Peirce regards mathematical reasoning as necessary reasoning (EP2: 36) – is a good fit for anancism, while induction will do for the default mode. Induction – understood as statistical reasoning – will suffer from a huge error when taking tiny samples from a huge population. This can be construed in the cosmology as the initial taking of a habit as a weak tendency. But induction is self-correcting over the long-run and, given enough independent random samplings, will get better and better at ascertaining the correct ratio, just as habits grow in strength the more they are instanced. Induction, of course, is never exact – except perhaps in some hypothetical infinite limit of samplings – and so laws are never exact, except at some hypothetical, infinitely distant future limit.

Other elements of Peirce's theory of inquiry make an appearance in the cosmology, fallibilism for example. Just as we can never be certain that we have alighted on a true

answer to a question, so the universe never alights on its future limit, but only continues to tend towards it. And the Peircean reply to the issue of a regress of explanations (see Section 3.5.1) also has its cosmological analogue. This regress can be considered in two temporal directions. Looking toward the future, it is not vicious because that is just how inquiry works, hypothesis after hypothesis, explanation after explanation, each getting clearer and closer to the truth. It is also how the universe evolves, vague habits becoming stronger and closer to being exact. Looking toward the past, the explanations get vaguer, the hypotheses tending more towards random guessing until, at some limit, there is nothing to distinguish any random guess from any other. So too in the cosmology, going back toward the infinitely distant past limit, what were once robust habits turn into weak tendencies and ultimately dissolve into pure chance.

We can draw a broader analogy with inquiry and the cosmology in that inquiry is a process that starts in a state of greater ignorance and, hopefully, ends in a state of less. Or perhaps better – because Peirce rejects the notion that objective chance has anything to do with anyone’s ignorance (CP: 6.74) – of a process that starts in a more confused state and ends in a less confused one: with a permanently settled belief in the case of inquiry and perfectly exact law in the other.

In this way, then, the cosmology can be understood as being modelled on the theory of inquiry and is thus an example of scientific metaphysical theorising in the sense earlier elaborated. This is, of course, only a good starting point for a cosmology and more work would have to be done, because a cosmology and a theory of inquiry are different things. For example, with Peirce’s cosmology there does not seem to be a good analogy between agapism and something in his account of inquiry. Several solutions have been proposed for this anomaly, although none are unproblematic.

Murphey (1961/1993, Chap.16) suggests that agapism is a mechanism proposed to achieve a certain aesthetic aim although, since the ultimate result of the operation of agapism is a universe that is static and dead, it may not be clear how such a universe would be aesthetically perfect. Hookway (1992, 213–216) suggests that agapism is introduced to satisfy Peirce’s religious sentiments, but this may be problematic because Peirce states that religious sentiment should play no part in metaphysical theorising (CP: 6.216) although, of course, he may be breaking his own guidelines. The solution offered by Reynolds (2014,

Chap.5) is to, in effect, merge agapism with the default mode, that the one is a consequence of the other. This has the advantage of leaving us with three modes of evolution – as expected from Peirce – instead of four, but a worry here is that weaker habits – those with fewer instantiations, governing fewer behaviours – seem to become, so to speak, forced to conform with stronger ones: this move cannot help when equally strong habits are in conflict.

There are further options. One is that agapism could be an analogue of systematicity, operational in the selection stage of inquiry. But systematicity is a theoretical virtue that does not itself advert to the truth of a hypothesis, but is appealed to to expedite inquiry, irrespective of whether the result is for or against the hypothesis at test. The universe has all eternity to work itself out, so trying to expedite its evolution seems an unlikely role for agapism. Another option is that it is to do with the aim, not of one inquiry at a time, but of *all* possible inquiries taken together. If all possible questions found true answers, then the real generals they represent – the habits – would have to be consistent with each other, and agapism is proposed as a mechanism by which that hypothetical eventuality might be attained. However, some possible actualisations may never, in fact, occur, and habits governing them never establish themselves – by analogy with some questions never being asked, which should be the case if we consider the space of possible questions as a continuum, in line with Peirce's doctrine of synechism – so this might just be a mechanism for wishful thinking.

Because it is so difficult to find a good analogue for agapism in Peirce's theory of inquiry, a better way to proceed would be consider it as a supplemental hypothesis, extending the model so it is about cosmology and not inquiry. As such it should be treated as any other putatively scientific hypothesis: we should decide on what it purports to explain – perhaps so-called 'fine-tuning' – whether it does, indeed, explain that, and whether it has experiential consequences. This would be part of the project mentioned earlier, of a modernisation of the cosmology, and no more will be said about it here.

Putting the anomalous agapism aside, it might be thought that some of the problems with Peirce's cosmology arise *because* it is not much more than an analogy of his theory of inquiry; it is certainly unfinished as a cosmology. Moreover, there may certainly be other ways that a (meta)physical process might be modelled on our best theory of inquiry, so

Peirce's version cannot be said to be the only possible such account.

Nevertheless, adopting a model based on our best theory of inquiry is, as has been said, a good starting point when we want a metaphysics that makes sense, one that is fit for the special sciences. Peirce's theory of inquiry is part of his logic, which involves all three of his categories, and so does his cosmology. We thus expect that a metaphysics of 'I II III' would be a scientific metaphysics.

4.5 Chapter summary

This chapter addresses two other issues pertinent to Peircean realism as a viable metaphysics for the special sciences. The first concerns the questions: why do we need a scientific metaphysics? What should it be like? And what basis should it have? The second, the questions: what does real Thirdness, real generality look like in the wild? If we are looking for laws of nature, how are we to recognise them? What would be their general characteristics?

The first issue was addressed by saying, in effect, that metaphysics is unavoidable since every inquiry has to start somewhere, with presuppositions, and the inquiry could throw doubt on those presuppositions. Metaphysical inquiry – inquiry into presuppositions – also has to start somewhere and that basis is given by the regulative hopes of truth-directed inquiry: the best place to start with metaphysics is what allows us to best inquire. This is how we characterise a scientific metaphysics.

Peirce's seven systems of metaphysics were then introduced as a framing device for this chapter and the next two.

The second issue was then addressed by comparing the necessitarian view of laws with the Peircean one, arguing that the former is not part of a scientific metaphysics, while the latter is. One difference is that the necessitarian finds it very difficult to give an account of how laws came to be as they claim. Peirce's account of how laws came to be as he claims – his evolutionary cosmology – is sketched, and it is argued that this counts as a piece of scientific metaphysical theorising, in the sense established earlier, in spite of its various problems. As such, it uses all three categories, so we should expect a viable metaphysics for the special sciences, insofar as those sciences are engaged in truth-directed inquiry,

should use all three categories.

This ends the first part of this thesis, which has presented the positive case for Peircean realism as a viable metaphysics for the special sciences. The categories – the theoretical basis for Peircean realism – have been discussed, as well as the Peircean notions of reality, truth, and inquiry, all essential to this project. Then arguments were made as to why we need scientific metaphysics and what it should be like, as well as how we should expect laws to look like. The conclusion is that a metaphysics of ‘I II III’ would be a viable scientific metaphysics.

To show that all three categories are needed, in the next part of the thesis, the tone turns critical, as we look at what goes wrong when one or another category is missing, and show that metaphysical quietism is untenable.

Chapter 5

Metaphysics without Thirdness

The last chapter was the end of the positive, more expository part of this thesis, presenting Peircean realism – a metaphysics of ‘I II III’ – as a viable metaphysics for the special sciences. This chapter begins the more critical part, showing what goes wrong when one or other of Peirce’s categories are missing – this chapter and the next – or when an attempt is made to dismiss metaphysics altogether with quietism in Chapter 7.

In this chapter, we will attempt to show that nominalism in general is not a good basis for any metaphysics, in that it seems to be self-stultifying at its core, and that ordinary nominalism in particular – a metaphysics of ‘I II’ – is not a viable metaphysics for the special sciences: it lacks the required resources. Bas van Fraassen’s constructive empiricism (Van Fraassen (1980, 1989, 2002)) will be used as a recent example of ordinary nominalism.

We will start by discussing the key characteristics of nominalism, as given by Peirce, namely: a certain view of reality; only a single mode of being; insistence on there only being individuals; and the denial of real generality.¹ This will give a tentative, sketchy typology of nominalism, along with some problems faced by positions along each of the branches (Section 5.1).

The last of these characteristics leads directly into more detail on ordinary nominalism and the problems it has with explanation and predictions (Sections 5.2.1 and 5.2.2), which are essential elements for truth-directed inquiry, according to Peirce. The failure of ordin-

¹See also Forster (2011) for a more in-depth treatment that focuses on the only-individuals feature; and Oleksy (2015, Chap.2) who lists 23 commitments, covering metaphysics, semantics, logic, epistemology, methodology, psychology, social thought and anthropology. His main concern is with this last (Oleksy (2015, Chap.4)) while the focus here is on metaphysics.

any nominalism in this regard is evidence that we need Thirdness for a viable metaphysics for the special sciences.

With all the problems faced by nominalism, as brought out in these sections, it might be wondered why anyone would want to adopt such a position, even though so many have, and Section 5.2.3 suggests some possible answers to that question.

The final sections are concerned with Van Fraassen’s constructive empiricism – a fairly recent nominalistic account of science that excited considerable interest – and whether it can bolster the case for nominalism as a viable metaphysics for the special sciences. Van Fraassen proposes that truth is not the aim for the natural sciences and special attention will be paid to this claim, since it could undermine the Peircean account (5.3.1). Then there will be a discussion on whether constructive empiricism has any resources to help the nominalist with explanation and prediction: and the answer is ‘no’ (Sections 5.3.2 and 5.3.3). Next, some problems with Van Fraassen’s modal nominalism will be discussed (5.3.4) and, finally, there will be a discussion of why Van Fraassen is a nominalist and what seems to be wrong with his notion of stances, which should be read as a criticism of what nominalists do to guard a metaphysics that, for a Peircean, is not worth protecting (5.3.5).

5.1 Characteristics of nominalism

Peirce complained repeatedly that the philosophy of his time was nominalistic, that ‘all modern philosophy is more or less tainted with this malady.’ (EP2: 70; see also CP: 1.19, 1.21, 4.1; EP2: 156–157). But it is not just philosophers:

The nominalistic *Weltanschauung* has become incorporated into what I will venture to call the very flesh and blood of the average modern mind. (EP2: 157)

Even now, a century or so on, as Howat (2020, 692) puts it: ‘the nominalism that Peirce opposed throughout his career is arguably hegemonic in contemporary philosophy’. With this in mind, we will look at how Peirce characterises nominalism, because it is not just a denial of real Thirdness, which results in what he calls ‘ordinary nominalism’. Rather it involves a cluster of related features – a certain view of reality, commitment to a single

mode of being and to there being only individuals, along with a denial of Thirdness – although it is not obvious which has logical or historical priority, because they all they seem to feed into each other in certain respects. Nor need a view have all these characteristics for Peirce to call it nominalistic: only one is needed, and a particular flavour of nominalism could have just one or any combination of these.

Peirce also notes that no one has given a thoroughgoing account of nominalism ‘and it is safe to say that no one ever will, unless it be to reduce it to absurdity.’ (EP1: 103) While no such account is attempted here – there is no room for a comprehensive survey, even if we are only sticking to the characteristics identified by Peirce – what is presented amounts to a very brief, tentative sketch of a typology of nominalism, alighting only on a few branches, along with brief criticism.

5.1.1 A distinctive view on reality

What Peirce regards as a key feature of nominalism is a certain view on reality, namely that it is something completely out of mind:

There must be such a thing [as reality], for we find our opinions constrained; there is something, therefore, which influences our thoughts, and is not created by them. We have, it is true, nothing immediately present to us but thoughts. Those thoughts, however, have been caused by sensations, and those sensations are constrained by something out of the mind. This thing out of the mind, which directly influences sensation, and through sensation thought, because it is out of the mind, is independent of how we think it, and is, in short, the real. (EP1: 88)

Both realist and nominalist can agree that there is something that constrains our opinions and is causally relevant to the production of sensations. What characterises the nominalist view – as opposed to the realist, who says only that reality is independent of opinions about it, of what is ‘arbitrary or individual in thought’, not of thought in general (EP1: 89, 139) – is to say that this something is completely out of mind, is in some sense unthinkable: incognisable, unrepresentable, incomprehensible, unintelligible or unknowable.

This immediately raises an issue, in that such a view seems self-stultifying, as discussed in Section 3.6.1. The view is that reality is unrepresentable but, if that were the case, that very notion could not be expressed. There are a number of ways that a nominalist might try to evade the problem of having a metaphysics that undermines itself in this way, but

only three will be mentioned here, all of which are themselves problematic.

Firstly, someone who appreciates the self-stultifying character of claiming that reality is completely incognisable may realise that, in holding to that view they cannot say what is and what is not real, what other characteristics reality has, and they certainly cannot claim that there is no real generality. Such realisation may well lead to some variety of irrealism: there is simply nothing that answers to the description of that which is independent of anyone's opinion about it.

Along this branch we can find the kind of subjective idealism that claims that we generate the world according to our thoughts. This position has problems with the phenomenon of surprise because, if the world is just as we imagine it to be, then nothing is out of our purview and we should not be able to be surprised; and yet we can be surprised by things that are not us, or by things we have not considered. Another view on this branch is the world-versioning of Goodman (1985), in which what we call 'reality' is constructed as we develop descriptive and explanatory tools. A critical problem for both of these views is that they are in conflict with the basic intuition that motivates the view of reality above, that in turn motivates the irrealism: namely, that our opinions are constrained by something that is not us. For the irrealist, the only constraints come from us. In abandoning reality, the irrealist undermines the motivation for that irrealism.

Another strategy for trying to avoid self-stultification is to say that reality is not of the nature of mind – or whatever nature is required to make something comprehensible – but has some other nature. This naturally leads to some kind of hard dualism – 'leaving as the ultimate elements, unrelated chunks of being' (CP: 7.750) – often between the mental and the material, but also, after the linguistic turn in analytic philosophy, between the linguistic and the non-linguistic. Along with the usual problems of trying to reconnect these unrelated chunks of being – as evidenced by the difficulties with Cartesianism – this branch has a serious problem when combined with another of the characteristics of nominalism identified by Peirce: that there is only a single mode of being (which we will come to shortly).

Let's take the case of a hard dualism between the mental and the physical, where the physical is considered real. With only a single mode of being, the mental has no being at

all – it is nothing – and all talk of it is simply empty.² This leads to, for example, the eliminative materialism of Churchland (1989) and is problematic because Churchland’s ability to express that thought gives it the lie. It drops us back into self-stultification in the sense expressed by Button (2013, 60): if thoughts have no being and all talk about them is empty, then it is impossible to express that thought, because such an expression would be empty. Here the nominalist could respond by saying that the mental has being, but only as derivative of the physical. But this is then in conflict with the dualism that puts a sharp divide between what is real – the physical – and what is not – the mental.

Another response the nominalist can make here is to say that talk of the mental is a paraphrase for talking about the physical – or whichever two parts constitutes the dualism. But then we no longer have a dualism at all, but a monism on, say, the physical. The problem with this is that we now have a single type of thing that is real, but which is not comprehensible to us, because that was the other side of the dualism. Making this move thus collapses this branch into the first, in which reality is completely incognisable.³

The last branch considered here – this is not a comprehensive survey and there may well be other strategies – is where what is real is neither admitted nor denied to be incognisable or incomprehensible but is instead placed in a realm where we cannot get at it. This is what Peirce calls ‘nominalistic Platonism’ where the nominalist:

‘supposes this *noumenon*, which, being totally unknown, the imagination can play about as it pleases, to be the emanation of archetypal ideas.’ (EP1: 100)

This is, by Peirce’s lights, bad metaphysics: it cannot be pragmatistically clarified because all possibility of experiential consequences are denied. Even though the nominalist may call this ‘reality’, it looks very much like a fiction in Peirce’s sense, in that it can be whatever someone thinks it to be, and since access to it has been denied, we cannot perform an inquiry to discover the truth of the matter.

On all three of these branches, it seems the nominalist can offer a pretty perfunctory dismissal of truth as a correspondence with reality, or as there being any connection

²I am relying here on Parmenides’s dictum that that without being is altogether nothing, and on the notions that every thought is about something and that language expresses thoughts. While these all might be up for discussion, Churchland seems to rely on them in his rejection of talk about beliefs and other mental furniture, so I feel justified in using them to argue against such a position.

³This could be the germ of an argument to the effect that any monism construed nominalistically ends up in irrealism, but that will not be elaborated here because it will take us too far afield.

between reality and truth. We cannot accurately represent something that is incognisable, or is of an entirely different nature to that which is doing the representing, or is hidden in an inaccessible realm. Although – at least in the second and third cases – this seems to be a matter of certainty rather than truth. It seems entirely possible to accurately represent something of a different nature to what is doing the representing, or something hidden in an inaccessible realm; we just don't know whether that is the case or not. On these two branches then, a nominalist could accept a connection between truth and reality provided that they are fallibilist and thus do not require certainty of a proposition's truth for it to be true.⁴

5.1.2 Only a single mode of being, existence

The next characteristic of nominalism that Peirce identifies is that of accepting only a single mode of being, that of brute existence (CP: 1.21, 5.503; EP2: 69, 180). He complains that this makes reality and existence co-extensive, when those two have different meanings:

... reality means a certain kind of non-dependence upon thought, and so is a cognitional character, while existence means reaction with the environment, and so is a dynamic character; and accordingly the two meanings... are clearly not the same. (CP: 5.503)

This would seem to apply to whatever mode of being is made co-extensive with reality, not just existence, since each of those would also have a different meaning to reality, but here we will stick with the equating of reality and existence. So everything that exists is real and everything that is real exists.

As just mentioned, accepting only a single mode of being becomes pathological when combined with a hard dualism, such as between the mental and physical or between the linguistic and the non-linguistic, since one or the other sides of the dualism has no being and all talk of it is empty.

Similarly, there is a problem for the nominalist when dealing with fictions. What is fictional is not real, and so does not exist. But with only a single mode of being, fictions have no being and are thus nothing and all talk of them is effectively empty. There can be no sense in calling a fiction 'convenient', 'expedient', 'helpful' or 'useful', because nothing

⁴Howat (2020) has argued that several arguments against correspondence accounts of truth make nominalist assumptions.

cannot be any of these things: it is not anything. Moreover, every nothing is the same nothing, so no distinction can be made between one fiction and another: Macbeth, Anna Karenina and Naruto are all the same emptiness.

This problem impacts a nominalist's ability to coherently deploy fictionalism in every domain although, with pure mathematics, the issue – on the Peircean line – is rather that mathematics has no commitment to the hypothesis of reality (see Section 2.2.2) and so the real-fictional distinction is inapplicable and fictionalism simply makes no sense.⁵

One move the nominalist could make here is to adopt – following Thomasson (2015, 2020) – a kind of ontological deflationism: our everyday discourse entitles us to speak of fictions as we would of existents, but we need not thereby become committed to fictions existing. We will take issue with this move in Chapter 7, calling it 'expedient freeloading' which, in severing the connection between commitments and entitlements, seems to involve a performative contradiction.

Another move is to adopt another mode of being or to make existence a gradual affair, although there would be difficulties reconciling this latter with the notion that what is real exists and yet is unthinkable, if the nominalist wishes to retain that notion. It would seem to require some feature of existents varying such that some existents were thinkable while others not. It is difficult to imagine what such a feature would be, although that might just be a failure of imagination on my part.

5.1.3 There are only individuals

Peirce usually pairs this feature of nominalism with accepting only a single mode of being, because he characterises an individual as a reactant, a relatum in a reciprocal dyadic relation, a component of Secondness and thus existent. As such, within Secondness, each individual is unique, perfectly *sui generis*, and this is all the nominalist has to work with. There is nothing else in the universe that makes one thing similar to another if all we have are individuals, so similarity is just a matter of someone happening to think two things similar (EP2: 69). Peirce elaborates the nominalist point thus:

For, while from this standpoint it may be admitted to be true as a rough

⁵For more problems with fictionalism in various domains see, for example, Leplin (1987), Blackburn (2005) and Daly (2008).

statement that one man is like another, the exact sense being that the realities external to the mind produce sensations which may be embraced under one conception, yet it can by no means be admitted that the two real men have really anything in common, for to say that they are both men is only to say that the one mental term or thought-sign ‘man’ stands indifferently for either of the sensible objects caused by the two external realities; so that not even the two sensations have in themselves anything in common, and far less is it to be inferred that the external realities have. (EP1: 88)

So this acceptance of only *sui generis* individuals gives the nominalist problems with real similarity which, in turn, leads to problems with explanation and prediction, as anticipated in Chapter 3 and which we will come to shortly.

Another problem is that, if a nominalist wishes to propose that there are real generals – say, in the form of real laws of nature or real regularities – then they have to say that those generals are individual existents, brute particulars, but this cannot be right. Generals are predicable of many things or, to use a different phrase, they are multiply instantiable. A brute particular is unique and is not, by definition, multiply instantiable. You cannot say that two brute particulars are the same because they are *sui generis*, there would have to be a different brute ‘general’ in every situation, but then it would not be general because it only applies to a single situation. In other words, to claim a general is a particular is to deny its generality.

5.1.4 Denial of real generality

The early-to-mid period Peirce seems to think this feature follows from the nominalistic understanding of reality (EP1: 88, from 1871). But the later Peirce accuses Hegel’s philosophy of being nominalistic (CP: 1.19; EP2: 143, 156–157, 180; all from 1903) while at the same time being entirely concerned with Thirdness (EP2: 164–165, 177, also from 1903). Since we are trying to stick with Peirce’s mature views, it seems that this feature can come apart from the nominalistic view of reality. Nevertheless, it is the denial of real generality that makes nominalism, *ordinary* nominalism, so before we look in more detail at the problems that that position has with prediction and explanation, we shall try to give it its place in this tentative, sketchy typology.

Under this head two branches will be highlighted, the first being the denial of generality *tout court*, the second admitting generality as a feature of human thought, language and

reasoning, but denying it to the rest of the universe.

The first branch can be further divided into two. The first of these sub-branches admits only that there are sensations, a position we might call ‘sensualism’. This denies not only Thirdness, but Secondness as well, so gives a metaphysics of ‘I’ on its own. This would seem to result in a kind of solipsism, in which someone is lost in a miasma of individual sensations, each of which is completely unconnected to any of the others, much like the ‘blooming, buzzing confusion’ that James (1918/2018, 488) imagines in the mind of a new-born infant. Without Secondness and Thirdness, the sensations would have to be uncaused, so there is no need for reality at all, and this view becomes allied to the first, irrealist branch of views towards reality.

A couple of problems for such a sensualism is how this confusion of unique sensations can lead to ideas and concepts and how we can even have sensations at all, given that there is no Secondness, no interactions through which a sensation can arise. Perhaps appeal can be made to the Platonic doctrine of anamnesis, in which our ideas don’t come from sensations at all but are recollections from the divine mind.⁶ But this seems to make sensation epiphenomenal, and so not the sole metaphysical kind at all. Rather it is the workings of the divine mind, which seems to involve Thirdness, that is the only kind.

Another option might be Leibniz’s windowless monads, in which there is no interaction, no Secondness, between mind and its environment, but rather each mind reflects the world from a certain perspective because it has been divinely ordained to do so (Leibniz (1973, 187–189)). But, again, this seems to subordinate the Firstness of unique sensations to the Thirdness of divine organisation. A third option might be that our sensations are random noise that just happen to coincide with the world sufficiently well for us to function in it. This has the advantage of not having to appeal to some obscure Thirdness, pure chance itself being a Firstness. But this posits an existent world with which we interact, thus requiring Secondness.

However, a basic problem with all of these options is that they are, for the sensualist, merely idle speculation, since they simply do not have the resources to properly formulate or choose between them. They do not even have the resources to say that there is anything that feels the sensations, since that would require Secondness, a dyadic relation between

⁶This is found in the *Meno* and *Phaedo*.

sensation and feeler. Firstness alone is just not enough, because we cannot even experience a sensation without Secondness.⁷

The second sub-branch might have a claim to be an etymologically pure nominalism, in that it is all about names. Here Secondness is admitted but real generality is denied, its appearance being accounted for by what names happen to have been given to which objects, and naming is a matter of arbitrary, historical imposition. There is no need here for any real similarity between objects nor for generality in human language, which can be construed as a bunch of arbitrary names assigned to objects for no better reason than someone happened to think it apposite. This is the view that Peirce ascribes to Hobbes, and says that Hobbes extends this to truth and falsity, which:

have no place but among such creatures as use speech, for a true proposition is simply one whose predicate is the name of every thing of which the subject is the name. 'From hence, also, this may be deduced, that the first truths were arbitrarily made by those that first of all imposed names upon things, or received them from the imposition of others. For it is true (for example), that *man is a living creature*, but it is for this *reason* that it pleased men to impose both those names on the same thing.' (EP1: 95. The internal quotation is from Hobbes (1839, 1:36).)

This is odd. According to this, the two propositions 'Socrates is wise' and 'Fido is wise' have the predicate 'is wise' because of the arbitrary whim of someone who could impose that whim as a linguistic convention. But we don't seem to know what 'is wise' means. The meaning might well depend on the intentions of those shadowy figures who imposed their whims on language, but those intentions could have been quite different in each case, and 'is wise' thus means something different each time.

Perhaps what is going wrong here is that this view does not appreciate that when we use language to communicate, what is important, and what we hope to be conveyed, are concepts, not collections of phonemes or glyphs. The names may be arbitrary – as evidenced by different names in different languages for supposedly the same thing, although a nominalist cannot admit that two things are really the same – but the concepts these different words bring to mind can be shared. We can also find evidence against this view in the modern nomenclature in chemistry and biology, which is meant to track real similarities between objects.

⁷See also Section 7.2.1, which considers the Pyrrhonist as a pure phenomenologist, concerned only with mere appearances, Firstnesses.

A variant of this sub-branch is identified by Peirce in Berkeley, who maintains that we have no general ideas (EP1: 96–97; Berkeley (1710/2009, Intro §§10–19)). Any ideas we have are just as the sensation that induced them. So, for example, we cannot have a general notion of a triangle, but only of some particular triangle with which we have had sensory contact. This seems to fly in the face of the psychological facts. I can have a general notion of a triangle, as a closed figure comprised of three lines, each joined to another at their ends. I cannot picture this in my mind’s eye because it is not itself a triangle but a rule for possible triangles. However I can picture,⁸ through the exercise of my imagination, all sorts of triangles that conform to this rule – non-planar as well as planar, with curved lines and straight – almost none of which I have ever had a previous sensory encounter with. Perhaps the problem with the Berkeleyan view is a difficulty in conceiving an idea as anything other than as a mimic of a sensation.⁹

The second main branch here is that generality is only found in human thought, language and reasoning, which is found most clearly in Locke and Hume. One problem with this is that it sets up a dualism between humans, which have generality, and everything else, which doesn’t, and we have already seen that dualisms can become pathological when combined with a commitment to a single mode of being. In this case, a decision has to be made about which side of the dualism has humans and which has everything else, which is real and which has no being. Neither of the options looks attractive. If humans are real then they are incomprehensible and the rest of the universe is empty; if the rest of the universe is real then humans, while comprehensible, have no being and are simply nothing, so the comprehensibility is irrelevant. The nominalist, to avoid this, would seem to have to adopt one of the options mentioned above – discarding the dualism and perhaps becoming irrealist with all the problems that entails, or accepting another mode of being – although, of course, there may well be other alternatives not considered here.

If the nominalist can find a way around that issue, there is another worry in that they seem unable to say true things about anything that is not human language and reasoning.

⁸Of course, this ability to mentally picture something is not universal: there are some people with aphantasia. Nevertheless, the empirical counterexample is me, without aphantasia, and Berkeley’s argument here is psychological, not logical. The presence of aphantasia affects his argument as much as it does mine; perhaps more so, because it threatens the whole notion that all ideas are only mimics of sensations.

⁹For Peirce, Berkeley’s variety of nominalism results in a metaphysics of ‘I III’ not ‘I II’ so is not ordinary nominalism. In the next chapter we will look at what happens when Secondness is missing from a metaphysics.

Given that predicates of propositions are invariably general – a predicate that only applied to a single, unique thing would not be of much use – then, on the view that there is nothing general outside of human language and reasoning, there is nothing in the universe to which that predicate could be applicable, and so nothing true can be said of anything out there.

There may also be an issue with saying true things about human language and reasoning, since that would have to be real, which is a feature of the other side of the dualism. The metaphysics, in the Peircean sense, that someone accepts, traces out the domain over which they can say true things, given that there is a connection between truth and reality. It has already been suggested that a nominalist can accept such a connection on two of the three branches concerning their view of reality (Section 5.1.1) although such acceptance entails fallibilism and denies certainty. Nevertheless, a nominalist may want to sever the link between truth and reality so they can say true things about their own language without being committed to its reality. It is here that we find attempts to specify truth exclusively as an internal feature of language, having nothing to do with anything else, least of all reality; although, of course, the problem with modes of being has to be resolved to stop talk of language being talk about nothing. Included amongst these would be various deflationary approaches to truth, such as that of Horwich (1998), and the global expressivism of Huw Price (see for example, Price (2011) and Price *et al.* (2013)). We'll say something very briefly about both here and elaborate further on Price's approach in Section 7.4.

Deflationary approaches usually involve an equivalence schema – $N(S)$ is true iff S – where S is a sentence and $N(S)$ is a name of the sentence S such that it can be referred to. Now this could be construed just as a truism about the use of the predicate 'is true' when applied to sentences and does not, by itself, threaten any truth-reality connection. Indeed, when Tarski (1944) formulated this conditional, it was as a minimal adequacy condition for a theory of truth, but not itself a theory of truth. What does seem to damage that link is the additional claim that truth is exclusively internal to language and that this scheme expresses all there is to truth. To avoid a long discussion, we will simply say that this is clearly not the case, since the deflationist has not told us how to evaluate the right-hand side of the conditional, how to decide whether S is true; the schema alone is insufficient.

So deflation only severs the truth-reality link by leaving us with a mystery.¹⁰

Global expressivism is intended by Price to be an account of language *qua* language, rather than language *qua* world. He is critical of what he sees as talk of language as paraphrase of talk about worldly objects (Price (2011, 189-190)), which means that the paraphrase option for resolving the modes-of-being issue is not available to him. He seeks to explicate the meanings of words, including ‘truth’, by appealing to genealogies of human linguistic practices, and his account of truth is supposed to be free of metaphysical commitments, such as a connection with reality (Price (2003)). However – despite remarking on the importance of the environment (Price (2011, 12)) – he is so keen not to include anything extra-linguistic that these practices have to arise and evolve in a vacuum, isolated from any environment. Linguistic practices, like all actions, are interactions with the environment, and the environmental response from those actions is important to the evolution of the practice. But Price, in so isolating linguistic practices, excludes this feedback in his genealogies. It is thus mysterious how the practices could have arisen and evolve when there is no environmental feedback. So, like deflation, a split between truth and reality is only achieved through leaving a mystery. Moreover, in this case, this refusal to accept environmental feedback seems to undermine the nominalist’s commitment to Secondness, since Price has action but no reaction: he forgets about the outward clash (CP: 8.41).¹¹

Peirce is scathing about the view that generality is only found in human language and reasoning (EP2: 157, 178), wondering how humans could have such a power of generality found nowhere else in creation:

I confess I wonder how any philosopher can say ‘Oh, Thirdness merely exists in thought. There is no such thing in reality.’ You do know I am enough of a sceptic to be unwilling to believe in the miraculous power he attributes to the mind of originating a category the like of which God could not put into the realities, and which the Divine Mind would seem not to have been able to conceive. (EP2: 178)

Putting this in more secular terms, we can ask how humans could have evolved a capacity for generality when there is no generality abroad in the environment, no affordance against

¹⁰For further discussion on deflationary truth, see Stoljar and Damnjanovic (2014) and the references therein.

¹¹Lane (2018) points out that neither of these approaches defines truth, in the sense that it is not clarified to the second grade of clarity, which makes explicit the relations between one concept and others. It is thus not clear what it is that these approaches are talking about. Both rely only on the bare occurrence of ‘is true’ in discourse. This objection is elaborated further in Section 7.4.1.2.

which the trait could be selected. If there is nothing general in the environment, then there seems no advantage to evolving a generality trait: it couldn't help our predictions come out correctly, our actions to be successful, every generalisation we make would be false of the environment and action could only be successful by sheer fluke. Perhaps the nominalist might claim that this trait is an exaptation, in this case a random mutation that is neither advantageous nor deleterious to the species' survival, so it just hangs around. But then it is odd how important it seems to be for us in organising our experience so that it makes sense to us such that we can use it as a guide for action. If that is what the generality trait allows us to do, then it would seem to be a distinct survival advantage, and it could only work as such if there were affordances of a general nature in the environment that we could exploit in our actions.

Another issue with this branch is that it makes generality a psychological matter, to be decided by the special science of psychology when, for Peirce it is a matter for logic, for the normative science of good reasoning: 'to found the science of the general upon the science of the special is absurd.' (EP2: 385).¹² Logic tells us what is good reasoning and psychology relies on such a logic if its own reasonings are to be good. Psychology cannot be the source of logical principles because it would end up begging the question against itself (CP: 2.210, 3.432).

This ends this tentative sketch of a typology of nominalism, and we now move to some more detailed considerations concerning ordinary nominalism and its problems with explanation and prediction.

5.2 Ordinary nominalism

Ordinary nominalism, according to Peirce, admits Firstness and Secondness, but denies Thirdness, so is a metaphysics of 'I II' as shown in Figure 5.1

At first glance, ordinary nominalism¹³ – the denial of real generals, a metaphysics of 'I II' – appears to be a simpler metaphysical hypothesis than allowing in such things as natural kinds and real nomicity. After all, dispensing with a whole ontological category is

¹²Further statements of Peirce's anti-psychologism in logic include: EP2: 140, 157, 178, 189, 217, 256–257, 309, 311, 385–387, 471; CP: 2.30–2.66, 2.70, 2.185, 2.252, 2.353, 2.604, 3.432, 5.28, 5.110.

¹³Just 'nominalism' for the rest of this chapter, unless otherwise qualified.

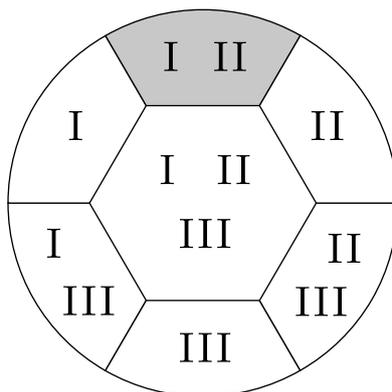


Figure 5.1: Peirce's seven systems of metaphysics with one portion marked. Adapted from EP2: 149, 164, 180.

surely parsimonious. Indeed, Peirce urges that:

Everybody ought to be a nominalist at first, and to continue in that opinion until he is driven out of it by the *force majeure* of irreconcilable facts. (CP: 4.1)

Peirce is not clear on what exactly these 'irreconcilable facts' are, but along with what has already been said in the previous section, nominalism has problems with explanation and prediction, leading to the impossibility of scientific inquiry on nominalistic principles (see also Haack (1992, 24–29)). For Peirce, explanation and prediction are stages in inquiry, and they both involve generals, which are hoped to be real for the inquiry to be truth directed.

5.2.1 Ordinary nominalism and explanation

Explanations and explications are attempts to make sense of something. For Peirce, explanation is an essential component in inquiry since we propose explanatory hypotheses to account for surprising situations, situations that frustrate our expectations. If we did not have explanations, we could not deduce consequences from them and there would be nothing to test. An explanatory hypothesis proposes a general of which the surprising situation is an instance and, because generals outstrip their actual instances, there will be other consequences of the general that can be tested for, to find evidence for whether the proposed general is real or fictional.

Because they deny reality to generals and only accept individual existents, the nominalist cannot proceed in this way. Moreover, while their expectations can be frustrated,

what in the environment is frustrating them must be an individual existent, a brute fact; indeed, what may be frustrating is that the puzzling situation seems to involve a general. Since a brute fact cannot be explained, the nominalist is more or less forced to explicate a puzzling situation by simply redescribing it (CP: 6.273) or by saying that it is the same as, or relevantly similar to, some other situation, which is supposed to be better understood. Cathy Legg's nice comparison of realist and nominalist explication has already been quoted (in Chapter 3), but it bears restating:

To explicate a phenomenon ('X') in a nominalist spirit is to locate (or postulate) *an entity, or set of entities*, with which X may be *identified*. . . .
On the other hand, to explicate X in a realist spirit is to *provide general principles of which X-like phenomena are a special case*. (Legg (2020, 591, 592))

Since the nominalist only accepts individual existents, what they point to in their explications will be brute particulars, there being no real reasons that they can point to. So they explicate one fact – which, despite appearances, must be brute by their principles – by pointing to another brute fact. But if both *explicandum* and *explicans* are brute facts, there does not seem to be anything that is doing any explaining, because there is no reason for a brute fact because it is, well, brute. It thus seems that to try and explicate one brute fact by pointing to another is just to say that the original fact is inexplicable (EP2: 69–70) and blocks the way of inquiry (EP2: 49). This is why the nominalist has to presume, or hope, that the second fact is somehow better understood than the first.

An individual existent, a brute fact, is a dyadic relation in which the relata interact with each other. To say that another fact explains that relation is to make the explaining relation general, in that it applies to both of the relata in the dyad. We thus have a triadic relation, in which the explaining fact brings the relata in the dyad together. The nominalist will say that this triad is only in human thinking, that it is not real and not in the environment. But then the explication, if the second brute fact is taken to be explaining the first, does not say anything about the puzzling situation, but only about someone's opinion of it.

A problem that might arise with realist explanations is that of a regress. Since every explanation involves a general, that general is itself explicable, because it is not brute and anything not brute is explicable. We thus get a chain of explanations. The worry is that

this leads to an infinite regress but, as discussed previously (in Section 3.5.1), this is not vicious on the Peircean line. The chain, when considered as extending into the future, is just how inquiry works and, when extending into the past, dissolves into random guessing.

But this worry may also apply to nominalistic explication because the brute fact pointed at may not be considered any better understood than that which is supposedly being explicated. In this case, the second brute fact might be explicated by pointing at another, and yet another, until this bottoms out at what the nominalist supposes everyone understands, namely their own presuppositions, including their nominalist belief that there are no real generals. We might conjecture that the worry of just such a chain could be a reason that nominalists don't want to talk about metaphysics, because they might lose the stopping point of this regress. Indeed, it makes it difficult for a nominalist to explicate their own presuppositions – because there is, supposedly, nothing else better understood – and thus difficult for them to engage in metaphysical inquiry in good faith. They may consider it best to avoid explication entirely.

There are a couple more problems with nominalistic explication, apart from it not explaining anything. The first is that the second brute fact has to be the same, or relevantly similar, to what is being explicated. Earlier, we discussed how same-saying requires generality (Section 3.6.2) and those considerations apply here. Since anything can be the same or similar to anything else in any number of respects, we need to specify in what respect the two things are the same or relevantly similar in order to make out the claim that *those* two things are the same or relevantly similar, that one particular situation is such that it can be used as an explication of another. This respect is a general because it has to apply to both of the situations and, for the similarity to be real and not just a matter of someone's opinion, then that general has to be real. Nominalists deny real generality so it seems that they cannot claim that the two situations are really the same or similar, but only that someone happens to think them so.

The second additional issue is that, as Legg (2020, 592) puts it, only realist explications 'have modal force and are thus *explanations*.' Only explanations can be mined for predictions to be used in inquiry; we cannot make predictions from nominalistic explications which only point to particulars. Predictions are forthcoming from an explanation because the general involved is a way or reason for the behaviour of the situation. Even if

a nominalistic explication postulates novel entities, we cannot test such a proposal unless how those entities are meant to behave is also specified: entities exist if they react, but to distinguish one entity from another, and to spot if a novel entity is present, the *ways* they react have to be distinguished. Moreover, it seems unlikely that novel entities would be better understood than more familiar ones, and an attempted explication that postulates them may well fail to make sense of a puzzling situation, it might seem only to replace one mystery with another. This consideration may lead a nominalist to reject explication as a key part of scientific inquiry, since it does not, by their principles, seem to advance the process, only appealing to what is already understood.

But if there are no explanations, there are no hypotheses, and the prospects for truth-directed inquiry are seriously impaired on nominalistic principles, which would make nominalism not an appropriate metaphysics for the special sciences.

5.2.2 Ordinary nominalism and prediction

Some of the same considerations apply in the case of prediction. Again, Peirce regards this as an essential part of the process of inquiry: from explanatory hypotheses – which, at most, we only suspect might be true – consequences are deduced which are predictions that can then be tested. As discussed earlier (in Chapter 3), this way of arranging the elements of the process of inquiry sidesteps the problems for induction raised by Hume and Goodman: induction is no longer a source of predictions and what is being tested is predesignated.

And again, their denial of real generality gives nominalists problems with prediction: all they have to work with are unique individuals and their brute interactions. When asked to account for how predictions can come out successfully – how we seem to know that something will happen when that event is not yet existent and thus seemingly out of scope for the nominalist – their style of explication requires them to point to some brute fact to account for this circumstance, and we have all the problems associated with nominalistic explication as discussed above. The fact pointed to in this explication might well be what is claimed to be a regularity; but to further claim that this regularity is real, and not merely that someone happens to think there is a regularity, is problematic for a nominalist. Aside from the Peircean complaint that it is a category error to claim that a

regularity, as a general fact, is brute – claiming that a Thirdness is a Secondness – there is, again, an issue with same-saying. To say that there is a regularity is to say that there is a sequence of situations, all of which are the same or relevantly similar. As before, for this claim to be made out there has to be a general in virtue of which the situations are the same or relevantly similar – which specifies the relevant respect – and for the regularity to be real, this general has to be real. Nominalists deny real generals, so it seems that they cannot claim that there are any real regularities, only that someone thinks there is a regularity.

The nominalist might respond to this by claiming that if everyone – or at least, a sufficient number of suitably qualified people – thought that there was a regularity, and agreed as much, then that is enough to establish a real regularity. But the same argument can be run again: to say that a group of people have the same opinion there must be a general in virtue of which they are the same and for that agreement to be real and not just imagined, that general must be real, that is, independent of anyone’s opinion about. Since a denial of real generality prevents this, it would seem that nominalists cannot appeal to sameness of opinion.¹⁴

With all these problems for a nominalistic account of prediction – along with Hume’s problem and Goodman’s grue – a nominalist might decide that they shouldn’t bother with prediction, much as they might decide not to bother with explanation. Indeed, Peirce remarks that nominalists: ‘do not commonly attach much importance to prediction, anyway, and often seem to hate to hear it talked about.’ (EP2: 70) But, on the Peircean line, prediction is an essential stage in truth-directed inquiry. So, as with its failings when it comes to explanation, nominalism does not look like an adequate metaphysics for the special sciences.

5.2.3 Why be a nominalist?

It might be wondered, with all the problems faced by nominalism, why anyone should adopt such a metaphysics, especially as so much modern philosophy has been nominalistic.

Peirce offers a historico-political explanation for this circumstance (CP: 1.17–1.19,

¹⁴There is here the germ of an argument to the effect that there can be no genuine consensus on nominalist principles, but there is not room here to properly elaborate this.

2.166–2.168, 4.34–4.35, 6.348). He argues that when learning revived in the late renaissance, Scotistic realism, then favoured by the Catholic church, had become entrenched in the universities of the time, but there was no-one of the intellectual capability of a Duns Scotus or William of Ockham to argue the case either way. Those in control of the universities resisted the new learning and thus realism became seen as old-fashioned and fogyish, while those who would reform learning did not want to spend time on the intricacies of century-old scholastic disputes. When the old Scotists died, their doctrine went with them. Ockham – understood as the founder of modern nominalism – was seen as a kind of champion of free-thinking, fleeing from the intellectual tyranny of the church to the protection of the emperor. Moreover, scholasticism was bound up with theology, which insisted that only those explanations approved by the church were permitted: theology was sham and not genuine inquiry.

Peirce sees Ockham as primarily a political figure in this: he was much concerned with opposing increasing encroachments of papal power and he spent much of his time under the protection of the emperor writing political treatises favouring secular power over sacred. Nominalism, under the aegis of Ockham, thus became associated with this political campaign – emperor versus church, freedom versus oppression, exciting new learning versus moribund tradition – and any philosophical arguments for or against it faded against the background of this political movement.

The prime motivation for modern nominalism, for Peirce, is thus political: the doctrine was adopted without it being adequately examined by those who wished to shift the political ground and, once that ground shifted, no one had any interest in examining it, since it had become associated with being in what many considered a better social and intellectual environment than before. But this was just an accidental historical conjunction, there being nothing about the doctrine, compared with realism, that makes it distinctively supportive of freedom from oppression. Rather, Peirce thinks that nominalism, uncritically accepted, has been used to justify the promotion and systematisation of individual greed, leading to an re-entrenchment of social, economic and political inequalities (CP: 1.75, 6.290–6.294).

Nevertheless, Peirce praises nominalistic philosophers for making valuable contributions to science and for pushing the application of nominalism as far as it could go because

‘the only satisfactory way of ascertaining the insufficiency of the theory was to push the application of it’ (CP: 4.35). However, he thinks that because the ultimate motivation for nominalism is political, not philosophical, once that insufficiency is made out, it would require the nominalist to change their politics and, in response, he thinks they would:

employ every means in their power to discredit and personally hamper those who reject it [nominalism] and to prevent the publication and circulation of works in which it is impartially examined. That is not the conduct of philosophers, however wise it may be from the point of view of statesmanship. (CP: 4.35)

If nominalism is ultimately motivated by an accidental political association, then this would account for Peirce’s observation that nominalists tend to think that everyone is a nominalist (CP: 5.503): that if someone has the characteristics of the tribe of philosophers, they must be nominalists; that if someone values various freedoms – such as of thought, speech, worship – they must be nominalists; that if they happen to have any values associated with the secularisation and democratisation of knowledge, with the advancement of the natural sciences, then they must be nominalists. So when Richard Rorty argues that philosophy is the handmaid of politics,¹⁵ this can be construed as an honest admission of the political motivation for nominalism. It would also account for what seems to be a tendency among nominalists to try and evade scrutiny of their own metaphysics: from assuming that everyone shares it for political expediency, as just mentioned, to trying to dispense with metaphysics altogether, as the logical positivists attempted, to adopting some variety of quietism, a few of which will be looked at in Chapter 7. But the nominalist should not be afraid of such scrutiny, if they consider their metaphysics sound and not just the product of an accidental political association. As Peirce says:

Whether we have an antimetaphysical metaphysics or a pro-metaphysical metaphysics, a metaphysics we are sure to have. And the less pains we take with it the more crudely metaphysical it will be. (EP1: 108)

This leads nicely to another historical explanation for the prevalence of nominalism, which is offered by Van Fraassen (2002); although he uses the word ‘empiricism’ rather than ‘nominalism’, the two are, for him, inextricably entwined. His thought is that nominalism has repeatedly turned up in the history of philosophy as a response to metaphysical

¹⁵In, for example, Rorty (1991b,a) and Rorty (2007).

over-reach, whenever metaphysics has become preposterous and irrelevant; basically, it is a response to what was seen as bad metaphysics. Nominalism undermines the call for explanation that Van Fraassen thinks is at the root of bad metaphysics. This can – like Peirce’s political approach – account for the nominalist’s presumption that everyone must be a nominalist: no one likes bad metaphysics. However, a worry here is that it doesn’t seem to be the whole story because there are other ways of dispensing with bad metaphysics – such as Peirce’s maxim of pragmatism (EP2: 338–339) – although there would be the matter of the availability of viable alternatives, which is a historical question for which there is no space to go into here. So, while it may not be the whole of the story, we can have response-to-bad-metaphysics as part of the reason for the prevalence of nominalism. We will return to Van Fraassen’s view on this point in Section 5.3.5.

To these two historical views, we might very briefly add some more, somewhat speculative reasons for the prevalence of nominalism. Perhaps the Enlightenment attitude, extending through the industrial revolution, that humans can control nature and bend it to their will, suggests that humans have some power not found in nature, namely generality. Perhaps there has been a certain metaphilosophical attitude that philosophy has nothing to do with truth and we cannot inquire into presuppositions, although this might be a consequence of nominalism rather than a distinct view.

Perhaps there has been a curious numerological obsession with the number two, much as Peirce has been accused of having an obsession with the number three.¹⁶ The nominalist’s single mode of being, existence, is a matter of opposition, of brute reaction, of twoness. There seems to be a tendency to form dualisms to try and explain away generality and a preference for infinite unidimensional sequences of particulars, to account for an appearance of generality, such arrays being a matter of twoness insofar as they can be specified by the relation between any two components. But just as no numerological superstition is involved with Peirce’s concern with threes – it is a matter of mathematics and logic – similarly a concern for twoness probably just comes from the thought that, since classical logic is bivalent, and logic is universal, then everything ought to come in twos: one true, one false; one good, one bad; one black, one white. This naturally leads to the thought that trivalence is only imaginary. And of course, two is less than three, what

¹⁶Rorty (1992, 93) calls Peirce a ‘whacked-out triadomaniac’.

is made of twos is supposedly simpler than what is made of threes, and simpler is always better. Although, as pointed out by Susan Haack:

...it isn't obvious that a theory extravagant in ontology but economical in syntax, for example, is more complex than a theory economical in ontology but extravagant in syntax. (Haack (1977, 379n3))

These last possible reasons are, as mentioned, somewhat speculative, and there's no space here to flesh them out further, but hopefully they are suggestive for where further reasons for the prevalence of nominalism might be found.

We now turn to an examination of some key elements of a modern example of nominalism in the philosophy of science, namely constructive empiricism.

5.3 Constructive empiricism

Constructive empiricism is Bas Van Fraassen's account of the natural sciences, first proposed in *The Scientific Image* (Van Fraassen (1980)) and further elaborated in subsequent publications (such as Van Fraassen (1985, 1989, 1994, 2007)). Monton and Mohler (2021) call constructive empiricism a 'doctrine' and this immediately raises a problem because that suggests it involves claims that could be true or false. After *Laws and Symmetry* (Van Fraassen (1989)) and *The Empirical Stance* (Van Fraassen (2002)) it became clear that Van Fraassen is not claiming that constructive empiricism is true, but only that he is recommending it as an account of the natural sciences for adoption by those who are already nominalistic empiricists.¹⁷ Initially, he contrasted his view with a version of scientific realism – itself a blanket term covering a multitude of views, perhaps best organised by Psillos (1999) – seemingly claiming that the latter was mistaken in some important respect. But later, after adopting 'English' rationality – that it is rational to believe anything that is not explicitly forbidden as irrational (Van Fraassen (1989, 171–173)) – he maintained that it was perfectly rational to adopt scientific realism. So it seems that we will have to tread carefully if arguing that some claim of Van Fraassen's is false, or that constructive empiricism is, in some respect, irrational.

Further complicating a Peircean critique of constructive empiricism is that there are a number of similarities between the views of Van Fraassen and Peirce, albeit with im-

¹⁷Alspector-Kelly (2001, 2006) argues that the recommendation be declined.

portant caveats. For example, firstly, they are both concerned with dispensing with bad metaphysics, though their strategies for doing so are quite different, and more will be said on this in Section 5.3.5. Van Fraassen's notion of acceptance of a theory (Van Fraassen (1980, 4, 12)) has a certain kinship with Peirce's holding a hypothesis 'on probation' (for example, EP2: 25, 73, 95), although acceptance involves a belief in empirical adequacy while Peirce's probation is not a belief in anything, only a suspicion that motivates testing. Peirce's maxim of pragmatism – the requirement that an acceptable hypothesis have possible experiential consequences – finds an echo in Van Fraassen's distinction between observable and unobservable, and his view that we should only be concerned with the former. However, Peirce has a much broader notion of experience than Van Fraassen, even though the latter has broadened his own compared with the classical British empiricists, and the maxim of pragmatism implies some sort of modal realism, which Van Fraassen rejects. And the last example is that both of them agree that theoretical virtues alone do not advert to the truth of a theory, although Van Fraassen maintains that the strength of a theory does advert to its empirical adequacy.

Bearing all this is in mind – and also that constructive empiricism has many elements, all of which we cannot hope to examine in the space available – the approach taken here is to stick with the aim of this chapter and only address those elements that bear on the question of whether ordinary nominalism is an adequate metaphysics for the special sciences, natural sciences included. These are: the claim that the aim of scientific inquiry is not truth, but empirical adequacy; dismissing explanation and prediction as being inessential to the epistemic aim of scientific inquiry; and the claim that modality is only a feature of how we represent the world, but there is none to be found in the world outside of those representations. Perhaps Van Fraassen's best *précis* of his own position is this:

To be an empiricist is to withhold belief in anything that goes beyond the actual, observable phenomena, and to recognize no objective modality in nature. To develop an empiricist account of science is to depict it as involving a search for truth only about the empirical world, about what is actual and observable. Since scientific activity is an enormously rich and complex cultural phenomenon, this account of science must be accompanied by auxiliary theories about scientific explanation, conceptual commitment, modal language, and much else. But it must involve throughout a resolute rejection of the demand for an explanation of the regularities in the observable course of nature, by means of truths concerning a reality beyond what is actual and observable, as

a demand which plays no role in the scientific enterprise. (Van Fraassen (1980, 202–203))

First we will discuss the notion of empirical adequacy as the aim of science, since this could undermine Peirce’s account, and we’ll find that it doesn’t. Then we’ll briefly review whether Van Fraassen’s views on explanation and prediction can help the metaphysical case for nominalism followed by a look at the consequences of Van Fraassen’s denial of real modality. This section, and the chapter, ends with some thoughts about Van Fraassen’s position with respect to metaphysics and his notion of stances. Overall, though, constructive empiricism neither threatens the Peircean account, nor makes any new arguments in favour of the viability of nominalism as a metaphysics fit for the special sciences.

5.3.1 Constructive empiricism and the aim of inquiry

Peirce thinks that the aim of inquiry is truth, that you have to aim at truth if you genuinely want an answer to a question, even if it later transpires that the truth of the matter turns out to be more elusive than you hoped. If you don’t aim at truth, then you are not that bothered about an answer, and you are shamming inquiry for some purpose other than finding an answer to a question. This applies to all disciplines of inquiry.

Van Fraassen maintains that inquiry in the natural sciences aims, not at truth, but at empirical adequacy. If this is right, then the Peircean account would be undermined. Here, I endeavour to show that it is not right, that by itself empirical adequacy is not an achievable goal, and that by Van Fraassen’s own lights.

A theory is empirically adequate:

exactly if what it says about the observable things and events in this world, is true – exactly if it ‘saves the phenomena’. A little more precisely: such a theory has at least one model that all the actual phenomena fit inside. I must emphasize that this refers to all the phenomena; these are not exhausted by those actually observed, nor even by those observed at some time, whether past, present, or future. (Van Fraassen (1980, 12))

He further elaborates the idea that the phenomena ‘fit inside’ a model of a theory. A theory, for Van Fraassen, is made up of a collection of models. These are representations of the world, of how the inquirers think the world might be, or could be, or should be, given that the phenomena are as they are. They are thus intrinsically modal and, for Van

Fraassen, they are *the* source of modality, there being none anywhere else in the world. However, the possibilities that can be described by these models have to include the actual phenomena, and the structure of this description is what Van Fraassen calls the ‘empirical substructure’ of the models (Van Fraassen (1980, 43, 45, 64–67, 84)). A theory is thus empirically adequate if the structure of all the phenomena – or perhaps better, all the descriptions of all the phenomena – are isomorphic to this empirical substructure.

5.3.1.1 Which ‘phenomenon’?

Before arguing that empirical adequacy is, by itself, unachievable, it would be good to be clear on how exactly ‘phenomena’ is to be understood here because, depending on how it is understood, Van Fraassen’s isomorphism may not be possible, and the other argument would be redundant.

‘Phenomenon’ has two distinct meanings – one typically used by natural scientists, the other by philosophers – which, if conflated, can lead to confusion and different conclusions. We find these two – as senses ‘1’ and ‘3’ – under the entry for ‘phenomenon’ in the online edition of the *Oxford English Dictionary*:¹⁸

A thing which appears, or which is perceived or observed; a particular (kind of) fact, occurrence, or change as perceived through the senses or known intellectually; esp. a fact or occurrence, the cause or explanation of which is in question. (Extracted from: ‘phenomenon’, sense 1, *OED* online.)

Philosophy. An immediate object of sensation or perception (often as distinguished from a real thing or substance); a phenomenal or empirical object (as opposed to a thing in itself). (Extracted from: ‘phenomenon’, sense 3, *OED* online.)

Natural scientists tend to use the first of these – which refers to something in the world that is perceived – while philosophers tend to use the second – which refers to the content of an experience. If you like, we could say that the first sense refers to something external, while the second to something internal.

It should be clear that conflating these two senses leads to confusion: we want to distinguish what goes on in our heads from what goes on outside it, so that we can better understand how the two are linked, how we can have knowledge of the world. Conflating

¹⁸https://www.oed.com/dictionary/phenomenon_n?tab=meaning_and_use. Last accessed 12 August 2023. The same entry traces the phrase ‘save the phenomena’ back to at least Proclus Diadochus in the 5th century AD.

the two senses is also a prelude to falling for Wilfrid Sellars's 'myth of the given' – that we have transparent epistemic access to the world through our senses, independent of the process of perception – a myth that empiricists have historically been quite partial to (Sellars (1956)).

Van Fraassen's account is surely better than that. However, in the passage from him just quoted, there seems to be just such a conflation, in that when he mentions 'phenomena', this seems to refer to the things in the world, rather than the experience of them, but then goes on to say that the phenomena 'fit' in a model. How is, say, the planet Jupiter supposed to 'fit' in a model, which is a representation, not a physical space? The planet would have to appear in it as a representation, not as a physical lump, and so we should construe 'phenomenon' as some content of experience, rather than a thing in the world.

There is also Van Fraassen's repeated use of the phrase 'observable phenomena',¹⁹ which is supposedly to be distinguished from 'unobservable phenomena'. But this latter makes no sense according to the two definitions above: a phenomenon is either a thing perceived or the content of an experience; there is no question of it being unobservable. We might not pay it any attention, but that is not the same as it being unobservable. Phenomena are, by definition, observable.

To solve this conundrum, we need only show that there can be no isomorphism between phenomena and empirical substructure – and thus no empirical adequacy – on only one of the two senses, so 'phenomena' must be understood in the other sense.

Addressing the first sense first: Van Fraassen, as a nominalist, thinks there is no Thirdness, no genuine triadic relations, outside of our representations. So a thing in the world, whether it is perceived or not, cannot have a structure involving triads, but only monads and dyads. Our representations, on the other hand, are suffused with Thirdness. The phenomenon appears in the models as a possible result of a habit, a general, so its surrounding structure is triadic. Because genuine triads cannot be constructed from monads and dyads alone (Section 2.2.3), there can be no isomorphism between a thing in the world and the empirical substructure in the models. True, monads and dyads can be constructed from

¹⁹See, for example, Van Fraassen (1980, 64, 71, 73, 84, 100, 153, 168, 173, 178, 196, 202); Van Fraassen (1989, 181, 193, 208, 177). We don't need to go into the thorny issue of Van Fraassen's observable-unobservable distinction here, but for one thread in that dispute, see Ladyman (2000), the reply from Monton and Van Fraassen (2003) and the response from Ladyman (2004).

triads, but such constructions are still not isomorphic to the plain monads and dyads which, for a nominalist, are all that is available outside of human thinking. For there to be an isomorphism, there would need to be genuine triads in the world, and Van Fraassen denies this. So, by his lights, the first sense cannot be right, so it must be the second, unless it is not possible there as well.

So how does it work in the second sense? A nominalist who thinks that there is no Thirdness anywhere, not even in human thinking, should only conceive of experience as a brute sensation of a chaos of bangings and crashings, swimming in a miasma of qualities. And that is all. Any attempt to distinguish one crashing from another, or arrange them spatio-temporally, let alone name the bangings, requires Thirdness. If Van Fraassen were this type of nominalist, there could be no isomorphism on the second sense either. But Van Fraassen is not this type of nominalist. He has a broader notion of experience that includes perceptual judgments.²⁰ These judgements resolve the brute sensation into objects arranged spatio-temporally, all with their own qualities, and this task involves Thirdness.²¹ So in this case, the phenomena are perceptual judgements or, perhaps better, descriptions of perceptual judgements, both of which involve Thirdness. The structure of the phenomena now involves triadic relations, just like the models, and an isomorphism between them is possible. So it must be in the second sense that we are to understand ‘phenomena’. Any contrary appearances in the texts must be accounted for differently.

Unfortunately, the solution to this problem raises a couple more. This first is that, as Van Fraassen admits: ‘Scientists aim to discover facts about the world’ (Van Fraassen (1980, 73)). Natural scientists seem to be more concerned with things in the world – the first sense of ‘phenomenon’ – than with their experiences of those things – the second sense. Of course there are some sciences, such as neuroscience and psychology, which are interested in the second sense as well, although even here it might be thought that a psychologist is concerned with the content of experience as a thing in the world. If the second sense is the one that Van Fraassen requires for the isomorphism, then he seems to

²⁰Peirce has an account of perception in which the brute part, the percept, is automatically interpreted by the perceptual judgement, which indexes the percept. Neither percept nor judgement can be criticised, because they are automatic and not under our control. But that does not mean they are veridical; they are fallible like everything else.

²¹This works as follows. The brute sensation comes in *en bloc*. A judgement indexes, points at, a portion of the block and characterises the content of that portion according to some criteria. Each judgement is thus a triadic relation of the form *index-content-criteria*.

be committed to saying that *all* natural scientists are only interested in our experience of the world and not in the things in the world. But it might come as a surprise to a space scientist studying the planet Jupiter that they are not, in fact, studying the planet itself, but their own experiences that happen to involve representations of Jupiter. This basic mismatch between targets of inquiry would be resolved by allowing real Thirdness into the world outside of human thinking, because then an isomorphism between models and phenomena (in the first sense) would no longer be impossible; but this option is blocked by Van Fraassen's nominalism.

The other problem is that, since perceptual judgements are representations, namely of that brute sensation, and Van Fraassen thinks that our representations of the world are the source of modality, then the very phenomena themselves may be implicitly modal, threatening his denial of real modality. However, this issue will be postponed until Section 5.3.4, because we must now turn to arguing that empirical adequacy, by itself, is unachievable, and is thus not a good aim for the natural sciences.

5.3.1.2 Empirical adequacy is not achievable by itself

We can characterise the Peircean notion of a true hypothesis (or theory) thus:

P A true hypothesis (or theory) is one that *would* survive all tests, even those not as yet conceived; and would have survived all past tests, if those tests had been performed at the appropriate time

Since a test involves an inquirer having experiences pertinent to the theory or hypothesis under test – the phenomena for Van Fraassen – and describing them, we can characterise empirical adequacy as it appears in constructive empiricism as:

CE An empirically adequate theory is one that *will* survive all actual tests; and whose models generate descriptions that line up structurally with all past described phenomena²²

It should be clear that **P** completely encompasses **CE**, so if a theory is true, it is also empirically adequate. But **P** includes more. If we look at the second, past-facing clauses

²²Apologies for the change in style between the first and second clauses in this definition. I couldn't think of a non-modal way to express actual tests that could have happened but didn't.

of each, **P** includes actual phenomena (along with possible phenomena) that weren't, as it happened, described, whereas **CE** is limited to those that actually were, and cannot appeal to those that could have been. It seems that the problem of lost facts (Section 3.6.1.1) is more acute for a constructive empiricist than for a Peircean, because one or more of those undescribed phenomena might have had a description that was not structurally isomorphic to any description generated from the theory's models. This suggests that a theory can never be empirically adequate as far as the past is concerned, because we are pretty certain that there have been undescribed phenomena.

The situation for empirical adequacy in the future direction is just as bad. Both Peirce and Van Fraassen are fallibilists: we can never know for certain whether a hypothesis or theory is, in fact, true or empirically adequate. However, for Peirce, a hypothesis could be true now – because it adequately represents a real general and would thus pass all future tests – but we don't know it for certain and keep testing it. For Van Fraassen though, a theory can never be empirically adequate, we cannot even hope it be so, because all the evidence will never be in (Van Fraassen (1980, 89)). His reliance on actual future phenomena, and ignoring possible ones, scuppers the chances of any theory ever being empirically adequate.

A true theory, however, would also be empirically adequate. So aiming at truth seems to be the best way to obtain empirical adequacy, which cannot be obtained by itself. Moreover, it might be thought that natural scientists would be better served by an aim that is achievable – Peircean truth – than with one that we know in advance is not – empirical adequacy as understood by a constructive empiricist. Thus it would seem that, out of those two options, truth is the better aim for the natural sciences.

The problem here seems to be Van Fraassen's denial of real modality, which we'll look at more in Section 5.3.4. Before that though, we'll see if Van Fraassen can improve the case for nominalism with respect to explanation and prediction.

5.3.2 Constructive empiricism and explanation

We have argued that nominalistic explication is useless for scientific inquiry, and Van Fraassen, basically, agrees. He spends a chapter (Van Fraassen (1980, Chap.5)) developing an account of explanation as the answering of a question, the answer being better under-

stood than the circumstance occasioning the question: a mystery cannot be answered with another mystery. He is keeping to the nominalistic style of explication – of pointing to some other situation that is presumed better understood – so it is no surprise that he concludes that ‘scientific explanation is not (pure) science but an application of science’ (Van Fraassen (1980, 156)); that what he calls ‘explanation’ does not play a role in the process of inquiry, since we need to have an adequate theory in place to provide an explication (in the nominalistic style). So Van Fraassen has not helped the adequacy of nominalism as a metaphysics for the special sciences.

But that is too quick! Van Fraassen is not talking about explication in the realist sense, which we need for truth-directed inquiry, and all he has done is show how nominalistic explication plays no role in the process of inquiry. We could yet find something akin to Peirce’s hypotheses elsewhere in his account: and we do, in his models. It is there in the models – which, for Van Fraassen, *are* the theory – that we find the speculation and imagination required for inquiry. The models are representations of how the inquirers think the world could be, or should be, given that the phenomena are as they are. They are inherently modal, as Van Fraassen acknowledges, and he maintains that they are the locus of modality, not the world that they purport to represent (Van Fraassen (1980, 202)). They sound very much like tentative realist explications or, in other words, hypotheses.

Since Van Fraassen has model-building as an essential component of scientific inquiry, then hypotheses enter into his account by, so to speak, the back door. Of course, what he thinks is important about the models is that they provide (non-modal) descriptions of the phenomena and, thus, empirical adequacy for a theory; their modal features are, for him, a distraction as far as his aim for scientific inquiry is concerned, because he maintains there is no modality in the world outside of our representations of it. If, however, he abandoned the impossible – by his own lights – quest for empirical adequacy, along with his attitude about the absence of real modality, he would have a basis for a realist, not nominalist, account. As it is, he has not improved the case for nominalism as a viable metaphysics for the special sciences. Let’s now see if that case can be bolstered by his views on prediction; unfortunately for nominalism, those views, such as they are, do not help.

5.3.3 Constructive empiricism and prediction

As if to live up to Peirce's remark that nominalists don't like talking about prediction (EP2: 70), Van Fraassen doesn't say much about it. This is hardly surprising: predictions are modal statements and, with his denial of real modality, for him there is nothing in the world that a prediction could line up with. They just can't be important for him. He does not devote any space developing an account of prediction, as he does with explanation but, if he had, the suspicion is that it would have much the same conclusion: prediction is only something you do with a theory once you have an adequate one, but plays no part in the process of inquiry itself.

What he does say suggests that he thinks of predictive success as just a matter of a theory latching onto a brute or actual regularity in the world (for example, Van Fraassen (1980, 24, 40) and Van Fraassen (1989, 21)). We have already discussed what is wrong with saying this (Sections 5.1.3 and 5.2.2) but we might also point out, since Van Fraassen has the slogan of 'saving the phenomena', that the phenomenology of a regularity is not the same as that of an individual existent. The experience that is characteristic of an existent, a Secondness, is *hic et nunc*, here and now. I can literally – that is, not metaphorically – bump into a lamp-post or table, because these are actual, they exist. The same cannot be said of a regularity, the experience of which is extended in time beyond a single moment. Even as Van Fraassen accepts that regularities can be part of the phenomena – he has to because he could not accept an *unobservable* regularity – he maintains that everything in the phenomena has to be brute; as Peirce says:

a general fact has, for them [nominalists], no being at all except as somebody's thought about its particulars (EP2: 69)

So it seems that Van Fraassen, as with explanation, has nothing that improves the case for nominalism as an adequate metaphysics for the special sciences, as far as prediction is concerned. But again, as with explanation, there is a realist-style predictive capacity hiding in plain sight in the models.

While Van Fraassen is only interested in that portion of the models that generate (non-modal) descriptions that line up with descriptions of the phenomena, those models can also generate descriptions of *possible* situations that *might* line up with future descriptions

of phenomena. Again, model-building is an essential part of the process of inquiry for Van Fraassen, so, as with Peircean hypotheses, we can find Peircean predictions sneaking in by the back door of Van Fraassen's account. All we have to do is dump empirical adequacy as the aim of natural science, get rid of Van Fraassen's modal nominalism, and we have something that could be like Peirce's account of inquiry.

It is that different aim and the modal nominalism which stops this being Peircean. We have already discussed empirical adequacy, and so we now turn to a closer look at Van Fraassen's modal nominalism.

5.3.4 Modal nominalism

Van Fraassen, as a nominalist, rejects the idea that there is real modality in the universe. Instead, he proposes that modality is only a feature of our models, of how we formulate representations of the world. There are some problems with this view, and we have already mentioned how it seems to make empirical adequacy unachievable. The complement to this is that we can have empirical adequacy without modal nominalism.

Van Fraassen's empirical adequacy involves a description generated from the models lining up structurally with a description of the phenomenon. For this to work as Van Fraassen wishes, the descriptions have to be modally indifferent or, rather, that it is clear when a description is modal or not, and there can be, and we can identify, descriptions that definitely do not have any modal implications. Only non-modal descriptions are permissible for establishing empirical adequacy. This may be harder than it sounds.

For example, if we accept what Brandom (2014, 130) calls the 'Kant-Sellars thesis' – that all empirical concepts are implicitly modal – then every description of a phenomenon is modal in the sense that the concepts it suggests in the mind of an audience have a modal element.

Conceptual clarification according to the maxim of pragmatism involves a similar idea in that concepts so clarified acquire modal features. Once we have the first and second grades of clarity – familiarity with the concept's use and ways the concept can be defined in terms of other concepts – the contents of an empirical concept are further bolstered by the conceivable possible consequences of a physical encounter with the object of which

the concept is a concept.²³ So the concept of, say, a table is enriched by the answers to a bunch of ‘what would happen if...?’ questions. What would happen if I looked at a table from this angle, or from that? If I bumped against it? If I put my ear to it, or smelt it, or licked it, or tried to push, pull, or pick it up? And so on. Of course, actual encounters with actual tables can fill in some of the answers to those questions, although only for that particular table: there would always be more objects answering the description of ‘table’, once the concept has become established, so the modality in the concept remains, no matter how many actual tables are encountered.

This means that a modal description generated from the models can line up with a description of the phenomena, and empirical adequacy achieved, without having recourse to a denial of real modality. After all, the description of the phenomena and the models are both representations, and if modality is a feature of how we go about representing things, then it could just as easily be in the description of the phenomena as in the models. So Van Fraassen’s modal nominalism seems to be a gratuitous extra addition, unnecessary to achieve the aim of empirical adequacy. Indeed, as suggested earlier, it seems to impede that aim by not allowing possible future phenomena to contribute to empirical adequacy.

Moreover, if the phenomena are themselves modal, then there can be no evidence that there is no modality in the world outside of our representations of it, and Van Fraassen would be better served by becoming a Peircean realist, who accounts for the modality in our representations by saying that we partake of, and exploit, the modality available in the environment. That would make Van Fraassen a modal realist, but not of the Lewisian variety, which is just as objectionable to him as it is to a Peircean.

Another problem with modal nominalism is that it raises difficulties for practical reasoning. As discussed in Section 3.6.5, Peircean realism can explain why practical reasoning can lead to successful action. To restate the example from there:

p1 I want to arrive in Canterbury before 11 a.m.

m1 If I were to take a train that would arrive in Canterbury before 11 a.m. then I would arrive in Canterbury before 11 a.m.

²³This is why we need the first and second grades of clarity, so we have an idea of what the object of the concept is.

p2 The 10.15 a.m. train from my local station arrives in Canterbury at 10.30 a.m.

p3 10.30 a.m. is before 11 a.m.

c Take the 10.15 a.m. train

The modal sentence, *m1*, provides the reason for the action, and the modal affordance in the environment which lines up with this sentence, is what the agent exploits for the action to be successful. We can say that the modal affordance provides a truthmaker for *m1* and, importantly, it provides it at the time at which the reasoning occurred. The action recommended by the reasoning is thus a rational course of action – both in the sense that it is acting for a reason and that that reason would lead to success – at the time the reasoning occurred. Now let's look at the situation when *m1* is replaced by its indicative mood recasting, *n1*, as would be the case with Van Fraassen's modal nominalism:

p1 I want to arrive in Canterbury before 11 a.m.

n1 If I take a train that will arrive in Canterbury before 11 a.m. then I will arrive in Canterbury before 11 a.m.

p2 The 10.15 a.m. train from my local station arrives in Canterbury at 10.30 a.m.

p3 10.30 a.m. is before 11 a.m.

c Take the 10.15 a.m. train

In this case the truthmaker for the reason, *n1*, is not a modal affordance, present in the environment at the time of the reasoning, but a particular future fact. So *n1* is neither true nor false, for want of a truthmaker, until that fact is realised (I take the train). To match the modal case in terms of rational action, we want the agent to be both acting for a reason and for a reason that will (to switch to the indicative) lead to success. But without a truthmaker for the reason at the time of the reasoning, the recommended action cannot be considered adequately rational in the same way the modal case can. The action is only seen to be rational in retrospect, after the train is taken. This is a problem if we want to be guided by practical reasoning in our future actions.

5.3.5 Van Fraassen, metaphysics and stances

Van Fraassen, like Peirce, is keen to dispense with what he sees as bad metaphysics: idle fiddling with no relevance for us or anything in this universe (Van Fraassen (2002, Chap.1)). Van Fraassen's strategy for this is, however, quite different from Peirce's. Peirce wants to use the maxim of pragmatism as a weapon against bad metaphysics, discarding any hypotheses that can have no experiential consequences for anything: this seems to attack the irrelevant metaphysics head-on. Van Fraassen, on the other hand, thinks that the problem lies in a susceptibility to heeding a call for explanation, and his strategy is to undermine that call (Van Fraassen (2002, 37–39)).

For this purpose, nominalism seems eminently suitable, since a nominalist deals only in descriptions and redescriptions; explanations in the sense of an appeal to generality are simply beyond the pale, because of their denial of real generality. Peirce considers that what calls for an explanation is an unexpected regularity. We have seen that a nominalist has no notion of a real regularity, only that someone thinks there is one, so a situation in which there is a call for an explanation – at least as conceived by Peirce – simply does not arise. Moreover, when a nominalist thinks they have identified a regularity, they regard it as a particular, ultimate fact, and thus inexplicable. So nominalism not only undermines the call for explanation, it just dispenses with explanation entirely. On the Peircean line, of course, to deny explanation is to deny the possibility of truth-directed inquiry: all we have left is sham and fake inquiry, along with arguing about fictions, which is endless because a fiction can change as someone's opinion about it changes. This denial of explanation seems excessive when the aim is only to undermine the call for explanation for irrelevant metaphysics.

Van Fraassen seems to think that nominalism is inextricably bound up with empiricism, since he prefers this latter word, and yet it is the nominalism that is doing the anti-explanatory work, or, rather, that nominalism can do the anti-explanatory work without any help from empiricism. We can have a variety of empiricisms according to how we characterise experience. Peirce says that 'experience is our only teacher' (EP2: 153) and can thus be considered an empiricist; but he is a realist, not a nominalist. He has a very broad notion of experience, allowing anything that can be present in a mind – including

hallucinations and ideas about ideas – and considers this diachronically, so that we have experience of generality, and not just of a sequence of discrete events. Van Fraassen certainly has a broader notion of experience than the classic British empiricists, but it is nowhere near as broad as Peirce’s. Although this is to be expected because nominalism – with its commitments to a single mode of being and to there only being individuals – when combined with empiricism, places restrictions on what experience can encompass. The point here is that empiricism and nominalism can come apart, something that Van Fraassen does not seem to consider.

Van Fraassen argues that empiricism cannot be a truth-apt doctrine – such as Peirce’s ‘experience is our only teacher’ – because that would undermine its usefulness as a weapon against irrelevant metaphysics (Van Fraassen (2002, 41–46)). Again, only nominalism is needed for the anti-explanatory work, and empiricism seems redundant for this task. We can retain empiricism as a truth-apt doctrine without affecting nominalism’s ability to undermine or deny explanation.

Nevertheless, following this through, Van Fraassen proposes that (nominalistic) empiricism is a *stance*, which, as he describes it, is a collection of non-truth-apt attitudes, values, practices and methodological commitments, along with a smattering of beliefs to keep the whole package coherent (Van Fraassen (2002, 46–48)). This seems to fit the notion of the subject matter of metaphysics that has been adopted in this thesis, as presuppositions of inquiry. Indeed, Van Fraassen thinks that *all* philosophical positions are stances (Van Fraassen (2002, 61)). What then counts as good metaphysical inquiry for him would then seem to involve challenging only the truth-apt portion of a stance; bad metaphysics tries to inquire into the non-truth-apt portion.

The question arises here of how are we to judge what is a good stance to adopt. Beliefs can be challenged on their truth. Empiricism, as I have suggested, can be kept as a truth-apt doctrine. Nominalism as well, if we take it as the doctrine that there is no real generality, or as some combination of the features discussed earlier, is challengeable, not least because it has different experiential consequences to Peircean realism (Section 4.1). To take it as a non-truth-apt attitude is to put metaphysics before logic, which we cannot do if we want metaphysical inquiry to be comprehensible. Ethical values, to be sure, come before logic in Peirce’s architectonic, because we need to work out what is good in action

before we can work out what is good in reasoning, if reasoning is understood as a species of action. But nominalism is a metaphysical position, not an ethical value, although the two, as suggested earlier, may have become historically conflated. Treating nominalism as an attitude or value seems to be, to a Peircean, more of a political decision than a philosophical one.

Attitudes and values can, in their turn, be challenged on their appropriateness. As argued in Section 4.1, for these to function as presuppositions, they have associated beliefs that they are so appropriate and, if these become doubtful, then the attitude or value may have to be reassessed. For example, someone might hold, as a value, that sex is intrinsically good. This could have, as associated beliefs, that everyone must always want sex – after all, sex is good *simpliciter* and everyone wants what is good – and, as a consequence, that ‘no’ always means ‘yes’. These beliefs being shown to be false, the value should come under pressure.

The same goes for a stance’s methodological commitments, which can be judged on whether they work, with the associated belief that they are fit for their purpose; but it all depends on that purpose. With inquiry, on the Peircean line, such commitments work if they help us get to true answers – the commitment lines up with the aim of inquiry – and they are better when they get us there more efficiently. Such commitments change as we learn how to inquire better. But the purpose may be to promote sham or fake inquiry: such a commitment works when the results of inquiry are always what was decided beforehand, or when any result is irrelevant and the inquiry is just an exercise in self-aggrandisement by the inquirer.

Van Fraassen also considers that methodological commitments work when they line up with purposes;²⁴ for Van Fraassen and the natural sciences, that would be empirical adequacy, but it could be different when the goal is different. Supposedly then, we can switch our stance depending on what kind of inquiry we are engaged in, with what works where. But what then of philosophical inquiry itself? Since Van Fraassen thinks that all philosophical positions are stances, then the aim of philosophical inquiry seems to be only to adopt a stance. Without some other aim, however, we are lost as to what stance we ought to adopt because, at least as far as the methodological commitments are concerned,

²⁴This is not so obvious in Van Fraassen (2002), but is more clearly spelt out in Van Fraassen (2014).

they all work equally well because there is nothing for them to work towards: they are means without ends.

Peirce, on the other hand, thinks that all genuine inquiry is truth-directed, including that in philosophy. Greater understanding, better distinctions, improved interpretations, more informative concepts, these are all worthy goals for philosophy but, just as we cannot obtain empirical adequacy by itself but only by aiming at truth, so these benefits are the fruits of ‘drawing the bow upon truth, with intentness in the eye, with energy in the arm.’ (EP2: 131)

One final worry: for Van Fraassen, truth is not the aim of the natural sciences; nor is there any truth in philosophy, which is just a matter of adopting stances; and rationality itself no longer seems a matter of reason, since we can choose what to believe and it is perfectly rational to do so unless explicitly forbidden. It seems to me that this is a recipe for relativism, scepticism, even nihilism: all that’s left is political fighting over alternative ‘truths’. This is the destination already reached by Richard Rorty, and Van Fraassen has attained it by a different route, but they both use a compass called ‘nominalism’. As Peirce says:

When society is broken into bands, now warring, now allied, now for a time subordinated one to another, man loses his conceptions of truth and of reason. If he sees one man assert what another denies, he will, if he is concerned, choose his side and set to work by all means in his power to silence his adversaries. The truth for him is that for which he fights. (CP: 1.59)

But the problem is not so much with their reasonings as with their presuppositions. They have quite clearly shown that nominalism – with its insistence that there are only individuals and its denial of real generality – is not a viable metaphysics for any truth-directed inquiry, let alone for the special sciences.

5.4 Chapter summary

This chapter begins the critical assessment of metaphysics that do not involve all of Peirce’s categories.

It starts with a Peircean characterisation of nominalism, through the presence of one or more of four features: reality is in some sense unthinkable or inaccessible; there is

only a single mode of being, usually existence; there are only individuals; there is no real generality. Each was briefly discussed, with options for the nominalist and problems for them raised.

This led into a discussion of what Peirce calls ‘ordinary nominalism’: a metaphysics of ‘I II’. Issues that undermine this as a viable metaphysics for the special sciences – problems with explanation and prediction – were elaborated. This was followed by some thoughts – starting from Peirce’s own view on the matter – on why anyone should be a nominalist when it is beset by so many problems.

The last sections were given over to a Peircean critique of Bas van Fraassen’s constructive empiricism, a recent variety of ordinary nominalism in the philosophy of science. This dealt specifically with the matters of: the aim of inquiry; whether constructive empiricism can rescue nominalism from its problems with explanation and prediction; modal nominalism; and van Fraassen’s views on metaphysics and stances.

The overall conclusion is that ordinary nominalism is not a viable metaphysics for the special sciences and constructive empiricism, while exhibiting some interesting features, remains just such a nominalistic account. This demonstrates that, for a viable metaphysics for the special sciences, we need Thirdness.

Chapter 6

Metaphysics without Secondness or Firstness

The last chapter attempted to show problems with not allowing the reality of Thirdness, and that ordinary nominalism – a metaphysics of ‘I II’ – is not a viable metaphysics for the special sciences. In this chapter, the Peircean critical eye moves to the absence of Secondness and Firstness, in an attempt to show that a metaphysics of Thirdness alone is not viable for the special sciences. Here, the modern exemplar will be the eliminative ontic structural realism (OSR) of Steven French, as elaborated in French (2014).

What won't be mentioned here is dispositionalism, and this may seem odd because that seems concerned primarily with Thirdness and French himself takes dispositionalism as being somewhat opposed to his own view, albeit in a friendly way (French (2014, ix, Chap.9)). This omission is partly due to lack of space but mainly because Thirdness is, so to speak, the genus of which dispositions – along with habits, rules, laws, causal powers, capacities and n -ary operators ($n \geq 2$)¹ – are species, and we don't want to get bogged down in fine distinctions between the species when what's important is happening at the genus level. So we will only say – without argument – that the laws derived from dispositions by Bird (2005) are necessarily necessary, whereas Peircean laws are contingently probable; and that the dispositional essentialism of Mumford (2002) seems to ignore Firstness.

To make the case that a metaphysics of Thirdness alone is not viable for the special

¹Binary operators – $n=2$ – have two inputs and one output and are thus triadic relations. All $n > 2$ operators are reducible to a combination of $n = 2$ operators; that is, all relations of arity greater than three are reducible to triads. This is part of Peirce's reduction thesis: see Section 2.2.3.

sciences, we will start by placing those positions lacking Secondness and/or Firstness in the context of Peirce's seven systems of metaphysics (Section 6.1). We will not say much about 'I III' or 'II III' because we can get three birds with one stone by concentrating on 'III'. Then we will look at some of what goes wrong when there is no independent Firstness (Section 6.2) and then no independent Secondness (Section 6.3). This yields a selection of issues which we will call the problems of genesis, applicability, distinguishability, compulsion, governance, actualisation, change and inquiry. These show that we cannot just discard these categories if we want a scientific metaphysics and, taken together, show that a metaphysics of Thirdness alone – a metaphysics of 'III' – is not viable for the special sciences.

We then give a brief outline of OSR (Section 6.4) and attempt to show that French's version of OSR is just such a metaphysics by means of four 'exhibits': elements of French's account that exemplify the characteristics of a metaphysics of 'III' as understood on the Peircean line. These exhibits are that he only has structure, which comprises only laws (Section 6.4.1); he only admits relational properties (Section 6.4.2); he allows no objects (Section 6.4.3); and that he discards his enabling tools in much the same way as a typical metaphysician of 'III' (Section 6.4.4).

This, it is hoped, provides enough evidence that French's eliminative OSR is a metaphysics of 'III' and is thus not a viable metaphysics for the special sciences, at least when understood from a Peircean viewpoint.

6.1 The seven systems of metaphysics, again

Here again is Peirce's diagram of his seven systems of metaphysics, this time with the highlight on the sections that include Thirdness but exclude Secondness and/or Firstness. (Figure 6.1). In Peirce's key (EP2: 180), 'II III' is labelled 'Cartesianism', 'I III' 'Berkeleyanism' and 'III' is 'Hegelianism'.

Peirce attacks Cartesianism, calling it a 'salad' (EP2: 157) and a 'hodgepodge' (EP2: 165), that it involves 'absurd' doctrines (EP2: 155, 199), and that Descartes' way of proceeding is faulty (EP1: 28–30, 125–126; EP2: 71, 336). But there is little there that is obviously germane to the matter of what categories it involves.

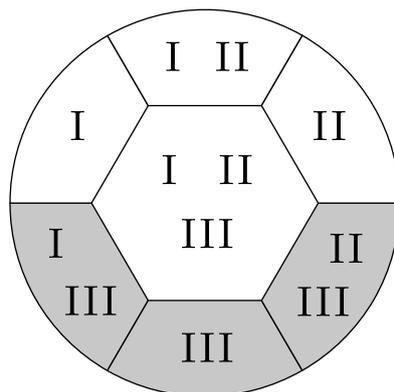


Figure 6.1: Peirce's seven systems of metaphysics with three portions marked. Adapted from EP2: 149, 164, 180.

Similarly, while Peirce goes into some detail on Berkeley's view (EP1: 83–105), not much of that is immediately relevant to our aim here, which is to show what goes wrong when Secondness is omitted. Peirce's main points on Berkeleyanism are that it is a form of nominalistic Platonism² – in that it puts all the reasons for everything in the unknowable mind of god, where we cannot get at them (EP1: 98–100) – and that all of Berkeley's arguments against matter can equally apply to mind (EP1: 102). From that, it is not clear which categories Berkeley is committed to.

With Hegel however, the situation is quite different, since Peirce's criticisms are largely concerned with what he sees as Hegel's fixation on Thirdness alone (see, for example: EP2: 155, 164, 177). In a recent series of articles, Robert Stern has argued that, based on current scholarship, Peirce's criticisms of Hegel are unfair, although they may be regarded as understandable for the time, considering the state of Hegel criticism through the late-19th to the mid-20th century (Stern (2005, 2007, 2013a,b)). However, even though those criticisms may no longer fall so easily on Hegel, they are criticisms of any metaphysics that involves only Thirdness, so if such a metaphysics is proposed, then the problems highlighted by Peirce should arise. It is contended here that the eliminative OSR of Steven French is just such a metaphysics.

Peirce summarised his main criticism of a metaphysics of 'III' thus:

[T]he third category – the category of thought, representation, triadic relation, mediation, genuine Thirdness, Thirdness as such – is an essential ingredient of reality, yet does not by itself constitute reality, since this category... can have

²See Sections 3.8 and 5.1.1.

no concrete being without action, as a separate object on which to work its government, just as action cannot exist without the immediate being of feeling on which to act. (EP2: 345)

We will elaborate this summary with respect to Firstness – qualities of feeling, non-relational properties, bare possibilities – and then with respect to Secondness – reciprocal dyadic relations, interactions, existence. This marshals arguments for the view that a metaphysics of ‘III’ is not a viable metaphysics for the special sciences, not least because, in the absence of Secondness, experimental inquiry becomes impossible, insofar as experiment involves interaction with an environment. We will then attempt to show that the OSR of French (2014) is just such a metaphysics.

6.2 The absence of Firstness

Peirce’s three categories of Firstness, Secondness and Thirdness have their severally independent modes of being, but they are also interdependent: they all come together or not at all. To apprehend a Firstness, a quality – say the distinctive feel of red or the blare of a trumpet (EP2: 192–193) – we have to interact with the environment involving the quality – look at the red thing, hear the trumpet – and this involves Secondness, interaction. Then, to apprehend the Firstness as the quality of, say, redness or a trumpet’s blare, requires Thirdness, in the form of an interpretation. Thus our experience of Firstness is dependent on the other two categories as well. The interdependence goes the other way as well. Secondness needs Firstness because there has to be something with which a reciprocal dyadic relation can be set up, something acted upon that reacts: if a stiff door were not stiff, hard and solid, then I would experience no resistance to walking through it. And Thirdness needs Secondness else there would be no dyadic relation that is mediated, nothing that a law or habit could govern.

Firstness is a non-relational quality of feeling, a bare possibility, that which is as it is, independently of aught else (EP2: 149–150, 160, 268). If this is missing, then there would be nothing that distinguishes one thing from another, for everything has a Firstness (CP: 1.531), a distinctive quality about it that can be recognised as such. Moreover, there would be nothing to stand in a dyadic relation to something else, and there would be no Secondness, no interactions with an environment.

Suppose someone with normal colour vision observes a red object, say a snooker ball, under standard white light conditions. There is something about the situation such that the observer sees a red ball, and not a green or blue or yellow one. That is, the situation has a Firstness, a quality of feeling to it. If it did not, then the observer would not see a red ball: most likely, they would not see anything for lack of qualities. If there were a percept, it could not be parsed into objects because there would be no qualities by which portions could be distinguished, separated and recognised. Every situation has a quality to it such that an observer can stand in a Secondness, in a reciprocal dyadic relation to it. If there is no Firstness, nothing stands in such relations to anything, because there is nothing in which to stand in such a relation.

This is what happens if there is no Firstness at all, but the metaphysician of ‘III’ may well say that, yes, there are qualities but they are not primitive. That is, they do not have an independent being but are derivative of the Thirdnesses – the habits, rules, laws – that, in effect, specifies them. In other words, such a metaphysician denies that there are any non-relational qualities: there is nothing that has at least some of its qualities irrespective of the relations in which it stands to other things. Alternatively, considering Firstness in its modal aspect as bare possibility, then the metaphysician of ‘III’ is saying that there is no primitive possibility, only that which is specified by Thirdness: the only possibility there is, is derivative of probability or necessity.

One problem with this is that it is mysterious where the elements involved in the Thirdness came from. Take, for example, Newton’s second law, $F = ma$. This is triadic, relating two elements by virtue of a third: mass and acceleration are brought together by virtue of force, force and mass by virtue of acceleration and force and acceleration by virtue of mass. The metaphysician of ‘III’ would be inclined here to say – supposing that $F = ma$ is true – that force, mass and acceleration have no being independent of that triadic relation. But this raises the issue of how the law could have come to be as it is, if the being of the elements involved in it were entirely derivative of it. This is what we will call the problem of genesis. Peirce’s solution to this is to have Firstness, Secondness and Thirdness all at the same level of fundamentality.

Peirce complains that the metaphysician of ‘III’ uses Firstness and Secondness to get to Thirdness, then announces that we simply don’t need what was used to attain that

position (EP2: 177).³ This is not so much pulling up the ladder, but burning the ladder and pretending it was never there. There is here a problem of what might be called applicability. To get to the Thirdness – the rule or law – we needed Firstness. But once one has the Thirdness, to say we no longer need the Firstness is to say, in effect, that there is no quality abroad in the world to which the qualities in the Thirdness now apply. By burning the ladder, we cannot now get back down to the ground, to the world, where the qualities are. Without the ladder, the laws are disconnected from the universe they are meant to govern.

Moreover, without an independent Firstness, the different elements within a Thirdness cannot be distinguished from each other. In $F = ma$, there is something distinctive about force that makes it force, mass, mass and acceleration, acceleration. Without non-relational features – Firstnesses – independent of that relation, $F = ma$ is no more informative about the world than $x = yz$, where x , y and z can be anything whatsoever – such as my left shoe size, the surface temperature of Vega and the precise hue value of David Bowie’s right iris, five years before his death – and can seemingly change on a whim. Again, without an independent Firstness, the laws have lost touch with the world. We shall call this the problem of distinguishability.

This problem also applies to the Thirdnesses themselves, because everything has its Firstness. Different Thirdnesses have a different character to them. We can think of a Thirdness – a habit, rule or law – as a binary operator in a subjunctive mood: it has two inputs and one output and, if the inputs are appropriately filled, it would produce an appropriate output. Consider the four standard arithmetical operators of addition, multiplication, subtraction and division. These are all different in that, when used with the same inputs, most of the time they produce different outputs: they all have a different character, a different Firstness. When I perform a division in my head, it feels different from when I perform a multiplication, and similarly for subtraction and addition. Without an independent Firstness, we cannot distinguish Thirdnesses from each other.

Considering this under the modal aspect of the categories, the metaphysician of ‘III’ seems to be saying that possibility has no being independent of Thirdnesses – laws – that cover some continuum of possibility: in effect, that laws generate possibilities, that

³We shall see that French (2014, 67) does this in his ‘Poincaré manoeuvre’.

possibility is derivative of probability or necessity. Again, this raises the issue of how the law came to be, and also of what exactly it covers, if there were no possibilities independent of the law. But Thirdnesses – generals, habits, rules, laws – are not the source of possibilities, they do not generate them. Rather they, so to speak, corral possibilia into continua, according to general conditions, such that they can be actualised in an orderly fashion.

It might be helpful here to recap the paper and pencil analogy from Section 2.2.4. Take a piece of blank paper and place it on a table. Imagine that the paper is perfectly smooth and represents the whole universe of possibility, as yet unactualised. In its present state, there is nothing constraining those possibilia: just a chaos of possibility, nothing but Firstness. Now take up your pencil – imagine that it has a zero-dimensional tip – and mark a dot somewhere at random on the paper. Through this interaction you have actualised a possibility and – because your interaction was random – without being constrained by any law as to what possibility was actualised.

Now place another random dot elsewhere on the paper and imagine a continuous line – it doesn't matter whether straight or squiggly – connecting the two dots. We now have a Thirdness in that the two dots are brought into relation by virtue of a third thing: the continuous line between them. That line covers a continuum of possibility on the paper, but does not generate it. Rather it constrains some possibilia according to general conditions, namely the position of the two dots and the trajectory of the line. Feel free now to interact with the paper and add dots along the line, each time actualising a possibility but now not at random, but according to the rule of following a line between two dots. Thirdness here remains connected to the independent possibilia that it covers, since they comprise the paper and not the line.

Every time a possibility is actualised, that involves an interaction – a Secondness – between paper and pencil: the Thirdness does not by itself actualise possibilities. The metaphysician of 'III', however, denies independent Secondness as well, so we now turn to the further problems that follow from that denial.

6.3 The absence of Secondness

Without Secondness, there are no reciprocal dyadic relations and hence no interactions. Thus nothing exists – in Peirce’s sense of ‘exist’ which is distinguished from ‘real’ (see Section 2.1 and Chapter 3) – and nothing changes: the universe is empty and static.

As with the complete lack of Firstness, the metaphysician of ‘III’ may not like these consequences and might say that yes, there are existents, but they have no being independent of the Thirdnesses which govern them, which supposedly generate them. Again, it is mysterious how the Thirdnesses could have come to be if the Secondnesses they incorporate are entirely dependent on those very Thirdnesses. And again, there is ladder burning going on and the Thirdnesses – the habits, rules, laws – end up disconnected from the universe they are meant to govern. Peirce says that the metaphysician of ‘III’ ignores the ‘outward clash’ (CP: 8.41, 8.43) and has ‘committed the trifling oversight of forgetting that there is a real world with real actions and reactions.’ (CP: 1.368) The lack of an independent Secondness gives rise to problems which might be called a lack of compulsion and a lack of governance.

A Thirdness – say, a law – expresses in general terms what outcome would transpire if some situation occurs. By itself, this does not compel the outcome nor even the situation in the first place. Compulsion is a matter of Secondness – it is *hic et nunc*, here and now – of us forcing ourselves on the environment and the environment forcing itself on us, such as absent-mindedly walking into a lamp-post, or being caught in an avalanche (EP2: 4–5, 120–121, 182, 212, 268, 271, 323, 380–381, 435). Peirce likens Thirdness without an independent Secondness to a court without a sheriff: the court’s judgement ‘might be the perfection of human reason’ but if there is nothing to enforce that judgement and ‘put forth the strong arm’ (EP2: 152) then the court is just impotent and ‘all its dicta would be vaporings’ (EP2: 120).

To return to the paper and pencil analogy: there is nothing about just the Thirdness – the two dots and the line between them – that compels you to place a new dot on that line. You might think that it is aesthetically pleasing to put a dot on the line, although that may not force you to do so. Instead, perhaps there is someone looking over your shoulder – something like a sheriff – to ensure you place your dots along the line and, if you don’t,

you'll get a slap. If you are compelled to place further dots along that line, it is not just because there happens to be two dots and a line between them; rather there is something else, of a different kind to the Thirdness, that so compels you. And that is Secondness.

In that analogy, it has already been mentioned that possibilities are actualised through an interaction – a Secondness – between paper and pencil. Thirdnesses – habits, rules, laws – do not actualise the possibilities they cover, and nor do they create or generate their own instances. The rules of football do not generate a football match: we still need ball, players and goals, all interacting with each other. Newtonian gravitation did not create stars and planets nor did the general theory of relativity create warped space-time. The Standard Model of particle physics did not create quantum fields and the particles that are their characteristic quanta. Rather – if these theories accurately represent what happens in the universe – they mediate the behaviour of existents that laws alone do not generate. For existents we need an independent Secondness, for existence is a matter of opposition alone (CP: 1.432, 1.456–1.458), and '[n]o law determines any atom to exist' (CP: 1.329). So the metaphysician of 'III' has found themselves with a bunch of laws that govern nothing, because Thirdness alone does not generate the existents, the behaviour of which those laws are supposed to govern.

That is not to say that Thirdness has no causal relevance, that it is not involved in productive processes, only that we need Secondness as well for there to be any change: Thirdness alone changes nothing.⁴ Peirce identifies two types of cause which, following Aristotle, he calls 'efficient' and 'final' (EP2: 120–121) but which we will call 'Secondness' and 'Thirdness' cause, to avoid any interpretative difficulties concerning Aristotle's use of those terms.⁵ Secondness causes involved in productive processes are interactions between existents. They are brute compulsions determined by the particular situation, and bring about a result unconcerned with the general character of that result. Thirdness causes, by contrast, bring about a result as a general description, with no concern for how it is brought about on any particular occasion. They are, if you like, reasons for those interactions to occur, although they do not generate those interactions.

⁴There could also be change by pure chance (see Section 4.4). But this option is not available to the metaphysician of 'III' because pure chance is pure Firstness (EP1: 275), and such a metaphysician does not accept pure Firstness, but only as derivative of Thirdness.

⁵Examples of Peirce's own interpretation of Aristotle on this point can be found at RLT: 197–198 and EP2: 315–316.

As an example of this, Peirce talks about hunting an eagle (EP2: 120–121) – the bird not the golf score – but this is a little disturbing. A more congenial example might be to think about what causes a window to be opened or closed.⁶ Whatever the state of the window of the room I am in, the Secondness cause of the window being opened or closed is me interacting with the window such that it changes from being open to being closed or vice versa. Depending on the particular room and window, how that is achieved may vary: I may have to turn a lever and push or pull; I may need to flip a latch and raise or lower a whole section of panes; I may just need to pull a rope or press a button. But these are all peculiar to the situation, and I interact appropriately with the existents available.

When my action is successful – the window changes state from open to closed or vice versa – then I have exploited a modal affordance, a Thirdness, present in the situation.⁷ Here these are, if you like, rules for opening or closing that *type* of window, although maybe not that particular *token* of that type. Such rules are causally relevant – in that they should be exploited for the change in state of the window to occur – but they do not, by themselves, change the window’s state: something agent-like has to exploit them to do that. And it need not be human: a blast of wind or vibrations from a passing train or truck could do as well.

Now suppose I have a habit of opening a window of a room I find too warm, closing it if the room is too cold. This is another Thirdness cause in this case: it is general because it does not state what particular room or window is involved; and it is causally relevant in that it motivates the Secondness cause, the interaction with the window. But it is not enough by itself to open the window. If the window is physically inaccessible to me then, no matter how hot or cold the room is, no matter how much I want to open or close that window, it resolutely refuses to change state. We need the Secondness cause, the brute interaction, to do that.

And again, this need not require a human agent. Consider a room with an automated mechanism that opens and closes the window according to the time of day and the temperature in the room. This follows a simple rule, a Thirdness, that under certain general conditions, leads to the motion of cogs, rods and levers interacting with the window such

⁶This is a favourite example of von Wright (1971).

⁷See Sections 3.6.4 and 3.6.5.

that it opens or closes. The rule is a Thirdness cause, the interaction a Secondness cause. And again, the Thirdness cause is not enough by itself. If we remove those cogs, rods and levers then no matter how many times the timer relay is tripped, no matter how many times the bimetallic strip flexes past a threshold, the window resolutely refuses to change state.

Thirdnesses are causally relevant, but if that is all there is – as the metaphysician of ‘III’ would have it – then nothing changes. Change requires there be interactions, along with whatever rules and laws there are; that is, it requires an independent Secondness.

It follows from this that, without an independent Secondness – and thus without Secondness causes – scientific, that is, truth-directed inquiry is impossible. In such inquiry, the inductive, experimental stage involves inquirers acting on their environment so as to provoke reactions and then observing and interpreting those reactions, irrespective of whether those reactions are what was expected. Inquirers are, so to speak, asking the world questions and hoping that the answers are comprehensible. But without Secondness causes, no reaction, no answer can be forthcoming. I may well imagine – hypothesise – what might happen when I, for example, roll or slide variously shaped objects of different materials down a slope. Until I actually perform the experiments and observe the results – that is, interact with the environment – I cannot decide whether my conjectures are real or fictional. But without the capability to cause an object to roll or slide down a slope – without an independent Secondness – the experiment cannot be performed and no results can be forthcoming. A metaphysics of ‘III’ forgets that ‘there is a real world with real actions and reactions’ (CP: 1.368) and is thus not a viable metaphysics for the special sciences because it makes the activity of those sciences impossible.

On the Peircean line then, there are a raft of problems that come with a metaphysics of ‘III’, of Thirdness alone. These are summarised in Table 6.1.⁸

Pulling all these issues together: Thirdnesses – habits, rules, laws – are subjunctive conditionals that express, in general terms, would would transpire if some situation occurred. However, by themselves they do not compel their own obedience; nor do they actualise the possibilities they cover; nor do they generate existents, the behaviour of which they

⁸There is another problem – without Secondness there are no indexes, without which there are no propositions and thus no *true* propositions – but this would require a dive into semiotics, which we are avoiding here for the extra complexity that would bring. See Stjernfelt (2015) for a Peircean way with propositions.

Problem	Missing category	Brief description
Genesis	I, II	Mysterious how the Thirdnesses – habits, rules, laws – came to be as they are
Applicability	I (II)	Thirdnesses disconnected from possibilities in the universe. This is the Firstness analogue of governance
Distinguishability	I	Thirdnesses are indistinguishable from each other, as are their components
Compulsion	II	Thirdnesses do not compel obedience
Governance	(I) II	There are no existents, the behaviour of which the Thirdnesses supposedly govern. This is the Secondness analogue of applicability
Actualisation	(I) II	Possibilities are not actualised, existents not generated
Change	(I) II	Nothing changes
Inquiry	II	Scientific, that is, truth-directed inquiry is impossible

Table 6.1: Peircean problems with a metaphysics of ‘III’

are meant to govern; and nor do they implement change, even though they can motivate *something else* to perform that implementation. In short, Thirdnesses by themselves don’t *do* anything, and nothing happens if Thirdnesses are all there is. A metaphysics of ‘III’ thus yields a universe much like one at the infinitely distant future limit in Peirce’s cosmology (see Section 4.4.1): a universe that is perfectly static and dead. This is a universe in which scientific – that is, truth-directed – inquiry is impossible and so a metaphysics of ‘III’ is not a viable one for the special sciences.

6.4 French’s OSR is a metaphysics only of Thirdness

Ontic structural realism (OSR) is, broadly, the view that structure is ontologically primitive. It is thus broadly non-Humean, if Humeanism is understood as only accepting matters of particular fact – Secondnesses – as primitives, along with so-called natural properties, which might be considered as intrinsic and thus as Firstnesses. OSR might be distinguished⁹ from other non-Humean accounts that accept some kind of metaphysically prim-

⁹Earlier in its short history, it might also have been distinguished by being a metaphysics *of* and not *for* the special sciences: that is, a *scientific* rather than an attempt at a scientific metaphysics. Or at least, that was the impression that Ladyman *et al.* (2007) gave, seemingly to recommend just reading off the metaphysics from the outputs of the special sciences. Subsequent authors – such as Andersen and Arenhart (2016), McKenzie (2017) and Berghofer (2018) – have argued against this, and Ladyman (2018) himself has retreated somewhat from his previous position. So it seems that this can no longer be regarded as a distinguishing feature of OSR.

itive modality – such as that of Maudlin (2007)¹⁰ – in what it leaves out, and how it does so. According to the classification of Ainsworth (2010),¹¹ this gives us three basic varieties of OSR, according to whether properties and objects are primitive or not:

OSR1 Structure as primitive; properties and objects not

OSR2 Structure and objects as primitive; properties not

OSR3 Structure and properties as primitive; objects not

OSR1 corresponds to the position defended by Steven French and James Ladyman (French (2014) and Ladyman *et al.* (2007, Chap.3)) and OSR2 to the ‘moderate’ OSR advocated by Michael Esfeld and Vincent Lam (Esfeld (2004); Esfeld and Lam (2008)). OSR3 is suggested by Ainsworth (2010, 56–57) himself, and also appears as an alternative in Chakravartty (2007, Chap.6) and seems to be the variety favoured by Holger Lyre (Lyre (2004)).

According to Ainsworth’s classification, each of these varieties of OSR can be further split into eliminative and non-eliminative varieties, depending on whether the non-primitive elements are removed completely from the ontology, or whether they are allowed an emergent, but distinct, status. In a curious example, Ladyman *et al.* (2007) are eliminative for physics, but non-eliminative for other special sciences, who are entitled to build ontologies appropriate for their inquiries; although if there is a conflict between, say, physics and geology, physics has the final say.

Here we are concerned with the eliminative variety of OSR1 defended by French, in which ‘all there is, is structure’ (French (2014, 177)). We will attempt to show that this is a metaphysics of ‘III’ and is thus, according to the arguments given earlier in this chapter, not a viable metaphysics for the special sciences.

OSR has been an active research programme since the late 1990s and has already accumulated a raft of objections and difficulties. A small selection of these is given in Table 6.2, along with a few references where those objections are raised or considered.

These objections are illustrative of the debates surrounding OSR as a distinctive view and are mentioned to give some background information. However, while a couple of these

¹⁰On the Peircean line, Maudlin’s account is nominalistic because it seems to make laws inexplicable.

¹¹We are using Ainsworth’s classification because it seemed the neatest for our purposes. Others are available by, for example, McKenzie (2017) and Berghofer (2018).

Problem	References
OSR requires relations without relata and this does not make sense	Psillos (2001, S22–S23); Psillos (2006, 567–670); Psillos (2016, 217); Busch (2003, 213–214); Chakravartty (2003b, 869–876); Frigg and Votsis (2011, 262–264); Wolff (2019, 17–21)
OSR cannot distinguish physical from mathematical structure, leading to Pythagoreanism	Cao (2003); French (2014, Chap.8); French (2019, 22–23); also see Tegmark (2008) for a modern Pythagoreanism
OSR is not realism	Cao (2003); Psillos (2016, 165–166); Bueno (2019, 7); Chakravartty (2019, 13)
OSR is not well motivated	Ainsworth (2010, 53–54); Frigg and Votsis (2011, 268); Psillos (2016, 163–164); Andersen and Arenhart (2016); Berghofer (2018); Chakravartty (2019, 11–13);

Table 6.2: Some problems with OSR raised in the literature.

will be mentioned *inter alia* in what follows, the aim here is not to supply additional arguments on one side or another of those objections but, as just mentioned, to try and show that, by Peircean lights, French’s eliminative OSR is a metaphysics of ‘III’ and thus not viable as a metaphysics for the special sciences. To this end, four ‘exhibits’ will be presented where French’s position shows some aspect of being a metaphysics purely of Thirdness: there is only structure which is made of laws alone; there are no non-relational properties; there are no objects; and the burning of ladders through what French calls the ‘Poincaré Manoeuvre’.

6.4.1 Exhibit A: there is only structure consisting only of laws

Peirce can himself be considered a kind of structural realist, since his categories are structural in nature. However he does not think that structure is all that there is, only that it is most important, at least for classification (CP: 1.288 and see Section 2.2.1). For Peirce, all structures involve three basic types of relation – monadic, dyadic and triadic – each associated with one of his three categories of Firstness, Secondness and Thirdness, all of which are equally fundamental.

French, by contrast, maintains that all there is, is structure (French (2014, 177)), which is constituted solely by laws:

It is the laws and symmetries of our theories of contemporary physics, appro-

privately metaphysically understood via notions of dependence and taken as appropriately modally informed. (French (2014, xi))

... laws plus the kinds of symmetries that group theory so beautifully captures make up what the advocate of OSR insists is ‘the structure of the world’. (French (2014, 142))

Laws, in Peircean terms, are Thirdnesses and, as would-bes, are inherently modal, so there is no difficulty with modality when assessing French’s view in a Peircean light.

There might be a worry here that OSR is not a realism at all because, first, that phrase ‘our theories’ could suggest a nominalistic projectivism: the generals in our language are being foisted on a world that is presumed absent of generality. And second is that, in only allowing laws, French’s account is nominalistic through admission of only a single mode of being, this being one of the characteristics of nominalism according to Peirce (see Section 5.1). On the first point, we can take it that French is speaking in good faith and that our best theories are hoped to be accurate representations of principles operative in the universe at large, and not just in human reasoning. And on the second, while this is an important issue from a Peircean standpoint, French says nothing explicit on the matter of modes of being, so I am not inclined to press that point here for want of a clear reply.

Here then is the first piece of evidence in the case that French’s is a metaphysics of ‘III’: there is only structure and that structure is solely made up of Thirdnesses. However, a possible flaw in this evidence is that French’s structure is made up of laws *and* symmetries, so something has to be said about these latter.

It is not entirely clear what symmetries are, if they are meant to be something extra in addition to laws. One option is that they could be some kind of pervading constraint on laws and would thus be a substantial ontological addition. But another is that they could just be invariants that fall out of laws – artefacts of the laws if you like – and thus add nothing to the ontological picture (French (2014, 151–153, 237, 264); Psillos (2016, 167–168)).

It is clear that searching for symmetries has been fruitful for physicists, leading to, for example, a way to unify the electromagnetic and weak nuclear forces (Glashow (1961)), and to catalogue the particles in the Standard Model. Then there is Noether’s theorem (Noether (1918)), that connects the symmetries of a system to conservation laws operative in that system.

However, these do not decide the question of whether symmetries are fundamental constraints or invariants/artefacts of laws. To take a simple example, consider the equations of linear motion with constant acceleration, familiar to most students of physics and applied mathematics.¹² These exhibit translational symmetry, in that every unit displacement is the same as every other unit displacement. But there is nothing about the equations that tell us whether that symmetry is due to the laws expressed by the equations, or due to something else, some property of the universe that constrains the laws such that they exhibit this symmetry.

In his discussion on this issue (French (2014, 151–153)), French himself does not entirely decide either way. He favours the invariance-artefact view because, if they were fundamental constraints, symmetries would seem to be intrinsic – that is, non-relational, non-structural – features of something, probably space-time, and he wants to maintain a structural view of everything, including space-time, so he cannot admit symmetries as non-relational properties. So it seems he should be saying that there are only laws, symmetries being invariants in those laws but with no additional ontological significance. And yet he wants to make a distinction between laws and symmetries, perhaps because the latter have had important heuristic value in theory building (French (2014, 299–300)) and seem to be at the heart of the Standard Model. Nevertheless, without symmetries adding anything of ontological significance, it would seem fair to say that French’s structure comprises only laws. This first piece of evidence in the case for French’s OSR being a metaphysics of ‘III’ is not compromised by the inclusion of symmetries.

6.4.2 Exhibit B: there are only relational properties

French maintains that there are no non-relational – that is, intrinsic or non-structural – properties. Properties, for French, are ‘dependent upon the laws’ (French (2014, ix)), and they are what they are according to their position in the structure, in the ‘network of relations’ (French (2014, 264)). At least on the face of it, this is a denial of Firstness, but to make sure we have to clarify the difference between relational and non-relational properties, at least from the Peircean point of view; and also the notion of a structural property,

¹² $v = u + at$; $s = ut + \frac{1}{2}at^2$; $s = \frac{1}{2}(u + v)t$; $v^2 = u^2 + 2as$; and $s = vt - \frac{1}{2}at^2$; where s is the displacement, u is the initial velocity, v the final velocity, a is acceleration and t is time elapsed.

because French sometimes seems to use ‘relational’ and ‘structural’ interchangeably. After this clarification, it will be argued that the variety of relational property French uses – what we call ‘Thirdness relational properties’ – requires him to address the problem of genesis (see above), which he fails to do.

For Peirce, a non-relational property is a Firstness – it is as it is irrespective of aught else. It is relational only in the sense that it can attach to a structure but only through a single attachment point, which is, so to speak, an output. A property is relational if it arises through a relation, although it need not be a property of the relation itself: such a latter property could be non-relational if it is intrinsic to that relation or relational if it arises through the relation itself standing in relation to something else.

Relational properties, on the Peircean line, come in two basic flavours, one associated with Secondness and the other with Thirdness. A Secondness relational property is one acquired by relata standing in a reciprocal dyadic relation to each other. Say a car bumps into another at lowish speed and the first car gets a dent in its wing – which is the shape of the other car’s bumper – while the second car gets some paint on its bumper from the first’s bodywork. Through the interaction, each car has acquired a property associated with the other: the shape of the bumper of the second car is the shape of the dent on the first, while the paint on the first is now also on the second. If a relational property is purely of this Secondness kind, then it supervenes on the properties of the relata involved, which are existents since they stand in a reciprocal dyadic relation to something else; at the very least, to each other.

A Thirdness relational property is one that arises through the operation of a Thirdness: a habit, rule or law. In the example of the bumping cars, the bodywork of the first car could have a habit of distorting to the shape of any impacting body, and the bumper of the second car could have a habit of picking up material from anything it impacts. By themselves, these habits do not cause impacts, only mediate what the result would be if an impact occurred. Thirdness relational properties do not, however, supervene only on the properties of the existents involved.

Imagine that the first car’s bodywork had a habit of, not flexing and distorting, but shattering on impact, or bursting into flames or evaporating. This does not seem to be a property it acquired from the other car through the impact, but has more to do with the

Thirdness that mediated the result of the impact. For Thirdness relational properties, it is the properties of the relation itself that shape the relational property that emerges, in addition to any properties associated with extant relata.

It might be wondered what properties a Thirdness has. As earlier, let us consider a Thirdness as a binary operator in the subjunctive mood. It takes two inputs and has one output and, if the inputs are appropriately filled – they are instances of appropriate types – then it would produce an appropriately typed output. What is and is not appropriate at the input and output would seem to be properties of the operator, along with what the operator would do with the inputs – how they would be transformed – if they were filled. Which ‘loose ends’ (see Section 2.2.3) are the inputs and which the output would also be a property of the operator, as would the order in which the inputs are taken in, since not all operators are commutative.

Moving on to what is meant by a structural property, this could mean, first, a property found at some position in a structure, simply by dint of being that position in that structure: and this is the sense that French seems to intend. Or it could mean, second, those properties that a structure has simply by dint of being a structure. In both cases, what properties are salient – the ones we take notice of – depends on how the structure is represented. Mathematics supplies many options for representation here – model, group, category and graph theory could all be used, with French favouring group theory – and each makes different properties salient.

Here again, there is a worry that OSR could end up not being a form of realism (Psillos (2016, 165–166)), since the salient properties could be being projected onto some supposedly real structure from our representation, even though the real structure – if there is one – may not have those properties, or those properties are not relevant to the structure’s operation. And again, in reply, we can take the OSRist to be behaving in good faith and hoping that there is some representation that can accurately capture the real structure.

Looking at structural properties in the second sense – structure *qua* structure – and taking graph theory as our guide, we have properties such as: whether the graph is open or closed, connected or disconnected and, if the latter, how many pieces there are; how many edges and vertices there are, related to each other through Euler’s formula and its variants; the valencies of the vertices; the average path lengths; the presence or absence

of loops and so on. Now, it is difficult to see how these properties alone can give rise to physical properties such as mass and charge: we seem to need something more. Moreover, however we choose to represent the real structure, there are going to be properties of the representation – and thus, hopefully, of the real structure – that are non-relational: in the graph-theoretic construction, that there are vertices and edges is not a relational property, although it is a property of the structure. Supposedly there is only one world-structure, so it does not stand in relation to any other structure from which it could have acquired relational properties *qua* the whole structure.

With structural properties in the first sense – positions within a structure – and again with graph theory as the example, we have properties such as: adjacency; paths with an end point at that position; the valencies of neighbouring vertices; and what might be called individuation by counting – here is one vertex, here is another and here is a third – which seems to violate the principle of the identity of indiscernibles, at least according to Leitgeb and Ladyman (2008) when they discuss the individuation of vertices in an unlabelled graph.¹³ As with structural properties *qua* structure, it is difficult see how these properties, even when combined with those other structural properties, could give rise to physical properties such as mass and charge.

Now we have, hopefully, gained some clarity on the terminology used, it should be clear that French tries to get away without any non-relational properties. His structure is made up entirely of laws, Thirdnesses, which are triadic relations: there are no monadic or dyadic relations that might indicate the presence of an intrinsic property or an extant individual object. French thinks that requiring such presence is just a metaphysical prejudice (French (2014, vi, 192)) and he answers the relations-without-relata objection by saying, in effect, that there are only triadic relations – laws – and all their relata are other laws. All properties are thus, for French, Thirdness relational properties, and that would supposedly include the properties of the laws themselves. Without allowing for monadic relations, French in effect denies Firstness, and this is further evidence that his metaphysics is one of Thirdness alone.

¹³This type of individuation requires the use of indexes – the indexical term ‘here’ indicates as much – a variety of sign that primarily involves Secondness, so is unavailable, or at least deeply suspect, to a metaphysician of ‘III’. While this might be an interesting line to pursue in the current context, we’ll say no more about it here to avoid additional discussion concerning semiotics.

To see how properties might arise through Thirdnesses alone, consider how a property – say, mass – might be defined operationally. This could be done in terms of the operations an agent performs in order to produce a certain measurement, the result of which is called a ‘mass’. If we remove any agent that actually performs those operations, we have a sequence of operators in the subjunctive mood – if an agent performs A they would obtain B, and then if they perform C on B they would obtain D and so on – which is one way to construe a structure of Thirdnesses. The output of this chain of operators is a ‘mass’.

A problem with this approach is that there seem to be many ways to obtain a measurement resulting in a ‘mass’, and so we don’t seem to have a univocal definition of mass. To be clear, this is not to suggest that OSR is a variety of what is usually called operationalism, criticisms of which are discussed by Chang (2019, §2). In performing their measurements, an agent exploits modal affordances – Thirdnesses – in their environment: it is these that are the operators we are interested in. The worry is not that the various actions the agent performs differ from each other, but that the affordances exploited in each case are different, and thus we end up with different relational notions of ‘mass’ according to different sequences of operators, each operator being a law in French’s structure.

One way to solve this problem is to say that all the sequences output the same property because it was inserted at the beginning of the chain of operators. This would make mass a non-relational property that the operators are not generating but rather tracking and exhibiting. This is not how an eliminative OSRist such as French would see it. Instead, there is some key sequence in the chain of operators which is common to all procedures that produce a mass at their output: there is a certain path through the world-structure that produces mass at its output and this path is shared across those procedures, no matter the other operators involved.

However, what this seems to miss is the properties of the laws themselves, whether these are intrinsic or relational. We have this structure of laws that generate properties, but since these are Thirdness relational properties, they are dependent on the properties of the laws that generate them – as well as being conditional on something happening, the laws by themselves having no power of actualisation. Supposedly French would want the properties of the laws to be relational as well, but to show this he needs to give an account of how the laws came to be as they are. Similarly, whatever kind of structure the

real structure is, it would have those properties intrinsic to that kind of structure: we are owed an account of how this kind of structure came to be. This is the problem of genesis as mentioned before as one of the markers of a metaphysics of ‘III’ and French does not address it, suggesting only an ‘appeal to some form of the anthropic principle’ (French (2014, 194)) with a note that such an account cannot be given in structural terms (French (2014, 194n3)). The case that French’s is a metaphysics of ‘III’ is only strengthened by his disinclination to engage on the problem of genesis, a problem that Peirce does engage with (see Section 4.4), whatever may be thought of Peirce’s results.

As with exhibit A, there may be a flaw in this evidence, in that French allows for certain fixed, numerical quantities:

...such as the mass of quarks or the charge on the electron. These can be thought of as akin to initial conditions that specify the nature of this world as contrasted with other possible worlds in which the relevant laws... hold. (French (2014, 286))

In other words, the constants that the Standard Model does not determine numerically – nineteen of them and probably more, if dark matter can be included following the same patterns – are not produced by the structure, and French freely admits this (French (2014, 286–287)). However, what are missing from the structure are just the numerical values of these properties, the physical and metaphysical significance of which are already determined by the structure (French (2014, §§10.7–10.8)). The laws have determined, relationally, what mass and charge are; all that is missing is certain numbers, which do not of themselves define those properties. So this does not seem to threaten the evidence of this exhibit in the case that French’s is a metaphysics of ‘III’.

6.4.3 Exhibit C: there are no objects

The next piece of evidence in that case is French’s claim that there are no objects. Or rather, the claim is that what we usually call objects – such as trees, tables and toucans, along with quantum entities – are purely a structural matter and there is no metaphysical *something* – in addition to or instead of the structure and metaphysically prior to or on a par with that structure – that grants object-hood.

French is concerned that physics fails to decide whether quantum entities are or are not

individuals – there are arguments on both sides – and takes this underdetermination to be unbreakable (French (2014, Chap.2)). His solution is to dispense with objects altogether, so that the issue of whether they are individuals does not arise (French (2014, 43)).

From the Peircean point of view, this looks like a denial of Secondness, since on that view what we call objects are individual existents – actuals – and existence is a matter of Secondness. We need here, as with the previous exhibit, to clarify our terms, in this case the notion of an ‘object’. We’ll start with the Peircean view, then move on to how French conceptualises purely structural objects. The argument here is that French’s objects are clusters of possibilities but without any means of being actualised – they are types, not tokens – while what we usually call objects are tokens, not types.

For Peirce, what we usually understand by ‘object’ is an individual existent – ‘existence (not reality) and individuality are essentially the same thing’ (CP: 3.613) – and something exists by standing in reciprocal dyadic relations with other things: existence is the mode of being characteristic of Secondness. A law – a Thirdness – has a different mode of being and does not exist in Peirce’s sense: it does not stand in reciprocal dyadic relations to other things, although it can be real (see Chapter 3).

An existent is not individuated by self-identity because that is not a genuine Secondness: something does not stand in a reciprocal dyadic relation to itself. And nor does the principle of the identity of indiscernibles provide a reliable way to pick out individuals (Peirce (1899)). Rather, each existent stands in a unique configuration of reciprocal dyadic relations with other existents. Each of those relations are *hic et nunc* – here and now – and thus the configuration fluctuates continually. Consider a gardener going about their work, cutting the lawn, pruning the roses, tending the clematis: as they move around, interacting with portions of their environment, so the dyadic relations they stand in with that environment fluctuate. To exist is to interact and to interact is to exist: both are a matter of Secondness. How those relations are configured *in general* is governed by Thirdnesses – habits, rules, laws – and thus the existents have a measure of persistence. If you like, the Thirdnesses specify types. But the laws do not specify the interactions *in particular*, because the interactions, insofar as they are *hic et nunc*, are brute and inexplicable.

Putting this another way: Thirdness handles types while Secondness handles tokens and we need both. What we usually call individual objects are tokens, instances of types.

If there were only types and no tokens, there would be nothing that we would usually call an object: we could have types for trees, tables and toucans but nothing to point at and say ‘that is a toucan’. The universe would be empty.

On the Peircean line, quantum fields are objects. They interact with each other – stand in reciprocal dyadic relations with each other – and thus exist. Through those interactions – Secondnesses – they manifest their characteristic quanta: the menagerie of the Standard Model. These quanta can be individuated by imaging and counting at detectors, from the sophisticated ones at modern accelerators, through more homely cloud chambers to CRT screens and photographic plates. The laws of the Standard Model, by themselves, just specify the types, corralling the possibilities so that they can be actualised in an orderly fashion. By themselves, they do not actualise anything, they do not generate instances of those types. We need Secondness for the instancing, for there to be extant quantum fields and particles.

Returning to French, some of the Peircean position carries over. French also takes issue with self-identity and the principle of the identity of indiscernibles (French and Krause (2006)) – at least as regards quantum entities – and he maintains that object-hood is a relational matter, for example citing Cassirer with approval on this point (French (2014, 97)). Where French breaks from Peirce is that the only relations French allows are triadic ones because his structure consists only of laws, Thirdnesses: there are no reciprocal dyadic relations and so there are no objects. By Peircean lights, French is correct that his structure has no objects.

Nevertheless, French avers that we still want to be able to talk about objects, even when they are purely features of structure, and he surveys various manoeuvres to achieve this, although he does not decide for any one, each having merits and demerits (French (2014, §7.4)). There is also the issue of how the structure is supposed to produce what one might take as an object, and here French again considers a number of options, all of which have good and bad points and so again he does not plump for just one: any of them might be viable for an OSRist after further investigation (French (2014, §7.7)).

What all these latter options have in common is that they, in various different ways, bundle properties together to arrive at something that might be called an object. In the previous exhibit, we gave a way that a structure of laws could emit a relational property,

and the idea is then that a structurally conceived object involves, so to speak, taking a number of these relational properties all at once: it would be a confluence of paths across the structure.

There is a problem here and, again, it involves French's claim that the structure is made up only of laws. Laws cover continua of possibility. In taking together a number of the relational properties that were generated in the way suggested earlier, we further constrain the continua covered by the laws involved. Using the paper and pencil analogy, we can add further pairs of dots with imaginary lines between them, ensuring the lines intersect each other. Then the segments between the intersections along each line, when taken together, make up our structural object. But this is still a cluster of possibilities, not an actual object: it is a type, not a token. No matter how many laws we include, no matter how many lines we imagine on the paper, what we get out remains a cluster of unactualised possibilities. Laws alone actualise nothing.

Perhaps French would be happy that the only things we can call objects are types – there are several places where he seems to admit that his structure produces only types (French (2014, 264–265, 266, 267–268)) – although maybe he shouldn't be, since it seems to break the underdetermination he relies on in favour of non-individuals: types are general.

But the point here is that tokens are just as important as types because it is the tokens that interact with each other. It is not the type 'biscuit' that temporarily assuages my hunger: it is a token of that type. It is not the type 'cricket ball' that gets hit for six and smashes a window: it is a token of that type. And it is not the type 'electron' that leaves a mark on a plate or interacts with the phosphor on a screen: it is a token of that type. With his structure only of laws, French seems to have eliminated the tokens that interact with each other to make up the physical world, and replaced them with types that specify what the tokens would be like if there were any: which there aren't because there are only types. This is just what we would expect from a metaphysics absent of Secondness and thus the way French eliminates objects lends weight to the case that his is a metaphysics of 'III'.

6.4.4 Exhibit D: ladder burning

The last piece of evidence we'll present in the case that French's is a metaphysics of 'III' is that he deploys what he calls the 'Poincaré Manoeuvre', which very much looks like an exercise in ladder burning:

Although we might introduce the terminology, or perhaps better, symbology, of objects as part of our representation of the relevant structure, these should be regarded as mere devices that allow us to construct, articulate, or appropriately represent the relevant structure, and any representational priority they might have should not be taken to imply that they are ontologically foundational. (French (2014, 67))

This is much the same as Peirce's characterisation of how the metaphysician of 'III' obtains their Thirdnesses, then throws away the Firstnesses and Secondnesses they used to get there. Similarly, French regards these as 'mere devices' that can be discarded once we have obtained the structure. Certainly such a manoeuvre may be legitimate for a mathematician who, by Peirce's lights, deals only in hypotheses and cares not whether their conclusions play out in the world: they are not committed to the hypothesis of reality. For the mathematician, the devices are purely hypothetical, it making no sense to call them real or fictional (Section 2.2.2).

'But,' Peirce says, 'it is not true.' (EP2: 177) The devices cannot be discarded if we are a metaphysician or physicist concerned with distinguishing the real from the fictional, a distinction the mathematician has no interest in:

... what is required for the idea of a genuine Thirdness is an independent solid Secondness and not a Secondness that is a mere corollary of an unfounded and inconceivable Thirdness; and a similar remark may be made in reference to Firstness. (EP2: 177)

The metaphysician or physicist – unlike the mathematician – may not just be discarding purely hypothetical devices: they would have to take a stand on whether the devices employed are real or fictional. It would, after all, seem very odd that a real structure could be constructed from purely fictional resources. We can only obtain a real Thirdness from real Firstness and real Secondness – 'if you have the idea of Thirdness you must have had the ideas of Secondness and Firstness to build upon' (EP2: 177) – and discarding them as mere devices would be discarding important elements of reality. Doing so is the mark of a metaphysics of 'III'.

This concludes the presentation of the four exhibits. Overall then, at least from the Peircean point of view, French's eliminative OSR is a metaphysics of 'III' – of Thirdness alone – and is thus not a viable metaphysics for the special sciences for the reasons given earlier; not least because it renders scientific inquiry impossible through its inability to account for interactions, Secondnesses. What we need instead is a metaphysics that involves all the categories – a metaphysics of 'I II III' – and this is provided by Peircean realism.

6.5 Chapter summary

Peircean arguments were given concerning what goes wrong with a metaphysics that does not admit an independent Firstness and Secondness. These were summarised as problems of genesis, applicability, distinguishability, compulsion, governance, actualisation, change and inquiry. These show what goes wrong with a metaphysics that does not admit these categories and, taken together, make a metaphysics of 'III' – of Thirdness alone – not viable as a metaphysics for the special sciences, not least because it renders scientific inquiry impossible through lack of interactions.

A case was then made that the eliminative OSR of Steven French is just such a metaphysics of 'III'. This was done through the presentation of four 'exhibits', key planks of French's account as found in French (2014): there is only structure comprised only of laws; there are no non-relational properties; there are no objects; and French's use of his 'Poincaré Manoeuvre'.

From the Peircean point of view, we cannot discard Firstness and Secondness if we want a scientific metaphysics and, moreover, French's eliminative OSR is a metaphysics of 'III' and thus not a viable metaphysics for the special sciences.

Chapter 7

Metaphysical quietism

So far we have presented a case for Peircean realism as a viable metaphysics for the special sciences and, in the last two chapters, argued against metaphysics that do not admit all three categories. There is, however, one important issue remaining, that of metaphysical quietism, which threatens to undermine the whole point of this thesis. The aim of this chapter is to defuse this threat.

Metaphysical quietism is here understood as a positive recommendation that metaphysical inquiry isn't worth it or cannot be done, that it is either futile – because, say, it makes no difference – or is impossible. Such quietism is a definite thesis and can be distinguished from other uses of 'quietism', such as: a temporary withholding of assent on which hypothesis to take forward because the inquiry is not yet advanced enough; and someone's disinclination to venture an opinion because they they do not have the relevant background or are simply not interested in the topic.

For the Peircean, this definite thesis blocks the way of inquiry, not merely by saying that some single question cannot be answered before any inquiry is attempted, but by excluding a whole domain of possible questions. Moreover, it is symptomatic of the nominalist view of reality, so may not be metaphysically quiet at all.

First, Section 7.1 will make some general, Peircean comments against quietism and about why we need metaphysical inquiry: this is largely a recap of material from Chapters 3 and 4. Then three examples of the type are discussed: in Section 7.2, Pyrrhonism as elaborated by Sextus Empiricus, Wittgensteinian linguistic quietism in Section 7.3 and, in Section 7.4, the quietist element of Huw Price's global expressivism. In each case, a brief

exposition of the relevant elements will be given followed by a commentary, which will attempt to show that it fails as a viable metaphysical quietism. In every case, the main reason for this failure is that there has been a deliberate exclusion of required resources, but without any argument that establishes that there are no such resources.

7.1 General considerations

There is no first philosophy; every inquiry has to start from somewhere. What we start with are our presuppositions, the subject matter for metaphysical inquiry, and everyone of us ‘has a metaphysics, and has to have one’ (CP: 1.129), just to get on in everyday life. As we set out on an inquiry, we do not doubt these presuppositions, they do not call for, nor need justification. As Peirce puts it:

[T]here is but one state of mind from which you can ‘set out,’ namely, the very state of mind in which you actually find yourself at the time you do ‘set out,’ – a state in which you are laden with an immense mass of cognition already formed, of which you cannot divest yourself if you would; and who knows whether, if you could, you would not have made all knowledge impossible to yourself? Do you call it doubting to write down on a piece of paper that you doubt? If so, doubt has nothing to do with any serious business. But do not make believe; if pedantry has not eaten all the reality out of you, recognize, as you must, that there is much that you do not doubt, in the least. (EP2: 336)

This is an anti-sceptical position but, just because presuppositions do not need justification, that does not mean that we could *never* come to doubt them, nor that we cannot inquire into them. They are beliefs much as any other: we rely on them in our actions and they generate expectations that could be frustrated by some surprising situation, leading to a doubt to be settled by truth-directed inquiry. To pursue this inquiry our *logica utens* – our evolved capacity for reasoning – may not be enough because it is entangled with our presuppositions, where these are derived from our evolved instincts. What we need is a properly reasoned logic – a *logica docens* – in Peirce’s broad sense, involving not just formal logic, but theories of inquiry and meaning as well.

We need to be able to inquire into presuppositions because they can become doubtful in the course of any inquiry that assumes them. If they are faulty, and we continue to assume them, then our subsequent inquiries will be rotten at the core, so we cannot ignore presuppositions or pretend they are not there; as Peirce says:

Find a scientific man who proposes to get along without any metaphysics – not by any means every man who holds the ordinary reasonings of metaphysicians in scorn – and you have found one whose doctrines are thoroughly vitiated by the crude and uncriticized metaphysics with which they are packed. . . . Far better, then, that that metaphysics should be criticized and not be allowed to run loose. (CP: 1.129)

By contrast, the metaphysical quietist, while accepting that we do have presuppositions, denies that they can be inquired into, such inquiry being impossible or futile. Of course, for any metaphysical quietism to be viable, it must be entirely neutral as between different metaphysical views especially, in our case, as between nominalism and Peircean realism. This is not easy because, in claiming there is something which cannot be inquired into, the quietist in effect claims there is something that can never be known.¹ This is in direct violation of Peirce's first rule of logic – 'in order to learn you must desire to learn and in so desiring not be satisfied with what you already incline to think' (EP2: 48) – and blocks the way of inquiry. And it is symptomatic of the nominalist view of reality – that reality is in some sense unthinkable (see Section 5.1.1) – so there is always the suspicion that any purported quietism is not so, but a disguised nominalism.

In what follows, however, this particular charge will only be levelled at Huw Price's global expressivism, where the evidence seems clear: it is not so obvious in the cases of Sextus Empiricus's Pyrrhonism and Wittgensteinian linguistic quietism. This is not to say that the three examples treated here are all quite different: they all display similar features. They all try to deny the resources required for metaphysical inquiry by – in the case of Pyrrhonism and Wittgenstein – refusing the formation of a *logica docens* or – in the case of Price – by denying inquirers access to their environment. There are many similarities between Sextus's and Wittgenstein's accounts, most notably the thought that philosophy is stuck in phenomenology. Sextus is a sincere phenomenologist and his account fails as a viable metaphysical quietism because he has chosen not to acquire the resources required for metaphysical inquiry, not that there are no such resources; moreover, inquiry according to his methods is a sham. If Wittgenstein were a sincere phenomenologist like Sextus, his account would fail likewise. If he is insincere then, as we shall see, it fails because it is self-refuting. Global expressivism, insofar as it is a quietism, can be seen as a Wittgensteinian account with some attempts made to fix its problems. There are, however, problems with

¹For more on such a claim, see Section 3.6.1.

these fixes and, ultimately, it fails because it is nominalist, and not metaphysically neutral at all.

However, before we get into the details of each of these examples of quietism, there are a couple of initial worries that might be addressed. The first is that metaphysics as understood in this thesis is not the same as that with which the quietist is concerned. Peirce makes a distinction between bad and good metaphysics, the distinction being made with the help of the maxim of pragmatism: if a metaphysical hypothesis has no possible experiential consequences for anything in the universe, then it is bad metaphysics. If a presupposition has no possible effect on the outcome of an inquiry, it is simply redundant and can be discarded. In this way, things-in-themselves and isolated other worlds, for example, can be dispensed with. The quietist, however, may regard metaphysics as being entirely exhausted by this bad metaphysics, they might even give another name to what Peirce regards as good metaphysics. A problem with this is that their strategies for dispensing with the bad stuff tend to dispose of the good stuff as well, much as we saw with Van Fraassen's approach in Section 5.3.5, and as we will see with Price's reliance on Carnap in Section 7.4.1.3. Every presupposition gets tarred with the same brush, seemingly irrespective of whether it was relevant to the outcome of the inquiry or not.

The other worry we will mention here is that some presuppositions may not be beliefs in the Peircean sense; that is, they may not involve both holding something to be true and what is relied on in action. Obviously, a presupposition is something relied on in the activity of inquiry, so this worry comes down to the question: can the two characterisations of Peircean belief come apart? The answer to this is no, and for the same reason that Peirce's multiple characterisations of reality and truth do not come apart: they are different grades of clarity of the same concept (see Sections 3.2 and 3.5.2). Believing as holding something to be true is at the second grade of clarity – a definition in terms of other concepts – while belief as that which is relied on in action is at the third grade, a clarification according to its possible practical consequences. A consequence of trying to split belief apart will be explored in Section 7.2.1.2: it renders impossible inquiries that were perfectly tractable under Peircean inquiry.

If it is thought that some presuppositions are not beliefs because they are attitudes, values or methods, then – as discussed in Section 4.1 – there are beliefs associated with

them: that an attitude or value is appropriate and that a method is fit for its purpose. It is these beliefs that raise expectations and can be frustrated.

7.2 Pyrrhonism

The first example of metaphysical quietism we will look at is Pyrrhonism, which is the view expounded by Sextus Empiricus in his *Outlines of Pyrrhonism*.² This will set the pattern for the quietist admitting that we have presuppositions but, in effect, denying inquiry into them; although, as we shall see, the Pyrrhonist declines to admit or deny almost everything. The reading of Sextus adopted here follows that of Benson Mates (Mates (1996)) – whose translation of Sextus is used – in the matter of Sextus’s single-minded dedication only to the appearances.³ The consequences of that dedication – such as a deep political conservatism – are, however, largely my own work inspired, of course, by Peirce.

We will start by outlining what seem to be the key points bearing on Pyrrhonism being a type of quietism: the exclusive focus on phenomenology, on seemings; the distinction between that which is forced on us, and that which is not; and Pyrrhonian inquiry. This outline will be followed by commentary, which will attempt to show that Pyrrhonism is only quietist because it refuses to acquire the resources required for inquiry into presuppositions, not that such resources are impossible to acquire. Sextus is particularly interesting from the Peircean point of view because he makes much of inquiry: its aim and the strategies used to obtain that aim. It will be argued that Pyrrhonian inquiry is a sham: the answer was decided beforehand and the inquiry was designed to obtain that answer. Both this refusal to acquire appropriate resources and the sham nature of Pyrrhonian inquiry undermine the case for Pyrrhonism as a viable metaphysical quietism.⁴

²This is cited as ‘PH’ (for *Pyrrōneioi Hypotypōseis*) followed by the book and section number.

³Mates’s book is titled *The Skeptic Way*, and Sextus uses this phrase to describe his view. However, the Greek word ‘*skepsis*’ means ‘investigation’ and not ‘doubtfulness’. So to avoid confusion with other uses of ‘scepticism’, outside of quotations ‘Pyrrhonism’ and its derivatives will be used.

⁴As the aim here is to critique Pyrrhonism as a viable metaphysical quietism from a Peircean point of view, there is little attempt to put Sextus in the context of debates contemporary to him: a good place to start for that would be Bett (2010). While this might be poor classical scholarship, if Pyrrhonism is to be accepted as a modern quietism, it has to withstand modern criticism.

7.2.0.1 It's all about the seemings

Right at the beginning of his *Outlines*, Sextus makes it clear that everything that follows is to be taken as a first-person report of how things appeared to him at the time:

[C]oncerning the Skeptic Way we shall now give an outline account, stating in advance that as regards none of the things that we are about to say do we firmly maintain that matters are absolutely as stated, but in each instance we are simply reporting, like a chronicler, what now appears to us to be the case. (PH 1.4)

This is both the basic idea of Pyrrhonism, and also a statement that what Sextus says about Pyrrhonism is not to be regarded as either true or false. This also applies to Sextus himself: he calls himself a Pyrrhonist because he seems that way to himself. However, since Sextus is our main source for Pyrrhonism, we probably have to trust his report in this matter.

The basic idea of Pyrrhonism, then, is that the Pyrrhonist only makes first-person reports about their *pathē*, their feelings on the matter, no matter how categorical the report might seem, how like a claim it appears to be: the Pyrrhonist simply doesn't make truth-apt claims. These feelings concerning appearances are not just restricted to phenomena, to reports of sense, but to noumena, thoughts, as well (PH: 1.8–1.9). The Pyrrhonist is thus only concerned with appearances, which everyone agrees are what they are, but cannot themselves be said to be true or false:

...nobody, I think, disputes about whether the external object appears this way or that, but rather about whether it is such as it appears to be. (PH: 1.22)

Sextus is thus a thorough-going phenomenologist, so thorough that his own position is meant to be a matter of seeming and not of fact. To some extent this is fine from a Peircean point of view. Phenomenology has only a minimal commitment to the hypothesis of reality, namely that there are experiences. But for the Peircean, there is only so much inquiry you can do within phenomenology, where the only claim can be that I just had a certain experience: a claim that it is difficult to affirm or refute. And, of course, Peircean inquiry is truth-directed and Pyrrhonian inquiry is not. We will return to these points soon but we now turn to what it is that the Pyrrhonist assents to, and in what sense such assenting amounts to belief.

7.2.0.2 That which is forced on us

The Pyrrhonist assents to that which is ‘evident’ (see, for example, PH: 1.13, 1.19, 1.115). This is the word used in the translation of Mates (1996), but it is not to be understood as ‘that which has all the evidence in its favour’. Rather it is to be understood as ‘obvious’ or ‘taken for granted’ or ‘forced upon us’. It seems that, for Sextus, that which is ‘evident’ needs no evidence, because it is forced upon us (PH 1.115, 1.193). It is ‘non-evident’ matters that are characterised by finding evidence for and against.

We can ask what kind of things are forced upon the Pyrrhonist, such that they feel compelled to assent to them:

[T]he Skeptic does give assent to the *pathē* that are forced upon him by a *phantasia*; for example, when feeling hot (or cold) he would not say ‘I seem not to be hot (or cold)’. But when we assert that he does not dogmatize, we use ‘dogma’ in the sense, which others give it, of assent to one of the non-evident matters investigated by the sciences. For the Pyrrhonist assents to nothing that is non-evident. (PH: 1.13)

But this is not all, because the Pyrrhonist also finds themselves compelled to assent to that which allows them to function as a member of the society in which they find themselves:

Holding to the appearances, then, we live without beliefs but in accord with the ordinary regimen of life, since we cannot be wholly inactive. And this ordinary regimen of life seems to be fourfold: one part has to do with the guidance of nature, another with the compulsion of the *pathē*, another with the handing down of laws and customs, and a fourth with instruction in arts and crafts. Nature’s guidance is that by which we are naturally capable of sensation and thought; compulsion of the *pathē* is that by which hunger drives us to food and thirst makes us drink; the handing down of customs and laws is that by which we accept that piety in the conduct of life is good and impiety bad; and instruction in arts and crafts is that by which we are not inactive in whichever of these we acquire. And we say all these things without belief. (PH: 1.23–1.24)

This is Sextus’s reply to the Stoic objection, abroad in his time, of *apraxia*, inability to act: we need to assent to something in order to act, we cannot suspend judgement on everything.⁵ But his reply raises the question of what sense of ‘belief’ Sextus is using such that the Pyrrhonist can act without it, and whether a Pyrrhonist can have beliefs in some other sense. This is a matter of controversy in the secondary literature – for an overview

⁵This objection might be formulated slightly differently: holding only to the appearances, without beliefs to organise them, leaves us marooned in a swirling sea of noise, unable to act.

see Morison (2019) and Vogt (2021, §4.4) – and there is textual evidence for a variety of views.

Here, we will put this in Peircean terms, in which a belief is both the holding of something to be true, and that which is relied upon in action. A Pyrrhonist does not seem to have beliefs in the sense that they hold some proposition to be true: such a devout phenomenologist makes no claims so cannot hold anything as true or false, except maybe that they had an experience with a certain character, although that is more a matter of sincerity, of honest reporting. But they do have beliefs in the sense that they are relying on something in their actions, that they have expectations as to what the results of their actions would be and can be surprised when those expectations are frustrated. To function as a member of society they perform various actions, and the Pyrrhonist relies on what is forced on them by society as a guide to action, although they do not hold that what they are assenting to is either true or false.

For example, suppose the Pyrrhonist lives in a society that forces on its members ‘if you work hard you will be rich’. The Pyrrhonist does not think this is either true or false but assents to it and relies on it in their actions. Suppose then that they work for twelve hours a day, six days a week for twenty years, and find that they still cannot afford to buy themselves a small home. Here their expectation, as prescribed by the social injunction, has been frustrated, simply through reliance on it and even though they hold that that injunction is neither true nor false.

In the commentary we will try to show that separating the two aspects of belief – holding-as-true and reliance-in-action – gives the Pyrrhonist problems with their style of inquiry. The notion that Sextus could be *forced* to assent to something, anything, will also be challenged.

This is the first part of how Pyrrhonism can be construed as a variety of metaphysical quietism. What is forced on them, what they take for granted, constitute the presuppositions of everything the Pyrrhonist does in their everyday life – participating in the normal functioning of the society of which they are a member – and which are the starting point for every inquiry they conduct. We next look at the other part of the quietism package, how these presuppositions are supposedly immune to scrutiny.

7.2.0.3 Pyrrhonian inquiry

Sextus maintains that the aim of inquiry is to attain *ataraxia* (tranquillity): we are disturbed or troubled by some anomaly in the facts, in the appearances, and we seek to resolve this disturbance (PH: 1.12, 1.25–1.30). He identifies three ways this resolution might be achieved:

...some people have claimed to have found the truth, others have asserted that it cannot be apprehended, and others are still searching. Those who think that they have found it are the Dogmatists, properly so called – for example, the followers of Aristotle and Epicurus, the Stoics, and certain others. The followers of Cleitomachus and Carneades, as well as other Academics, have asserted that it cannot be apprehended. The Sceptics continue to search. (PH: 1.2–1.3)

Sextus presents a genealogy of how his own approach to inquiry came to be:

Certain talented people, upset by anomaly in ‘the facts’ and at a loss as to which of these ‘facts’ deserve assent, endeavored to discover what is true in them and what is false, expecting that by settling this they would achieve *ataraxia*. (PH: 1.12)

These talented people – proto-Pyrrhonists – could not find any way to decide between what was true and what was false. They had an expectation that searching for the truth would lead to *ataraxia* and this expectation was frustrated. This left them in an *aporia*, a confusing or puzzling situation, and they decided to suspend judgement on the matter. And then, by chance, they found they had achieved *ataraxia* (PH: 1.26–1.29).

Sextus thus thinks that the aim of inquiry – *ataraxia* – can be expedited by inducing suspension of judgement – *epochē* – by more direct means without having to waste time and effort trying to work out what is true or false, as those in his genealogy did. His general strategy for inducing *epochē* is to find opposed, equipollent arguments for the position under dispute. Sextus defines these terms thus:

By ‘opposed’ statements we simply mean inconsistent ones, not necessarily affirmative and negative. By ‘equipollence’ we mean equality as regards credibility and the lack of it, that is, that no one of the inconsistent statements takes precedence over any other as being more credible. *Epochē* is a state of the intellect on account of which we neither deny nor affirm anything. *Ataraxia* is an untroubled and tranquil condition of the soul. (PH: 1.10)

More specifically, Sextus presents a number of modes, or argument strategies, that the Pyrrhonist can deploy in devising equipollent arguments depending on the particular position under dispute although, true to his non-committal stance, Sextus takes no position on whether any of them are sound or whether together they form a complete list (PH: 1.35).

He spends a lot of time on a group of ten modes, which all seem to be varieties of relativism (PH: 1.36–1.163), then somewhat less on a group of five (PH: 1.164–177), two of which seem to subsume the first group of ten (Morison (2019, §3.5.2)). Then there is a group of two, which seem to be abbreviated versions of the group of five (PH: 1.178–1.179); and finally a group of eight that concern causal explanations (PH: 1.180–1.186). The details of these modes do not bear on the question of how Pyrrhonism fares as a type of metaphysical quietism, so we will not go into them further here.⁶

The Pyrrhonist, like Peirce, admits that every inquiry has to start somewhere and this is what is initially taken for granted. For the Pyrrhonist, *ataraxia* involves a return to that starting point, to what was originally taken for granted. It is, if you like, a coming home to the familiar – that to which assent had been granted – no longer troubled by the confusion of inquiry.

Inquiry only applies to situations that are, in some sense, voluntary. His proto-Pyrrhonist forbears were not, it seems, forced into an inquiry by an anomaly, but rather took it up by choice. Where a situation is unavoidable – such as, by chance, being cold or thirsty – Sextus recommends moderate feeling, because someone’s anxiety and discomfort would only increase if they thought the situation was, of its own nature, bad (PH: 1.30).

These unavoidable situations seem like just the kind of thing that the Pyrrhonist assents to, because they are forced on us: they seem to fall under the ‘compulsion of the *pathē*’. The Pyrrhonist should assent to being cold or thirsty without holding that ‘I am cold’ and ‘I am thirsty’ are true or false, but nevertheless relying on those assents in action, such as lighting a fire or finding water. The refusal of a normative aspect to these situations seems to follow from Sextus’s insistence on keeping only to the appearances: a first-person report of feelings is no more good or bad than it is true or false. Certainly someone could say that they are unhappy, or in pain, or grieving, and if the social requirements

⁶See Morison (2019, §3.5) for further discussion.

– to which the Pyrrhonist assents because they must to function as a member of that society – are that those are bad, then the Pyrrhonist assents to their badness, but without holding that ‘being in pain is bad’ or ‘grieving is bad’ is true or false. And they may act appropriately as the social requirements dictate: perhaps by offering medical assistance or tea and sympathy or – with different social requirements – killing a person in pain as they would a lame horse or shunning a grieving widow as unclean.

We now have the second element of the quietist package. Truth-directed inquiry cannot inquire into presuppositions – what is taken for granted at the beginning of any inquiry – because they are not held to be either true or false. And Sextus’s own style of inquiry does not touch the presuppositions because we cannot suspend judgement on that which is forced on us.⁷

7.2.1 Pyrrhonism – commentary

An obvious objection to Pyrrhonism seems to be that Sextus gives us no reason to believe it, to think it true, not least because he himself does not think it true: it is only how things seem to him. Moreover, Pyrrhonism is not included among those things that force our assent: there is no society that requires its members to assent to Pyrrhonism for them to function as members of that society.⁸ Nor is it an unavoidable misfortune, such as being cold, thirsty, hungry or in pain. If it is not forced or unavoidable then it is voluntary, and we are thus recommended by Sextus to suspend judgement on it. Let us do so, and enjoy that measure of tranquillity we thereby attain by not having to worry about Pyrrhonism any more.

It would be nice to end this commentary on this summary judgement: if Pyrrhonism can be dismissed by its own lights, then there is no question that it is a viable metaphysical quietism. But a couple of flies remain in this ointment. The first is that Sextus could reply that Pyrrhonism is how he feels about the matter and he *feels compelled* by that *pathē* to the Pyrrhonist position: he does feel forced in this matter even though he has not explicitly put Pyrrhonism among those things that force assent. But a Dogmatist, say, may equally report that they feel that some propositions are true and some are false, and they are

⁷For further exposition of Sextus’s views, and discussion of the debates in the literature, see Morison (2019) and Vogt (2021) and the references therein.

⁸Well, not as far as I am aware.

similarly compelled by that *pathē*. We now have a stand-off, each insisting on their own feelings, and one way this might be resolved is to look at what someone who is trapped in phenomenology – as Sextus is but the Dogmatist is not – can and cannot honestly discuss. It will be argued that they cannot go any further than feelings, while a non-Pyrrhonist can. This undermines the case for Pyrrhonism as a metaphysical quietism because the Pyrrhonist voluntarily refuses to acquire the resources that might enable them to inquire into their presuppositions.

The other fly is that Sextus is offering a general methodological scheme – of generating equipollent arguments, along with particular strategies for doing do – for achieving a certain aim, namely *ataraxia*. Methodological schemes, as argued in Sections 4.1 and 5.3.5, are to be judged on whether they work, understood as whether their aim can be attained. Methods are not themselves truth-apt, although the proposition that they are effective ways of attaining their aim is. It will be argued that there is at least one *aporia*, one puzzling situation, in which Sextus's scheme fails. This too undermines the quietist case for Pyrrhonism in that Sextus's scheme does not exhaust the field of ways of inquiring: some other scheme may be able to address problems with presuppositions. Moreover, Sextus's scheme is a sham: he is simply not interested in discovering anything new. Pyrrhonian inquiry changes nothing because we always end up back where we started.

7.2.1.1 Trapped in phenomenology

Sextus's statement at the beginning of the *Outlines*, that everything that follows is only how things seem to him at the time of writing, marks him out as a pure phenomenologist. So what are the consequences of being trapped in phenomenology, with only appearances for company and only capable of making reports of feelings?

We will consider this in terms of Peirce's architectonic, which places phenomenology between pure mathematics and the normative sciences of aesthetics, ethics and logic (see Figure 2.1). On this basis, while trapped in phenomenology, the Pyrrhonist does not have the resources required to assert or defend an aesthetic, ethical, or logical claim: they do not have the resources required to support normative inquiry. Of course, this also means they do not have the resources to engage in metaphysical inquiry, which follows from logic, the science of good reasoning, in which a *logica docens* – a reasoned logic – is formulated,

which is what we need to engage in metaphysical inquiry

Due to this lack of resources, not that much can be achieved in phenomenology. Peirce's main, perhaps only, use for it is to provide experiential evidence for a mathematical hypothesis, that of his categories (EP2: 147–155, 259, 362–370).⁹ Our experiences ultimately issue from our interactions with the world and, if we find evidence for a mathematical hypothesis in a close inspection of those experiences, then we might expect the hypothesis would have applicability in the world.

Even though Peirce does not have much use for phenomenology, it earns its place in the architectonic because it is the first 'positive science', that is, the first discipline of inquiry that has a commitment – albeit weak – to the hypothesis of reality. The positive sciences, unlike pure mathematics, 'undertake to assert what the characters of the experiential facts are' (EP2: 146), and the use he does have for phenomenology is critical for the percolation of the categories across the architectonic. Moreover, the techniques that need to be learned for effective phenomenological inquiry – an artist's observational power, a dog's nose for finding the feature under investigation and a mathematician's generalising power (EP2: 147–148) – will serve an inquirer well in other disciplines of inquiry because often it can be difficult to see what 'stares us in the face' (CP: 1.134).

Sextus, despite this lack of resources of the discipline in which he is trapped, does seem to maintain that some things are good and some are bad: the disturbance induced by an inquiry is bad and *ataraxia* is good, which is why inquiry should aim towards *ataraxia*, because it is a good thing. But trapped in phenomenology, he can only say that *ataraxia* seems to be good, not that it is: he can provide no account in aesthetics or ethics of why this should be so, he cannot defend this claim. Moreover, it is not clear where he has got this appearance of goodness from; supposedly from other seeming philosophers who seemed to hold that tranquillity in the matter of belief was a good thing. But against this, many inquirers seem to gain pleasure from their inquiries, no matter how frustrating they can be from time to time. If they attained *ataraxia*, and their inquiries halted, they may have little motivation to get out of bed in the morning. Is it better to be bed-ridden with tranquillity than playing an active, albeit somewhat anxious, role in society? This, also, is

⁹It has been argued that Peirce's phenomenology is not as limited as this: see, for example, Atkins (2012a, 2013, 2016a); de Tienne (2004) and Downard (2014).

not a question a pure phenomenologist can address, since they do not have the resources for aesthetic or ethical inquiry.

This also applies to what Sextus thinks is forced on us. It only seems that I had parents, it only seems that I was raised, it only seems that there are lots of people forming a society with requirements as to what it is to function as a member of that society. Even if a Pyrrhonist feels hungry, it only appears that they feel hungry, and this mere appearance does not compel them to go and get some food. And it does not seem any better to say that they are compelled by feelings – *pathē* – rather than appearances, because feelings are just more appearances to the Pyrrhonist.

Appearances alone do not compel the Pyrrhonist to do anything. They are not forced to assent to anything and – notwithstanding the Peircean interpretation given earlier to Sextus’s statement about what is forced on the Pyrrhonist – are not compelled to rely on anything in action. They might do something and it feels good, but that is no motivation for them to repeat the action. If they feel bad on performing some action, that is no reason to refrain from a repeat performance. ‘Good’ and ‘bad’ are just convenient labels the Pyrrhonist might deploy in classifying feelings, but they have no conceptual reach beyond that classificatory convenience, because the Pyrrhonist – as a pure phenomenologist – has not the resources to handle claims involving them. Similarly, if they receive opprobrium from others as to their conduct, they only seem to so receive, and that is no motivation for them to change their ways. They might as well act at random, and this would be perfectly consistent because phenomenology is only concerned with Firstness and pure chance falls under that category. Or they could, as we shall see, temporarily adopt someone else’s doctrine as a guide – what we will call ‘expedient freeloading’ – from which, however, they could deviate at any time in their actions without inconsistency, since they do not adopt the commitments of that doctrine, only its entitlements.

There are, however, some things that the Pyrrhonist, being a pure phenomenologist, is forced to hold to be the case. These are the conditions necessary for the performance of the activity of phenomenology. If they did not hold these to be the case, then they would not be able to perform phenomenology honestly, what they were doing would not be phenomenology. There are at least four such performative conditions.

First, there are appearances – experiences – which are as they are, irrespective of

anyone's opinion about them. That is, they are real. Of course, there is no claim about what the appearances are of, if anything, nor about what reason there might be for an appearance. The only requirement is that there be real experiences: on the Peircean line, this is the degree of commitment phenomenology has to the hypothesis of reality.

Second, there is some class of appearances – called 'feelings' by the Pyrrhonist, although they might also be called 'phenomena', 'perceptual judgements' or 'primary ideas' – that are somehow linked to other appearances such that they can be about those other appearances. That is, 'feelings' are appearances that are signs of other appearances. Again, the phenomenologist has no interest in any reason there might be for the presence of these signs, only that they are there, and there is no claim that the signs are veridical of the appearances they purport to represent. For Peirce, the phenomenologist does have an interest in applying mathematics in analysing the structure of these signs, because his (only) use for phenomenology is to find experiential evidence for the mathematical hypothesis of the categories.

Third, there are further conditions required for someone to make a report of their feelings. I am being deliberately vague here because, while a phenomenologist has to hold it the case that there are such further conditions – the previous two not being enough by themselves – their discipline does not have the resources to defend claims as to what they are. For example, we might think that both reporter and audience have to exist for a report to be made. But a phenomenologist might reply that both them and their audience only appear to exist, and there could be reasons other than existence for that appearance. Although, if making a report requires that information passes from a reporter to an audience and back again, then there has to be a reciprocal dyadic relation between the two and both thus exist; existence, for Peirce, being purely a matter of standing in reciprocal dyadic relations with other things. The phenomenologist could, however, reply that making a report need not require information to pass between two entities.

Alternatively, in response to such a reply, it might be offered that there are *only* appearances, that appearances interact with other appearances in different contexts, producing further appearances. So a 'feeling' is an appearance generated by the interaction of appearances in the context of a biological organism. The contexts themselves are also generated by the interactions of appearances, an organism being a particularly elaborate

example.¹⁰ But the phenomenologist need not hold that this is the case. They only need hold that there are appearances, not that there are *only* appearances.

One condition that seems to be required is that the phenomenologist needs to have learnt a language to make their reports – along with acquiring whatever conceptual resources are entailed by that learning – but they make no claims about the veracity or otherwise of any theory of learning or of language.

While we are on the subject of making first-person reports, it might be thought that since these are the only outputs of phenomenological inquiry, that phenomenology is purely subjective and inevitably ends up in solipsism, in the sense of there only being a single perceiving subject who is me. This is not quite correct. Yes, it is entirely subjective and there can be no notion of a community of purely phenomenological inquirers, because each is a law unto themselves, with their unique collection of feelings. But no, it need not inevitably lead to this kind of solipsism. Peirce argues that, through surprise – such as that of unwittingly bumping into a lamppost, or ‘a man carrying a heavy pole suddenly pokes you in the back’ (EP2: 177) – the phenomenologist could come to acknowledge that there is something that is not them (EP2: 154, 194–195), thus avoiding this kind of solipsism.

Moreover, such surprise involves a reciprocal dyadic relation, in that there are effects on both sides: the lamppost went ‘boing’ and the phenomenologist has a bloody nose and bruised forehead. This could lead to the acknowledgement that both phenomenologist and whatever was involved in the surprise exist. They may also find that they are surprised in different situations with different appearances, which could lead to the acknowledgement that they exist in an environment, a world, with other existents. These are, however, some results of phenomenological inquiry, not performative conditions for it and, unfortunately, while stuck in phenomenology, the phenomenologist cannot make use of these results – they cannot make or defend claims concerning them – only report them. They are still only seemings.

Fourth and finally, there is a clear distinction between honest and dishonest reporting. Due to phenomenology’s weak commitment to the hypothesis of reality, and its inability to engage in normative inquiry, this is the closest the phenomenologist gets to saying

¹⁰If we replace ‘appearance’ with ‘experience’ in this, we have a rough summary reading of William James’s doctrine of neutral monism (James (1912/2010, Chaps. 1, 2)).

that something is worthwhile or pointless, good or bad, or true or false. And again, the phenomenologist makes no claim about how such a distinction is best made in practice, only that it has to be made.

These are what a phenomenologist is forced to hold as being the case, for them to function as a phenomenologist. They make up what might be called a minimal set of resources for phenomenology, and are what distinguishes it from pure mathematics, from which it can take principles and methods. But there is nothing here that enables the phenomenologist to perform aesthetic, ethical or logical inquiry, or compel them to accept any claims in those domains.

So why, we could ask, does the Pyrrhonist rely on what Sextus says they take for granted? The appearance of hunger does not compel someone to find food, but the fact of hunger does. The appearance of societal rules and correlated sanctions does not compel behaviour appropriate to that set-up, but the fact of them does. Now it may well be the case that we do, in fact, behave automatically in some circumstances – say, by biological instinct – and that behaviour has nothing to do with how we reason, now or in the past; but the Pyrrhonist, as a pure phenomenologist, cannot make or defend this claim through their lack of resources. Rather the Pyrrhonist does not hold that hunger and societal rules are either facts or non-facts, but nevertheless supposedly behaves accordingly as if they were. Why should they do this?

My suggestion is that everything a pure phenomenologist does – if it is not random – they do by choice: their actions are never forced because appearances alone do not compel. But it can be very onerous to make choices as to what action to take when one has no normative grounds for doing so. It is thus expedient for the pure phenomenologist to choose to rely on – but not hold true or false – what someone else seems to hold as worthwhile, good or true, the Pyrrhonist themself not having the resources to make or defend any such claim.

This can be considered a kind of freeloading: the Pyrrhonist is adopting – simply out of expediency – what another doctrine entitles its adoptees to say but without paying the price of that entitlement, without taking on the doctrine's commitments. It would certainly be expedient to rely on a doctrine of an opponent because that could help defuse their criticisms of Pyrrhonism: which is what Sextus seems to be doing with his fourfold

‘regimen of life’, as pointed out by Vogt (2021, §4.4).

If that sounds like a cynical – in the modern sense – way to behave, maybe it is, although the Pyrrhonist has to do something to make up for their lack of resources if they want to engage with those who do not suffer that lack.¹¹ But this move comes with a problem for the Pyrrhonist when so engaging. To a Dogmatist opponent, this expedient freeloading has the Pyrrhonist caught in a kind of Moorean paradox: claiming one thing while maintaining that they do not hold it to be true. This lowers the credibility of the Pyrrhonist in the eyes of the Dogmatist: it undermines their sincerity, their honesty, as far as the Dogmatist is concerned. Since honesty is the only criterion that distinguishes genuine from phoney or fabricated first-person reports – and first-person reports are all the Pyrrhonist has – this would seem to seriously damage any persuasive clout they may have when engaging a Dogmatist in dispute: the Dogmatist, by their own lights, seems to have good reason to regard the Pyrrhonist as a dishonest reporter, and not to be trusted.

What the Pyrrhonist should be doing, of course, is moving onto the normative sciences, once they have learnt what phenomenology can teach, which is, as already mentioned, not much but of critical importance.

Nevertheless, it is in this sense that the Pyrrhonist is dependent on other people because it is other people who seem to hold some things to be worthwhile or pointless, good or bad, and true or false. If other people were not around, there would be nothing that the Pyrrhonist could expediently freeload on, and they would just act at random. Pyrrhonism, it seems, cannot stand alone and can only be sustained in the presence of other philosophies, which do make normative claims. Or in Peircean terms: pure phenomenology is not the whole of philosophy but is rather just the start. It has important uses but it cannot address every problem inquirers wish to address because it simply does not have sufficient resources.

Let us put these two things together: phenomenology alone does not have the resources for aesthetic, ethical, logical and, of course, metaphysical inquiry; and everything a pure phenomenologist, such as Sextus, does, they do by choice. Sextus *chooses* to remain in phenomenology – the appearances alone cannot compel him to do so – and in so doing,

¹¹Expedient freeloading also appears in Huw Price’s global expressivism – Section 7.4 – although Price does not seem to have the excuse of being trapped in phenomenology.

voluntarily refuses to acquire the resources requisite for metaphysical inquiry. His view is metaphysically quiet only through a deliberate act of omission: he simply refuses to develop a *logica docens*. His view does not and cannot say that metaphysical inquiry – inquiry into presuppositions – is impossible or futile, and thus fails as a variety of metaphysical quietism.

It seems then that dealing with the first fly in the ointment finds in favour of the summary judgement at the beginning of this commentary. Sextus has voluntarily chosen to be a phenomenologist – he has not been forced to do so because appearances alone do not compel – and so Pyrrhonism is a voluntary matter on which, by Sextus's own lights, we should suspend judgement.

Before we get to the second fly – the matter of the methodological scheme – there is another little puzzle: why has Sextus chosen to be a pure phenomenologist? The Pyrrhonist chooses to assent, when they do so, by expediently freeloading off a Dogmatist theory, not by being forced to: so what truth-apt doctrine is Sextus borrowing in his choice to be a Pyrrhonist?

To answer this question – or rather to suggest a tentative hypothesis in this direction – we first notice that, although the Pyrrhonist has not the resources to engage in normative inquiry, this does not mean that their view, as elaborated by Sextus, has no normative implications.

These implications arise through the Pyrrhonist's putative assent to that which their society supposedly forces on them – such they can function as a member of that society – and this would include cultural normative notions of what is worthwhile, good and true. Indeed, there is something deeply conservative about Pyrrhonism, that it seems to amount to a recommendation that a good life simply involves accepting, without complaint, whatever is prescribed by the society in which one finds oneself. To complain would be to make a claim, to have a belief in the sense of holding something to be true or false, good or bad. On this line, there is no sense in which someone – or the society of which they are a part – could become better, primarily because there is no sense in how what one is forced to assent to could be bad or false. You will not find a Pyrrhonist agitating for societal or political change; much more likely would be to find them as an apologist for a tyrant, who wants everyone to do what they are told. A tyrant makes the social rules so a member of

a society under such a reign is forced to accept whatever the tyrant feels. If they feel that you have committed an offence, you are compelled to assent to that feeling and accept your punishment without complaint. The fact that you were, say, in Carthage when the offence was committed in Syracuse is of no account.

As a less dramatic example of how Sextus's implicit conservatism prevents betterment, let us target his fourth group of what he maintains is taken for granted, that of arts and crafts. Suppose we have a sculptor, apprenticed at a young age to a master, but now with their own workshop and building up a roster of clients. Suppose that they now find that some of their master's techniques do not seem to produce the expected effect – such as the smoothness of a nose or the texture of some drapery – as reliably as the master had maintained. What are they to do? Perhaps they can perform an inquiry to work out what the problem is and fix it. The Pyrrhonist will apply their strategies, but ultimately these will only recommend that the sculptor stay with the master's techniques. By contrast, a Peircean inquiry, being truth-directed, will direct attention to what, in fact, is going wrong with the master's techniques. The results of such inquiry may well enable the sculptor to produce the expected effect much more reliably, thus saving clay, marble and bronze, and ultimately making them a better sculptor. And this seems to be the case even if we only accept that the new technique *appears* to produce better statues and the sculptor only *appears* to be a better sculptor. The Pyrrhonist would have them stay no better than their master, seemingly so or not, and this seems to be because their zetetic tools cannot cope with a situation where an expectation is frustrated. We will return to this in the next part of this commentary.

There is here a sense that Sextus, even though he does not have the resources to engage in normative inquiry, is a kind of role ethicist, in that what someone takes for granted is what allows them to function as a member of the society in which they find themselves, in whatever role they find themselves. Whether they be a slave or a noble, a greengrocer or a sculptor, they take for granted that which society prescribes for them, so that they can function as a member of society in that role. Pyrrhonian inquiry, even though its stated aim is *ataraxia*, could then be thought of as a strategy for maintaining social stability, since it always returns to what is taken for granted for everyone to play the societal roles they do.

So Sextus's choice to be a Pyrrhonist could be expediently freeloading off a Dogmatist ethical theory that says, roughly, that we should just suffer the trials that come our way and do as society demands. Maybe the Stoics provide the required theory, but we'll say no more about that here.

However, on the matter of inquiry in the service of social stability, Peirce, in his review of Karl Pearson's *Grammar of Science* (EP2: 57–66), took a very dim view of Pearson's claim to just this end, that science is justified by how it maintains social stability:

[T]ruth is truth, whether it is opposed to the interests of society to admit it or not,—and that the notion that we must deny what it is not conducive to the stability of British society to affirm is the mainspring of the mendacity and hypocrisy which Englishmen so commonly regard as virtues. I must confess that I belong to that class of scallawags who purpose, with God's help, to look the truth in the face, whether doing so be conducive to the interests of society or not. (EP2: 61)

Of course, Peirce here is concerned with truth-directed inquiry. He would have regarded Pyrrhonian inquiry as sham.

7.2.1.2 Pyrrhonian inquiry is sham inquiry

As the example of the sculptor shows, Pyrrhonian inquiry cannot deal with frustration of expectations whereas Peircean, truth-directed inquiry can. While their assent does not require them to hold true that to which they assent, it does – if we understand Sextus's cryptic remarks about assent without belief in the Peircean fashion suggested earlier – require them to rely on that in their actions. This is the basis of their failure to deal with a frustration of expectations in that they do not accept that what they take for granted can be mistaken, because they do not hold it as either true or false. The master's faulty technique is the source of the frustration and needs to be changed to more reliably produce the expected effect.

The Pyrrhonian zetetic strategies always return the inquirer back to their starting point, to what they originally took for granted. If it is those presuppositions that raise the expectation that is being frustrated – such as the master's technique – then the Pyrrhonist seems to be condemned to be repeatedly frustrated by adherence to the same presuppositions, to which they inevitably return.

Peirce's notion of inquiry can also be thought of as aiming at *ataraxia*, in the sense of freedom from frustration, but with Peirce we are aiming at true beliefs, ones that generate expectations that would never be frustrated: in other words, permanent *ataraxia*. Sextus only has us continually going through the same procedure over and over again, with temporary tranquillity in between all the repeated instances of frustration. If the aim is genuinely *ataraxia*, then a permanent version should be preferred over a temporary one that keeps coming around in cycles. Peircean truth-directed inquiry offers the permanent version while the only permanent result of Sextus's strategies is a loop of frustration, which itself becomes another source of frustration, one which might well make us consider whether there is something wrong with Pyrrhonian inquiry.

The *aporia* resulting from this permanent loop is one that cannot be solved by suspending judgement because what is at issue is something that the Pyrrhonist takes for granted, something that they were supposedly forced to assent to and which they cannot admit was mistaken: they have *chosen* to be so forced, by expediently freeloading on another's doctrine, which they hold as neither true nor false. *Ataraxia* induced by *epochē* only returns the inquirer back to where they started, but it is that starting point that is the problem. In the example of the hard-worker given earlier, they are continually frustrated, every year, that all their hard work is not making them rich. It is this continual, repeated frustration that is causing the hard-worker anxiety, not that there are a bunch of propositions, the truth of which they cannot decide. And it is this anxiety that the Pyrrhonist cannot assuage, because it would involve suspending judgement on – or even denying – something that was supposedly forced on them by the society of which they are a member. Sextus's style of inquiry was supposed to ensure the position was quiet about the presuppositions, but it has now turned out to be pathological, because we have an *aporia* that cannot be resolved through *epochē*.

There are a number of options the Pyrrhonist could take in this situation, although this is not an exclusive list. First, they could bite the bullet and accept that there are some propositions which can be taken as true or false: but this would be inconsistent for a thoroughgoing phenomenologist such as Sextus. A second option could be for them to say that they were mistaken in their judgement that the problematic assent was forced on them: but this would be to admit that they can choose what is and what is not forced on

them. Even though that is exactly what they have done – through expedient freeloading – they cannot admit it because doing so would undermine the critical forced-voluntary distinction at the heart of the Pyrrhonist position and destroy Sextus’s defence to the Stoic charge of *apraxia*.

They could, thirdly, withdraw their assent to the problematic social requirement: but the assent was supposedly forced on them by society so they can function as a member of that society. They cannot voluntarily withdraw such forced assent; if they tried, it would threaten their ability to function as a member of that society and, in doing so, again undermine Sextus’s reply to the charge of *apraxia*. Fourthly, they could change horses and expediently freeload on a different doctrine that didn’t say that society forces assent; but this would only expose their inability to engage in normative inquiry and destroy the plausibility of any equipollent arguments that they then chose to employ against holders of the expediently discarded doctrine.

A fifth solution might be to emigrate, to a society that did not have the problematic social requirement. A problem with this is that a similar repeated frustration is likely to occur again, but on a different social requirement. Perhaps, finally, the Pyrrhonist can become a permanent drifter, moving from place to place and never settling. On the one hand, this might leave them with minimal forced assents, but weaker to the charge of *apraxia* because they are not a functioning member of any society. On the other hand it might leave them with maximal assents, because they have to assent to the social requirements of every place they visit, every place they try to find temporary work, and the likelihood of repeated frustrations increases.

Again, what is going wrong here for the Pyrrhonist seems to involve their sundering of the two elements of belief, the holding-as-true and the reliance-in-action. For the Peircean, these are simply two ways of saying the same thing: they are the second and third grade of clarity of the same concept. If you hold that p is true, that means that if you act in accordance with p , you expect that a certain general outcome would result. And the same with reliance: if you rely on p in your action, you expect a certain general outcome. However, if that expectation is frustrated, the Peircean can say that they were mistaken, that p was not true, and adjust their beliefs appropriately, while proposing another hypothesis that they hope might be true. The Pyrrhonist cannot say this because they hold p as neither

true or false, but is instead condemned to repeated frustrations from which they cannot escape by their own strategies. While Pyrrhonian inquiry was deliberately engineered not to challenge what has already been assented to, it becomes pathological by continually throwing up new occasions for inquiry when we do have a reason to challenge them. On these occasions Pyrrhonian inquiry is useless but Peircean, truth-directed inquiry is not, as in the case of the sculptor.

But it is not just presuppositions it fails with, although these are the only cases where we start with something that the Pyrrhonist supposedly assents to. Pyrrhonian inquiry doesn't inquire into any question at all. It doesn't matter what the content of a question is, the Pyrrhonist thinks it's always quicker to obtain *ataraxia* through suspension of judgement rather than actually getting to grips with the issues. Certainly, some ingenuity is required as to which mode, or variant thereof, would generate convincingly equipollent arguments in a given case, which requires some familiarity with the topic in that case. But that is the start and end of the Pyrrhonist's engagement with the question at issue. It seems then that it is not just presuppositions that are supposedly immune from scrutiny: more or less everything is because Pyrrhonian inquiry is simply not interested in the content of a dispute, it just does not scrutinise. If the Pyrrhonist inquires into anything, it is into what is the best method for generating equipollent arguments, and the aim of this is to convince opponents. It is not truth, not least because the only notion of truth the Pyrrhonist has – as a pure phenomenologist – is that of an honest report, which is difficult to affirm or refute for a third party.

Indeed, on the Peircean line, Pyrrhonian inquiry is sham inquiry (CP: 1.57–1.58). It decides in advance what the result will be – a return to the presuppositions that the inquiry started with, that which was taken for granted initially, whatever that may be, whatever the Pyrrhonist was then expediently freeloading on – and the inquiry is designed to yield just that result. Tranquillity, *ataraxia*, is just a matter of coming back home to what was already taken for granted. Since Pyrrhonian inquiry always returns to that starting point, it is not productive, it cannot produce anything new. It seems that the only ways a Pyrrhonist can assent to something new is if the social requirements of their society change or by expediently freeloading on a different doctrine, which means their arguments are no longer valid for earlier disputes. Sextus's style of inquiry makes no contribution to what

a Pyrrhonist assents to because it cannot influence social change but leaves everything as it was.¹²

There is the suspicion here that – as Susan Haack suspected of the views of Richard Rorty – ‘the tautological is being transmuted into the tendentious’ (Haack (2009, 242)). The Pyrrhonist seems to be turning ‘I don’t currently assent to what I don’t currently assent to’ into ‘I can never assent to what I don’t currently assent to’. While Sextus might be persuaded to assent to the first of those sentences, he would reject – or rather, suspend judgement on – the second as Academic. However, this rejection seems disingenuous because that is just the effect of his zetetic strategies: they can only ever return to wherever the inquiry started from, to what was initially assented to.

So, on the second fly in the ointment – the matter of Sextus’s methodological scheme – Pyrrhonian inquiry fails because it cannot deal with every instance in which inquiry is called for: there are *aporiai* which it cannot handle but which Peircean, truth-directed inquiry can. It does not achieve its aim of *ataraxia* in every case. Moreover, it is a sham because it decides what the result of the inquiry will be before it takes place and it does not target the topic of a question at all. Such a scheme does not show that metaphysical inquiry is impossible or futile, because the answer to every inquiry is the same, and the scheme does not differentiate between a metaphysical question and a cockroach.

However, as in the last section, there is just one more thing. It is puzzling as to how a Pyrrhonist could ever be motivated into an inquiry off their own bat. It cannot be by doubt: what is taken for granted by a Pyrrhonist cannot be challenged, cannot be mistaken because it is not held to be either true or false, so a Pyrrhonist cannot be said to doubt it. Doubt plays no part in Sextus’s account.

And it is not by puzzlement, because the Pyrrhonist’s strategy of proposing equipollent arguments is designed to *create* puzzling situations for which *epochē* is then the proposed solution. If the Pyrrhonist had not engineered this, perhaps the original situation would not have been so puzzling. Admittedly, the proto-Pyrrhonists in Sextus’s genealogy became

¹²Palmer (2000) and Striker (2001) also argue that Pyrrhonian inquiry is not genuine, because it is uninterested in truth, Striker going so far as to suggest that it promotes irrationality. By contrast, Perin (2006, 2010) argues that, although the Pyrrhonist does not aim directly at truth, they are still concerned with truth in that they are governed by the same epistemic and zetetic norms as truth-directed inquirers. This seems wrong. One of Sextus’s norms seems to be ‘what we started out with in inquiry has to be protected at all costs’ because that is the only destination available for Pyrrhonian inquiry. This is in direct contravention of Peirce’s first rule of logic and cannot be a norm accepted by a truth-directed inquirer.

proper Pyrrhonists by suspending judgement in the face of an *aporia*. But once this was overcome, that *aporia* should never recur for a Pyrrhonist since it arose, supposedly, from the frustration of the expectation that *ataraxia* could be achieved by deciding what was true and what false, and the newly minted Pyrrhonist does not have that expectation.

There is, moreover, something odd about Sextus's genealogy. He says that the proto-Pyrrhonists were frustrated in their expectation that searching for the truth would lead to *ataraxia*. But if they were genuinely seeking a true answer to a question, that expectation could only be frustrated if they did in fact find a true answer – that their belief on the matter was permanently settled – but that did not then bring them the expected tranquillity on the matter. In the genealogy they don't seem to be appropriately frustrated, only impatient. Moreover, a puzzling situation due to a frustration of expectations is the occasion for *starting* an inquiry, not ending one through a suspension of judgement. This strongly suggests that Sextus's proto-Pyrrhonists were not genuine inquirers – they were not interested in a true answer to their question – and this lends further weight to the contention that Pyrrhonian inquiry is a sham.

Maybe a Pyrrhonist can be motivated into inquiry when something relied upon in action fails to produce the expected result: but here the Pyrrhonist, as in the example with the sculptor, just ends up recommending that which seemed to be wrong in the first place. Again, they cannot admit that what was taken for granted could be mistaken, because it was not held to be true or false in the first place.

The only situation where the Pyrrhonist does seem to be motivated into applying their zetetic strategies is when they are intervening in other people's discussions, seemingly with the aim of shutting them down. Indeed, that is what books two and three of the *Outlines* seem to be entirely concerned with. This could be seen as a consequence of the Pyrrhonist trapping himself in phenomenology. They have voluntarily given up trying to acquire the resources required for normative and metaphysical inquiry and they want everyone else to do the same. The Pyrrhonist may well think that they are being helpful in their interventions and, certainly, constructive criticism is always helpful to truth-directed inquirers. But the Pyrrhonist seeks to undermine the others' whole way of going about inquiry, and they are almost Dogmatic in their insistence on their methods.

We can combine this with what was said about social stability in the previous section:

what Sextus seems to be concerned with is the disruption to the ordinary functioning of a society by these kinds of disputes. He proposes what he thinks is a method of inquiry that everyone should use and which would achieve *ataraxia* in every case, thus dispelling the disruption to society of trying to find true answers to questions.

This seems doomed to fail. As we have just argued, one problem is that Sextus's methods do not work in every case, but can become pathological, producing repeated frustrations. And a second problem is that, being trapped in phenomenology, the Pyrrhonist freeloards on other's accounts so they have something they can take for granted. Pyrrhonism cannot stand alone and it would be self-undermining for the Pyrrhonist to try and expunge other philosophies.

7.3 Wittgensteinian linguistic quietism

The linguistic quietism attributed to (the later) Wittgenstein is, roughly, the view that there are no substantive metaphysical – or indeed distinctively philosophical – questions because, once they have been disambiguated, we can make no sense of them, or they say nothing, according to our current linguistic practices. They are pseudo-problems that have arisen through misunderstandings of how language works. It is a quietism in the sense we are using here because there are presuppositions – of language games – that we have to accept – else we are not playing the game – but which cannot be inquired into, because the language games are inexplicable and philosophy is not an inquiry.

I say 'attributed to Wittgenstein' because it is not clear that if the position stated here had been presented to him, he would have agreed to it. There are many interpretational difficulties with what Wittgenstein has left us, especially the *Investigations* with its fragmentary character for which Wittgenstein apologises in the preface (PI: vii–viii): these are only a collection of remarks, sketching out some landscapes. Much work has to be done by the reader to obtain a single coherent view; indeed, this might not even be possible and there are multiple views, perhaps contradictory, being expressed by Wittgenstein. With that in mind, it is hoped that the reading of Wittgenstein used here is not too outlandish and is compatible with a plain interpretation of the texts.

And 'the later' has been placed in parentheses because – as will be argued in the

commentary – what primarily distinguishes the *Tractatus* from the *Investigations* is the theory of meaning in play and, when considered from the position of Peirce’s categories and architectonic, in both cases this focuses on Firstness, and they both seem to be stuck in phenomenology.

This is something that Wittgenstein shares with Sextus, and there seem to be other similarities, such as a conception of philosophy as therapeutic, the deployment of modes or methods rather than the formulation of a theory, and, as we shall see, a deep conservatism. There is also a similarity between Sextus’s forced assents and Wittgenstein’s hinge propositions, which Duncan Pritchard (Pritchard (2011, 2019, Forthcoming)) has examined. We will not consider this last similarity here because of this prior work, so will only mention one important difference: hinge propositions seem to be things we have to be certain of – we know them to be true – while forced assents are relied on, but not held as true or false.¹³

All these similarities leaves the Wittgensteinian view open to the same kind of criticisms as have been targetted at the Pyrrhonist in the previous section.

As with Pyrrhonism, we will start with a brief exposition of the elements of the account that seem key to its claim as a kind of metaphysical quietism – that philosophy is not an inquiry and the notion that meaning is use – then follow with commentary.

7.3.0.1 Philosophy as an activity of disambiguation

Wittgenstein’s stated aim is to ‘shew the fly the way out of the fly-bottle.’ (PI: 309) He wants to show that philosophical problems arise through misunderstanding how language works, that they arise ‘when language *goes on holiday*’ (PI: 38). This aim he retained from his earlier work in the *Tractatus* where he says: ‘Most questions and propositions of the philosophers result from the fact that we do not understand the logic of our language’ (TLP: 4.003); and there are similar remarks in the preface and at TLP: 6.53. However, in the later work he abandons logical atomism and a picture theory of meaning as the means to effect the cure, in favour of a different approach to language.¹⁴ His approach is meant

¹³Other recent literature connecting the views of Sextus and Wittgenstein includes Plant (2004) and Fischer (2011) – who are concerned with philosophy-as-therapy – and Gutschmidt (2020), who argues that behaving as Sextus and Wittgenstein recommend results in a transformative experience.

¹⁴Misak (2016, Chap.7) suggests this shift was due to the influence of pragmatism on Wittgenstein via his friend, Frank Ramsey, as well as Wittgenstein’s dismay at the use to which the Vienna Circle put his

to be therapeutic, that it ‘gives philosophy peace, so that it is no longer tormented by questions which bring *itself* in question.’ (PI: 133) This is one parallel with Sextus.

For Wittgenstein, philosophy is not a natural science, (TLP: 4.111). It is rather a ‘Critique of language’ (TLP: 4.0031). It is ‘not a theory but an activity’ which ‘consists essentially of elucidations’ (TLP: 4.112). It is an activity of disambiguation, that seeks to make clear what we mean (PI: 125, 126, 133). If the problems arose from language going on holiday, the job of philosophy is to bring it back home again. According to Wittgenstein, philosophy is not any kind of inquiry, since he thinks it must proceed by description alone, without hypothesis or explanation (PI: 109). Philosophical problems are not empirical, they are the result of the ‘bewitchment of our intelligence by means of language’ and are solved by ‘arranging what we have always known.’ (PI: 109), through a series of ‘reminders’ (PI: 127). In doing so, philosophy changes nothing but ‘leaves everything as it is’ (PI: 124). Philosophy, for Wittgenstein, is deeply conservative, and here we have another parallel with Sextus.

There is no theory in philosophy, nor a single method. Instead there is a variety of methods – ‘like different therapies’ – by which the disambiguation can be achieved and which are demonstrated ostensively, through example (PI: 133). And here again, we find a parallel with Sextus and his modes. The descriptions of examples here are meant to encourage the audience to imagine a situation – or go out and find such a situation – and look at it: Wittgenstein enjoins us to ‘don’t think, but look!’ (PI: 66)

Here then is one part of the quietist package. If philosophy is not an inquiry, then there is no metaphysical inquiry – inquiry into presuppositions – insofar as such an inquiry can be called ‘philosophical’. This leaves open the possibility that some other discipline that Wittgenstein doesn’t call ‘philosophy’ could so inquire.

Of course, to disambiguate, Wittgenstein needs to give some kind of account of meaning, to which we now turn.

7.3.0.2 Meaning as use, language games, family resemblances

In the *Tractatus*, Wittgenstein adopted a picture theory of meaning, or iconism. In the *Investigations*, he recognised this as a mistake because it cannot cover the whole of language,

Tractarian ideas.

although he does not completely reject iconism, in that it still seems to have application in a narrow range of situations. Instead he proposes:

For a *large* class of cases—though not for all—in which we employ the word ‘meaning’ it can be defined thus: the meaning of a word is its use in the language. (PI: 43)

We use language in many ways and each of these ways, these practices, can be likened to a game – a language game – in that the use of the words and concepts involved are constrained to some extent by rules: Wittgenstein gives some examples of such games at PI: 23. To grasp the meaning of a concept is to be familiar with its use, which involves familiarity with the role that concept plays in a language game – how that game is played – which in turn involves having a grasp of the rules of that game. Wittgenstein thinks that the rules of a game can be grasped simply by looking at the game being played (PI: 54). So the grasp of a concept is achieved solely through familiarity with its use, which can be achieved simply by looking at that use.

The same concept can appear in many different language games, so to get a full grasp on it, we would need familiarity with all its uses. But this raises the worry of how we are to recognise a concept across different games, how we can recognise it as the same concept when it appears in multiple guises in different games. We might think that all the instances of a concept share some common feature but, through various remarks – such as PI: 65–66, 68, 75–78, 83 – Wittgenstein builds a case for the thought that concepts are, in the main, vague and open-ended and there is no single feature that makes them the concept they are. Instead, Wittgenstein proposes what he calls ‘family resemblance’ – by analogy with how human members of the same family seem to all look alike – in which a concept can be thought of as a thread whose strength:

does not reside in the fact that some one fibre runs through its whole length, but in the overlapping of many fibres. (PI: 67)

We might like to call this an open-ended collection of features, all of which are individually sufficient but none are necessary, but Wittgenstein does not think this adequately captures family resemblance. Instead we recognise a concept as the same concept in different language games because there is something about it that we are aware of but cannot state.

Now this might look like a unrepresentable thing-in-itself and we can charge Wittgenstein with nominalism. This would destroy any ambition this account could have for being quietist, since it is not neutral as between different metaphysical positions. However, this charge is more convincingly laid at the door of Huw Price and his global expressivism, which we will come to shortly (Section 7.4).¹⁵

Rather, what seems to be happening in the Wittgenstein case is that he thinks that every concept has a characteristic *feel* to it, in much the same way that we feel that Abigail and Brian are siblings, but we cannot quite put our finger on why. In Peircean terms: a unique Firstness, a quality of feeling, accompanies the recognition of some object or activity as falling under the application of a particular concept, with every concept having a different feel.¹⁶

Now, in the *Tractatus* Wittgenstein made clear that a particular language cannot question its own presuppositions (TLP: 4.121, 4.1271). Similarly, in the *Investigations*, to play a language game we have to accept the presuppositions made by that game or we simply can't play it. The language games can only be described (PI: 124), they cannot be explained because to do so, according to Wittgenstein, we would have to step outside language which is our only tool for explanation. In trying to do so we will at some point hit bedrock 'and my spade is turned. Then I am inclined to say "This is simply what I do"?' (PI: 217). The rules of language games are obeyed blindly (PI: 219).

Here is another part of the quietist package: we have presuppositions – in the form of language games and their rules – that cannot be inquired into.

So, putting all this together, Wittgenstein presents a conception of philosophy as an activity of disambiguating problems in terms of pre-existing linguistic practices, language games. This activity seems to have several distinguishable stages, although they need not be performed in this order. First, the disambiguator should put themselves in a situation in which they can experience or re-experience the characteristic feel of the concept in

¹⁵There is another suggestion of nominalism in Wittgenstein, through his insistence that we should neglect explanation and cleave only to description. This insistence is also clearly found in Van Fraassen (Van Fraassen (1980, 1989)), a self-declared nominalist, and an inability to deal adequately with explanation is characteristic of nominalism. We have, however, dealt with this inability earlier – in Chapter 5 – and we didn't there make much of Van Fraassen's insistence on description alone. So we will not make much of Wittgenstein's here either, not least because if, as to be shortly argued, Wittgenstein is recommending that philosophers stay stuck in phenomenology, they won't have the resources for explanation anyway.

¹⁶'A Firstness is exemplified in every quality of a total feeling. It is perfectly simple and without parts; and everything has its quality.' (CP: 1.531)

question. This should give them the ball-park, or haystack, where the meaning is to be found. Second, they need to establish what language game is currently in operation and, third, determine what rules that game has, so as to constrain the concept to a meaning appropriate to that game. And all of this is meant to be achieved just by looking and feeling, without any of the other activities typical of inquiry.

7.3.1 Wittgenstein – commentary

Here we shall focus on three areas: Wittgenstein's account being stuck in phenomenology, just like Sextus's; whether what Wittgenstein is doing and what he is proposing is an inquiry, albeit a sham one; and that Wittgenstein's account is one that Wittgenstein, by his own lights, should reject.

A major difference between the early and later views of Wittgenstein is the adoption of a different theory of meaning. However, from a Peircean point of view, both of these are only concerned with Firstness, with qualities of feeling. In Peirce's architectonic, phenomenology is the discipline associated most strongly with Firstness, in that it is only concerned with how things seem, not with how things are (EP2: 197). So Wittgenstein's account seems to be marooned in phenomenology, just like Sextus's, and with the same consequence for it as a viable metaphysical quietism: it isn't one. Wittgenstein, however, does make truth-apt claims, for some of which he offers no evidence, for others he does. This threatens his contention that philosophy is not an inquiry. It also threatens his own account, which does not obey the principles that he has laid down for philosophy.

7.3.1.1 Still stuck in phenomenology

Wittgenstein's early picture theory of meaning is iconism: that a sign represents its object by in some way resembling it. Later, he correctly admits that this does not work for the whole of language. In Peirce's theory of meaning – his semiotics – iconism is one third of a triad of modes of signification, and is associated with the category of Firstness, with qualities of feeling. The other modes are where a sign represents its object by standing in a reciprocal dyadic relation with its object, which is called an index and is associated with the category of Secondness; and where a sign represents its object according to some mediating rule or reason, be it natural or conventional, which is called a symbol and is

associated with Thirdness.¹⁷ A theory of meaning that only involves icons is thus, on the Peircean line, incomplete.

In his architectonic, phenomenology is the discipline Peirce closely associates with Firstness, as it is only concerned with seemings, with qualities of feeling (EP2: 197). So in cleaving to a picture theory of meaning – to iconism – the early Wittgenstein seems, on the Peircean line, to be stuck in phenomenology. But it is not just the early Wittgenstein.

The Wittgenstein of the *Investigations* proposes that meaning is use: to grasp a concept is to be familiar with its use in various language games. Wittgenstein is concerned with the clarification of concepts, and so is Peirce. Except that Peirce has three grades of clarity – discussed earlier in Chapter 3 – of which familiarity with the use of a concept is just the first. The second is making explicit relations between concepts through defining them in terms of each other; and the third is clarification according to the maxim of pragmatism. For a concept to be usable in truth-directed inquiry – for Peirce, clarification is not the whole of philosophy as it seems to be for Wittgenstein – it has to be clarified to all three grades. As with the modes of signification, each of the modes of clarity are associated with a category. The first with Firstness – familiarity is as much a feeling as a fact – the second with Secondness – reciprocal dyadic relations are set up between concepts so each can be defined in terms of the others – and the third with Thirdness – the maxim of pragmatism clarifies according to would-bes. So, on the Peircean line, to admit no greater clarity than familiarity with use marks a concern only with Firstness, and Wittgenstein's later account, like the earlier one, is stuck in phenomenology.

There is further evidence for this view. We have already mentioned parallels between Wittgenstein's account and that of Sextus, which is explicitly phenomenological. Then there is Wittgenstein's repeated exhortations to the readers to go and look for themselves: 'don't think, but look!' (PI: 66). He spends a lot of time describing situations in which the reader, if they look, might see what he sees. There is his notion of family resemblance as a feeling, rather than anything that can be spoken and there is his claim that someone

¹⁷This is just the tip of Peirce's semiotic iceberg, icon-index-symbol being just one trichotomy among several. Early on, in 1867, it was the only one he considered (EP1: 1–10); no later than 1903, it was one of three (EP2: 267–299); and by 1908, one of ten (EP2: 478–481). For a good introduction to Peircean semiotics, see Short (2007). Jappy (2017) presents a reconstruction of part of the last of Peirce's sign typologies, which he left unfinished and is found mainly in his correspondence with Victoria Welby (collected in Peirce and Welby (1977)).

can become familiar with the rules of a game simply by watching the game being played, and that disambiguation can be achieved simply by looking.

If this is persuasive, then Wittgenstein's account does seem to be marooned in phenomenology and thus – just like Sextus's account – lacks the resources to make any normative or metaphysical claims, or perform any normative or metaphysical inquiry. Sextus is a sincere phenomenologist and, if Wittgenstein were the same, then his account would fail as a viable metaphysical quietism for the same reasons as Pyrrhonism does.

However, with Wittgenstein, there is more than a whiff of hypocrisy, of 'do as I say, not as I do'. So long as he is just encouraging others to go look for themselves, he stays within the bounds of phenomenology. But when he starts making truth-apt claims – there's a whole string of them at PI: 109 – he is helping himself to resources that are not available in phenomenology. And he does not seem to be expediently freeloading on some opponent's doctrine while not holding it to be either true or false. Rather he does seem to hold these claims as true. Some of them he adduces evidence for – such as the claim that concepts have no single, necessary feature – while others he simply states, such as philosophy is not an inquiry and it is not empirical.

Wittgenstein has come to the conclusion that everything we need to know about meaning – and thus, according to him, the whole of philosophy – can be obtained just by looking, that is, by using only the resources available to phenomenology; but he could not have come to that conclusion using only the resources available in that discipline. For Peirce, phenomenology can only provide experiential evidence for the applicability of some mathematical hypothesis, and that is not what Wittgenstein's claims amount to. With all this in mind, let's look at some of those claims.

First off, while disambiguation might be able to alight on *a* meaning – what a word or concept seems to mean in some context – it cannot alight on a *correct* meaning, because that would require a normative inquiry, the resources for which phenomenology lacks.

Secondly, Wittgenstein claims that philosophy, as he construes it, is not empirical (PI: 85, 109). But disambiguation requires us to look at how people are using language, and it seems difficult to do that if we are not in receipt of empirical data. Even if we are just remembering some observation we made in the past, that still requires contact with an environment for the observation to have been made in the first place.

Thirdly, in disambiguation we are meant to identify a concept by its feel. Now, a Peircean may well agree that every concept has a certain feel to it because ‘everything has its quality’ (CP: 1.531); but there is the problem of which feel the disambiguator is looking for, because such a feel changes as the concept acquires more contents, as it becomes enriched.

Consider, as Wittgenstein does, the concept *GAME*. I have no idea when I first acquired this concept, but let’s say that it might have been around the time I first watched or played football. So the initial feel of *GAME* would have been much the same as *FOOTBALL*. Let’s say that I then encountered some other activity I would now call a ‘game’, such as cricket, but which I did not then yet recognise as a game. In the watching or playing, cricket does not feel the same as watching or playing football, so I would have had a concept of *CRICKET* with a different feel to *FOOTBALL* and the nascent *GAME*. At some point, perhaps, I was struck by the similarities between watching and playing cricket and football, and appreciated both as games. In doing so, the feels of their concepts merged into the feel of *GAME*. And so it goes on with every activity which I then, or afterwards, recognised as a game, be it basketball, chess, poker or, maybe, job interviews, politics and warfare. At each step the feel of *GAME* changes.

Disambiguation is meant to take us back to what ‘we have always known’ (PI: 109), and supposedly in the case of *GAME*, that would be when its feel was distinct from the feel of other concepts. So it cannot be its initial version, because that just felt like *FOOTBALL*. Maybe then after both football and cricket were appreciated as games: but this would seem to exclude whatever came after as being recognised as games, so we have to go a bit further. But, however far we go, there is always something else, not recognised as a game at the time and which would, later, contribute to the feel of *GAME*. But if we fast-forward and take the feel of *GAME* as it is today, that is not what ‘we have always known’, but what we have come to know gradually over time. Here, again, we seem to find Wittgenstein’s account to be inconsistent. The problem in this case seems to be that, while Wittgenstein acknowledges that language changes (PI: 23), he gives no account of this and change is not incorporated in his view of language, which is thus not sufficiently dynamic.

Next, the claim that rules can be determined simply by watching a game being played (PI: 54): maybe Wittgenstein feels this way but – to move briefly into the first-person

appropriate for phenomenology – I can report that my experience has been quite different. I can honestly say that in all the situations where I have observed a game being played without first knowing the rules – football, rugby, cricket, chess, backgammon, poker or, particularly baffling, Go – I have never been able to work out those rules just by watching: I have had to ask someone or look them up, that is, I engaged with my environment and acquired some empirical data. Without that data, I could apprehend that the players were following some rules but I just couldn't work out what they were.

Such experiences are perfectly in keeping with what Peirce says can be achieved in phenomenology. We have already mentioned how phenomenological inquiry leads to the acknowledgement of existence, of Secondness. It also leads to the acknowledgement of Thirdness, of there being a rule in operation (EP2: 5). Again though, the phenomenologist cannot *use* this acknowledgement while in phenomenology: they have not the resources to determine what the rule is. So if we are pretending that I can make and defend truth-apt claims just on how things seem to me, then I claim that Wittgenstein's claim in this matter is refuted.

And finally we come to the claim critical to Wittgenstein's account being quietist: that language games are inexplicable. He maintains this on the grounds that we cannot jump out of language so as to inquire into them. However, whether that is possible or not, we do not need to jump out of language because we can have language games that talk about other language games. This is something that Wittgenstein seems to miss: his list of language games – at PI: 23 – does not include one that talks about another. And yet this is an odd omission, because a lot of the *Investigations* is Wittgenstein doing exactly that: using a language game to talk about other language games. Indeed, this behaviour is so persistent that it raises the suspicion that Wittgenstein considers that language is the only thing there is to describe. And again we have Susan Haack's suspicion that:

the tautological is being transmuted into the tendentious: e.g., that we judge by the standards by which we judge, into, it makes no sense to ask what the basis of our standards might be; or: that we can't describe anything except in language, into, there is nothing outside language for our descriptions to represent accurately or inaccurately. (Haack (2009, 242))

Haack's first example applies to Wittgenstein maintaining that language games are inexplicable and 'this is just what I do', and her second applies to Wittgenstein's persistence

in talking only of language. Perhaps a good example of this latter is where Wittgenstein seems to be engaging in a phenomenological inquiry concerning being guided through feelings (PI: 172–178), suggesting: ‘I should like to say: “I experience the because”’ (PI: 177). This might be a phenomenologist reporting that they experience Thirdness, that they experience the presence of a rule in a Peircean fashion, except that Wittgenstein immediately follows this by claiming that he is only inclined to say that because he understands the meaning of the word ‘because’ (PI: 177). The thought here seems to be that, if we are guided by feelings, they are feelings of the meanings of the words we use; anything non-linguistic could just as well not be there.

This is, however, just the kind of thing that can happen when someone restricts themselves to phenomenology. They help themselves to some claim on the basis that it seems to be the case then, when challenged, say that their ‘spade is turned’ (PI: 217), that there are no resources available to perform the inquiry. The resources, however, are unavailable only in phenomenology; they cannot claim the resources are unavailable *tout court*. Wittgensteinian linguistic quietism is only quiet through a stubborn refusal to use normative resources.

The philosopher should move on to the normative sciences, where there are more resources available for inquiry, but Wittgenstein insists philosophy is not an inquiry (PI: 109). Let us take a little time on that claim.

7.3.1.2 Does philosophy not involve inquiry?

Disambiguation, it seems, cannot do what Wittgenstein wants it to do – alight on a correct meaning – if it is constrained in the way Wittgenstein specifies. We have already mentioned: the lack of normative resources so any meaning it finds cannot be defended as correct; the inadmissibility of empirical data, so a disambiguator cannot look around them, engage with their environment and other people; and a disregard for the fact that language continually changes. Then there is the prohibition on inquiry, of formulating hypotheses, deducing consequences and testing them. How is this meant to work?

Consider someone reading a 550-year-old document. They are reading with the eyes of a modern and continually find passages that bemuse them, which seem contradictory or just incomprehensible. No matter how long they look at the text, it does not reveal its

meaning. Wittgenstein recommends that they go back to what they have always known – which is, supposedly, to their germinal concepts of a few decades past – and they do that, re-read the document and still find it baffling. They ought to conclude that the document is largely senseless, and the work of someone not using language correctly.

Now consider the same document being read by someone who appreciates that language changes over time and that the germinal concepts of the document's author – which were acquired half a millennium ago – are unlikely to be the same as those of the modern reader. They might think they have to go back to what the author always knew, not what the reader did, to disambiguate the text. But how are they to do this, just by looking at the text and examining their own feelings? What they have to do, of course, is conduct an inquiry. Using other data sources, such as historical dictionaries and other documents contemporary with the first, they can formulate hypotheses as to the meanings of the words in the document. These hypotheses will give them an idea of what to expect when reading texts from that period and can be tested against how those words are used in those other documents. Further help can be found by engaging with experts in the language of the time, or at least with their writings. To such a reader, who is happy to engage in inquiry, the text is not senseless.

Such inquiry sounds like lexicography, and Russell (1959, 217) thought Wittgenstein's account might be 'a slight help to lexicographers'.¹⁸ Lexicographers appreciate that language changes over time and inquire – by hypothesis, deduction and induction – into the meanings of words through carefully scrutinising how those words are used across many sources, from different periods. Their results are given in dictionaries, and are largely taken as reliable guides to the meanings of words.¹⁹ Moreover, they are not just interested in old usages but are on constant alert for new words and linguistic shifts, large and small.

¹⁸This was meant as a criticism: 'I have not found in Wittgenstein's *Philosophical Investigations* anything that seemed to me interesting and I do not understand why a whole school finds important wisdom in its pages. Psychologically this is surprising. The earlier Wittgenstein, whom I knew intimately, was a man addicted to passionately intense thinking, profoundly aware of difficult problems of which I, like him, felt the importance, and possessed (or at least so I thought) of true philosophical genius. The later Wittgenstein, on the contrary, seems to have grown tired of serious thinking and to have invented a doctrine which would make such an activity unnecessary. I do not for one moment believe that the doctrine which has these lazy consequences is true. I realize, however, that I have an overpoweringly strong bias against it, for, if it is true, philosophy is, at best, a slight help to lexicographers, and at worst, an idle tea-table amusement.' (Russell (1959, 216–217))

¹⁹A better analogy for a concept is an encyclopedia entry, rather than one in a dictionary, because it allows for broader, open-ended signification: see, for example, Eco (1984, Chap.2) and Eco (2000).

It is a historical and ongoing discipline, and it can succeed in disambiguating texts that Wittgenstein's method leads to dismissing as senseless.

So for disambiguation to function as Wittgenstein wishes in all cases, it seems that it needs to be an inquiry. However, if it is, then it is a sham, because it always returns the same answer: 'what we have always known'. This is different from genuine, lexicographical inquiry, which is sensitive to experience, to empirical data, and can change its hypotheses when they become untenable. Again we have a parallel with Sextus and the same consequences follow: disambiguation cannot show that metaphysical inquiry is impossible or futile.

There is another consequence of disambiguation being an inquiry: it undermines Wittgenstein's distinction between philosophy and the special sciences, which seems to be based solely on the latter being an empirical inquiry and the former not. If that distinction goes then it seems to follow that Wittgenstein's considerations should also apply to the special sciences. A number of questions now come to mind.

We could ask whether the special sciences disambiguate their terms differently from philosophers, and if so, how? Do the special sciences operate under a different theory of meaning than philosophers and, if so, what is it? Are the special sciences allowed to instigate new language games, which seems off-limits to the philosopher who has to leave language just as they found it? But if so, why? After all, there seem to be clear examples of the special sciences using words in a way contrary to common usage. Why is Wittgenstein seemingly unconcerned with the mathematical use of, say, group, ring and category; or the physicists' use of solid, gauge or string; or the chemists' use of element or stability? If the best grasp we can have on a concept is the feel of it, how can mathematicians and special scientists get away with mangling ordinary language while creating new language games, and philosophers cannot? And it is not just special scientists: all sorts of groups create new language games to suit their needs or wants, from people in finance or elite sport to publishing or indeed any profession to fans of anything. Why cannot philosophers do what everyone else does? Wittgenstein answers none of these questions – perhaps because to do so would require an account of language change, which he does not provide – and I am not inclined to provide answers on his behalf. Instead, we shall move on to a final and possibly fatal inconsistency: Wittgenstein's account is novel.

7.3.1.3 Wittgenstein should reject his own account

Sextus is able to avoid self-undermining reflexivity arguments by not holding anything to be true or false, by only reporting on how things seem (Mates (1996, 7, 10)). However, this cannot stop a suspension of judgement on his whole account, and he runs the risk of appearing cynical in expediently freeloading off the views of anyone he happens to speak with, thus undermining his status as an honest reporter. Wittgenstein, by contrast, does not need to expediently freeload off anyone because he *does* hold some propositions to be true or false; but this means he cannot escape reflexivity issues so easily.

We have already touched on a number of such issues. Wittgenstein claims that philosophy is not an inquiry and yet, as has just been argued, what he is doing looks very much like an inquiry and he is, supposedly, a philosopher doing philosophy. Moreover, if disambiguation is to alight on a *correct* meaning, that involves a normative inquiry that cannot be achieved only in phenomenology, just by looking and feeling: disambiguation itself looks like an inquiry. He says that philosophy is not empirical but, to disambiguate, the disambiguator has to put themselves in a situation to experience the feel of a concept and they have to look at people playing language games: to do these things is to be in receipt of empirical data.

There is another reflexivity issue not yet mentioned. The deep conservatism of the account is in conflict with itself, because the account itself is novel. Wittgenstein maintains that philosophy changes nothing: it cannot alter the use of language and leaves everything as it is (PI: 124). It proceeds through ‘reminders’ (PI: 127) and can say nothing new. And yet Wittgenstein tries to develop and use novel language games. Philosophy, for him, is an activity of disambiguation, but this is a novel claim. Supposedly, he wants others to take up this use of ‘philosophy’ and thus inaugurate a new language game. But he does this as a philosopher doing philosophy, in plain violation of his statements of what philosophy is and does.

We have suggested that lexicographers are reliable sources for the meanings of words. They engage in inquiries to ascertain those meanings by looking at how words are, and have been, used, making hypotheses as to their meaning, and then testing those hypotheses against further sources. The results of their inquiries are reported in dictionaries. If we

accept this, then what we ‘have always known’ should appear somewhere in a dictionary. When we consult the entry for ‘philosophy’ in the online *Oxford English Dictionary*²⁰ we find nine senses of the word – going back to 1325 – but no trace of ‘activity of disambiguation’ or something similar. This strongly suggests that if we wanted to disambiguate ‘philosophy’, we would not find it to be an activity of disambiguation. Wittgenstein’s use is novel – he, a philosopher, is trying to instigate a new language game – and thus must, by his own lights, be rejected as senseless.

Overall then, if Wittgenstein is a sincere phenomenologist, like Sextus, then his account fails to be a viable metaphysical quietism for the same reasons as Pyrrhonism does. However, if he is not, as seems to be the case, then his account is riven with inconsistencies and ultimately fails through self-contradiction.

7.4 Global expressivism

Global expressivism is Huw Price’s approach to language and meaning. It includes elements from the later Wittgenstein – in particular the language-as-use claim – and from Carnap – a certain approach towards discourse – which contribute to Price’s claim that global expressivism is metaphysically quiet. Indeed, it can be thought of as a variant of Wittgensteinian linguistic quietism, along with attempts to fix some of the problems. He tries to address the problem of inexplicable language games through genealogies that purport to explain the meanings of expressions. The Carnapian approach to discourses – with its meta-discourses – can help with the absence of language games that talk about other language games, as well as with Wittgenstein’s problem with conservatism and his own novelty, since we can choose new discourses. This last, however, brings us back to Sextus’s expedient freeloading.

The problem of being stuck in phenomenology, and thus unable to engage in normative inquiry, might be addressed by Price appealing to the special sciences – an appeal that Wittgenstein would not have sanctioned – in that he considers his genealogies as a kind of anthropology, a sub-discipline of biology (Price (2008, 6); Price (2011, 254, 279, 315, 320); Price *et al.* (2013, 148)). In this he adopts what he calls ‘subject naturalism’, as

²⁰https://www.oed.com/dictionary/philosophy_n

distinguished from ‘object naturalism’, the latter being derivative of the former (Price (2011, 185ff)). This still smacks of being stuck in phenomenology but we will not consider his attempted solution here, partly because we have discussed the phenomenological issue at length already, but mainly because Beasley (2020) has already argued that subject naturalism does not have the resources to do what Price needs it to do.²¹

Despite these (attempted) fixes, it will be argued that if global expressivism is a type of metaphysical quietism, it is one by fiat, not by argument. Price isolates language and linguistic practices from the environment – the world – in which they operate, making it mysterious why we should have the practices we do. The Carnapian way with discourse makes metaphysical inquiry a matter of choosing which discourse to use, but that choice has to be made isolated from the environment – the world – that the metaphysician wishes to appeal to in making that choice, thus severely hobbling such inquiry. The account is quiet only because metaphysics has been denied any voice from the outset.

The presuppositions involved in these isolations betray Price’s nominalism, which is itself a metaphysical position. Global expressivism is thus not metaphysically quiet but rather an elaborate, nominalistic account of language.

As in the previous sections, we will first give a quick account of the position under discussion, then follow up with some commentary. There are many elements to Price’s account of global expressivism, and not enough space to examine it all thoroughly. Moreover, it is primarily an account of human language and we do not want to have to dive too deep into philosophy of language here, when the focus is on Price’s claim that his approach leads to metaphysical quietism. So we will examine only those elements that have a direct bearing on this latter claim. We will, of course, have to start by setting up the basic position of expressivism, then move on to Price’s anti-representationalism, which is a prime motivation for his claim of *global* expressivism. Then we turn to Price’s account of truth and his adoption of a Carnapian approach to discourse – both of which are supposedly metaphysically quiet – and then move on to the commentary.

²¹Beasley also seems to think a metaphysically quiet position is possible, although not along the lines drawn by Price (Beasley (2020, 25)).

7.4.0.1 Expressivism basics

The basic idea behind expressivism is, roughly, that not all linguistic expressions – be they spoken, written or otherwise put out – express propositions. In addition to, or instead of propositions they can express, say, emotions, attitudes, affections, commitments to causes or something else other than propositions.²² In modern philosophy, such a position is usually traced to Ayer (1936) and Stevenson (1937), though it may go back as far as Berkeley (1710/2009, Intro. §20). It is primarily motivated by the thought that, at least in some domains of discourse, there does not seem to be a fact of the matter that can determine the truth of an expression, that there are no obvious truthmakers to be found. We shall call domains where this seems to happen ‘M-discourses’, following Price and Jackson (1997), who give as examples morality, modality, meaning and the mental.

There are a variety of expressivisms depending on which discourses are considered M-discourses, and what is expressed by sentences involving those discourses. Expressivisms are typically local, in that the claim is not that all sentences fail to express propositions, but only ones involving an M-discourse. Price’s expressivism is, however, global: the claim is that no sentences express propositions. This claim is motivated partly by a desire for simplicity in an account of natural language, and partly by Price’s commitment to a strong form of anti-representationalism. The simplicity issue is not immediately germane to Price’s quietism so we’ll just say that, since the truth-conditional account of language has failed to cover the whole of language – with its epitaph given by Davidson (1986), one of its prime advocates – it is seemingly just as simple to say that no sentences express propositions as to say that they all do. But then maybe Price is just as mistaken as Davidson was in picking on the presence or absence of propositions as the only pertinent feature of language, but we’ll say no more about that here.

By contrast, Price’s strong anti-representationalism does have a direct bearing on his quietist position: it may undermine it as it is (at least) partly motivated by a nominalist attitude towards reality, that reality is in some sense unthinkable or inaccessible (see Section 5.1.1).

²²This might be seen as a response to the difficulties faced by truth-conditional accounts of language.

7.4.0.2 Anti-representationalism

The basic idea of anti-representationalism is, roughly, that our concepts – and thus the language we use to express concepts or attempt to elicit them in others – do not copy reality. Motivations for this view include but are not limited to:

1. The failure of the picture theory of meaning, or iconism, to cover the whole of human language, as evidenced by the later Wittgenstein rejecting his earlier *Tractarian* position (Wittgenstein (1922/2010, 1953/1967)).
2. The failure of the truth-conditional account of language to cover the whole of language. As already mentioned, this was the considered view of Donald Davidson (Davidson (1986)), one of that account's main advocates.
3. The criticism of the myth of the given – that we have transparent epistemic access to the world through our senses, independent of perceptual processes – given by Wilfrid Sellars (Sellars (1956)).
4. The seeming non-existence of fictions and abstracta, leading to difficulties with reference. Price calls such issues 'placement problems' (see, for example, Price *et al.* (2013, 5–8)).
5. A nominalist attitude towards reality, which is that reality is in some sense unthinkable: unrepresentable or inaccessible.

As with expressivism, there is a range of views that could be called 'anti-representational', even if we just consider the basic idea and the selection of motivations given here. At what we might call the 'weak' end of this range, someone could maintain: that copying and iconism do not exhaust the notion of representation; that iconism and truth-conditions may play a part in an account of language even though they do not cover everything; that a lack of transparent access to the world does not foreclose on the possibility of coming to know worldly facts; and that there are other ways to think of reality, apart from the nominalist way. Peirce can be thought of as just such a weak anti-representationalist:²³ we do not copy the world but interpret it and, through inquiry, hope to align those interpretations with

²³Peirce is the father of analytic semiotics, which is all about representation, so 'anti-representationalism' is not the correct word. Something better should be found: perhaps 'given fallibilism'.

how the world is, and we can so hope because reality is not inaccessible as the nominalist maintains.²⁴ Peirce is not worried about abstracta because he has three modes of being, so lack of existence is no barrier to representation.²⁵

Price, however, is at the strong end of this range. He does not think that linguistic utterances make determinable claims about the non-linguistic world. Global expressivism is supposed to be an account of language *qua* language, one that doesn't make talk about language into disguised talk about non-linguistic objects, something of which he accuses Quine (Price (2011, 189-190)). Price adopts a functional role semantics (Price (2022, 9–10)), in which meaning is understood in terms of the role expressions play in the language, and in how they are used. So, like Wittgenstein, he appeals to meaning as use and considers that the meanings of expressions are to be found in human linguistic practices – in what is done with language – rather than in what is supposedly being spoken of, what is being referred to.

Although his position is called 'global *expressivism*', Price tends to be coy about what sentences express, instead concentrating on how to *explain* the meaning of linguistic items. This is done through genealogies, which purport to give plausible accounts of how we humans have come to use some linguistic expression.

It might be thought there is a tension here between Price's anti-representationalism and his wish to present an account of language *qua* language on the one hand, and his appeal to linguistic practices on the other, since these latter seem to be activities by agents in an environment, and not isolated from non-linguistic objects. We will come back to this issue in the commentary.

7.4.0.3 Truth as a norm of disagreement

The first way that Price claims global expressivism is metaphysically quiet is through his treatment of truth. Price accepts the deflationist idea that there is no substantial metaphysical issue concerning truth. He thinks that the deflationist's equivalence schema – $N(S)$ is true iff S , where S is a sentence and $N(S)$ is a name of that sentence – is good, but to rely on that alone, such as in the minimalism of Horwich (1998), misses the normative

²⁴The evidence for this last point is that predictions can come out correctly and practical reasoning can lead to successful action: see Chapter 3.

²⁵Insisting on only a single mode of being is, however, a characteristic mark of nominalism (Section 5.1.2).

character of truth (Price (2006)). Once that normativity is accounted for, however, then along with the equivalence schema, that is all there is to say about truth.

Price (2003) argues that truth is a norm of disagreement that entitles disputants to escalate a dispute beyond a matter of mere taste, this latter being one where both parties have personal justification for their view. He does, however, initially present it as a norm of assertion, third in line after sincerity and justification, sincerity being assertion in accordance with a personal belief (Price (2003, 173)), and justification being assertion in accordance with some coherent set of beliefs that includes the one involved in sincerity (Price (2003, 173-174)). He does not give a definition of truth in this style, but rather discusses the need for a third norm that connects the commitments of individuals to that of a community and which allows – or encourages – individuals to engage with others to come to agreement on commitments. This norm he calls ‘truth’. It moves from being a norm of assertion to one of disagreement through his genealogical treatment, which purports to show how a community of speakers would find it useful to escalate a dispute beyond that of personal justification. The usefulness here is that disputants are motivated to resolve the dispute, as opposed to just shrugging and walking away saying ‘whatever, dude’, which is what would tend to happen if the dispute was merely a matter of taste (Price (2003, 176–182)). Unfortunately, Price does not give guidance on how these escalated disputes are to be resolved.

He thinks that his treatment of truth results in metaphysical quietism:

In common with other deflationary approaches to truth, the present account not only rejects the idea that there is a substantial metaphysical issue about truth (a substantial issue about the truthmakers of claims about truth, for example). Because it is about truth it also positively prevents ‘re-inflation.’ In other words, it seems to support a general deflationary attitude to issues of realism. If so, then deflationism about truth is not only not to be equated with fictionalism, but tends to undermine the fictional-nonfictional distinction, as applied in the metaphysical realm. (Price (2003, 189))

Price’s thought here seems to be that, since this notion of truth is meant to be internal to language – insofar as human linguistic practices are part of language and not actions in the world – it has nothing to do with the environment, with the world, and is thus indifferent to metaphysical theses, which are about the world.

7.4.0.4 Metaphysics as metalinguistics

Another way in which global expressivism is meant to be quietist is through the adoption of an approach to discourse that follows from Rudolf Carnap's work on artificial, rationally reconstructed languages (Carnap (1928/2005a, 1950, 1963)). The basic idea is that every discourse has presuppositions – the subject matter of metaphysics – that provide terms and rules such that the discourse has functionality and those terms can play functional roles. We can determine what those presuppositions are by using the discourse: that is a question internal to the discourse. How this is supposed to work has been demonstrated by Thomasson (2015, 2020), whose 'easy ontology' is basically a matter of making explicit the presuppositions of a discourse through the use of that discourse, and includes both presupposed kinds and presupposed rules.

However we cannot, from inside a discourse, question the presuppositions themselves. It is a question external to that discourse whether the presuppositions are correct, whether the world is as the presuppositions make it out to be. We can use a discourse that only mentions, rather than uses, the target discourse to try and decide which presuppositions to use, and so metaphysical inquiry – as distinct from its subject matter – occurs in a meta-discourse of the target discourse. Thus, on this Carnapian line that Price adopts, metaphysics – as an inquiry into presuppositions – is metalinguistics. Except inquiry into those presuppositions does not seem to count as an inquiry because which presuppositions to adopt is a 'practical' rather than a 'theoretical' matter. It is a choice made on the basis of whether the target discourse would be expedient, fruitful or useful for some purpose of the discourse users (Carnap (1950, 1963)), these criteria supposedly being no indication of a presupposition saying how the world is. So we have a main discourse with presuppositions, that are taken for granted by the users of the discourse – because that is the only way the discourse can be used – but no way to properly inquire into those presuppositions, only a 'practical' choice. This approach to discourse is thus supposed to be metaphysically indifferent and its use to lead to metaphysical quietism.

This set-up seems to involve a couple of presumptions. First, that there can be no fact of the matter to decide metaphysical disputes, it is just a matter of choosing presuppositions based on their usefulness for some purpose. And second, that usefulness is metaphysically

neutral, that it does not indicate anything about how the world is. Both of these will be challenged in the commentary, to which we now turn.

7.4.1 Global expressivism – commentary

The improvements that Price makes over the Wittgensteinian position have already been mentioned. Language games, or discourses are, supposedly, no longer inexplicable: they can talk about each other. And novelty no longer seems as problematic as it was. However, the ways these improvements are achieved are themselves problematic. We'll start first with Price trying to talk about linguistic practices without bringing in the environment in which those practices operate, which marks him out as a metaphysical dualist, undermining his quietist claims. Next we'll discuss how Price does not seem to define 'truth' before he purports to explain its meaning and then move on to the Carnapian approach to discourse that Price employs. This is problematic because it simply doesn't allow metaphysics to talk about the world. Finally, we will claim that Price's account is not metaphysically quiet because it is a nominalistic account of language.

7.4.1.1 Actions without an environment

Price maintains that the meanings of linguistic items are found in their functional roles, what speakers do with them. But doing something is an action and all actions are interactions with an environment. Price wants to maintain a clean separation between the linguistic and the non-linguistic and so he isolates language from the environment, but this is to undermine his functional role semantics, which cannot work without an environment in which those roles play out. For example, the request 'could you go and buy me some apples, please?' might be said to have the functional role of inducing someone else to go out and buy some apples. The success of this action depends on environmental factors, such as whether the person asked is capable of going out and buying apples and whether there are any apples to be bought. But the request only has that functional role because there are other people and apples to be bought; if there weren't, there would simply be no functional role for the utterance to play and it would be empty.

Linguistic practices are actions performed by speakers in an environment and how that environment is affects the success of those actions. Price forgets about what Peirce called

the outward clash (CP: 8.41), the response of the environment to our actions, against which we progressively modify our actions so they can become successful and useful. Without environmental feedback, it is quite mysterious how any practice, be it linguistic or non-linguistic, can develop and evolve.

Now, Price does mention the environment,²⁶ acknowledging its presence, but – like Wittgenstein with language change – that is all he does with it: because of his strong anti-representationalism, it plays no part in his account because it cannot be represented.²⁷

As mentioned in Section 5.1.4, this impacts Price’s account of truth. The genealogy he uses to explain the meaning of truth has practices developing in a vacuum, without any feedback from the environment. Of course, this issue affects any genealogical explanation Price puts forward – not just for truth – because of his insistence on an account of language *qua* language, without any input from the non-linguistic world. This clearly marks Price as a metaphysical dualist, with the linguistic on one side and the non-linguistic on the other. And this presupposition is baked into his approach from the beginning, undermining his quietist claims. We’ll come back to this in Section 7.4.1.4.

7.4.1.2 Undefined truth

Aside from the normative aspect of truth, Price accepts the deflationist equivalence schema as saying everything else of any philosophical interest about truth. There are – along with all the other problems deflationary truth has as discussed by Stoljar and Damnjanovic (2014) – a couple of issues with this.

The first – already argued in Section 5.1.4 – is that a reliance solely on the deflationist equivalence schema is not enough for an account of truth because the deflationist has not told us how to evaluate the right-hand side of the schema. The second – mentioned but not elaborated in the same place – comes from Lane (2018, 47): the deflationist does not tell us what is meant by the predicate ‘is true’. This criticism leverages Peirce’s three grades of clarity, discussed in Chapter 3 and reprised in Section 7.3.1.1. The first grade is

²⁶See, for example, Price (2011, 9, 12, 27-29, 67, 159, 194, 198, 205, 209, 221, 248, 263). He might sometimes be talking about a purely linguistic environment, but it is not clear how this helps with negotiating a worldly environment of roads, cars and trees. It would seem more like John McDowell’s ‘frictionless spinning in a void’ (McDowell (2000, 66)): just talk talking about talk.

²⁷Compare, for example, Price (2011, 12), where he claims that the environment is important, with Price (2011, 20-21), where he downplays that importance, and with Price (1988, 6), where he starts to propose an account that neglects the environment entirely.

familiarity with the use of a concept; the second makes explicit relations between concepts through a definition in terms of other concepts; and the third is a clarification according to the maxim of pragmatism. For a proper grasp of a concept, we need all three: we cannot identify relations between concepts if we are not familiar with the use of those concepts, and we cannot appreciate the practical consequences of a concept if we do not understand how that concept is related to others. Lane's criticism is then that the deflationist's 'truth' is not clarified to the second grade of clarity, so it is not clear what the deflationist is talking about.

Unfortunately, Lane doesn't elaborate much on this criticism but, to see how it works, we can just replace 'is true' in the equivalence schema with some other undefined predicate such as 'is plimmy' or 'is grindok' and the schema works just as well. If you don't think it does, then you may be applying a notion of truth to the right-hand side of the schema that the deflationist does not sanction. Indeed, it might be thought that the deflationist is assuming that their audience will already have some notion of the meaning of 'truth', some definition to the second grade of clarity – such as a correspondence with reality or a coherence of beliefs – which makes the right-hand side of the schema seem correct, but then goes on to deny that notion. The deflationist seems to be relying on a definition – which they do not explicitly present – that they then purport to deny.

This brings us back to the first issue – no evaluation procedure for the right-hand side of the equivalence schema – of which Tarski (1944) was well aware when he proposed his T-condition. This is basically the same as the deflationist's equivalence schema but Tarski only has it as a minimal adequacy condition for a theory of truth; it is not in itself a theory of truth.²⁸ His own account proposed that truth is relative to a language and he conceived of a language as a collection of sentences – well-formed formulas of a syntactical system – some of which are marked as 'true' and some as 'false'. The evaluation procedure for the right-hand side of the T-condition is then just a matter of searching the collection of sentences – the lexicon – to see if the sentence in question is marked as true. His recursive satisfaction formula is, in essence, a search algorithm for this marker.

While this does give us an evaluation procedure, it does not answer Lane's complaint because it still does not tell us what 'is true' means, since again, we can replace 'is true'

²⁸This point was stressed by Davidson (1990).

in the T-condition with ‘is plimmy’ or ‘is grindok’ – and similarly with the markers in the lexicon and the search algorithm – and everything works just the same. All the Tarskian account does is track a marker, but without saying what it is that the marker is marking, for what reason it is there.²⁹ To do that, in the context of the Tarskian account, we would have to decide what concept of truth was in play for language users to decide to mark some sentences as ‘true’ and some as ‘false’; and perhaps some as ‘unsure’ or ‘to be decided’. Once we have that concept, we can clarify it to the second grade of clarity, and the account can be about truth, and not about plimminess or grindokity.

Price maintains that the basic deflationary account needs supplementing with an account of the normativity of truth, but that supplement is also deficient, according to Lane (2018, 47), because Price too fails to define ‘truth’, so it is not clear what this supplement is about. And again, unfortunately, Lane does not elaborate this point in the case of Price, so let’s do that here.

Price maintains that truth is a norm of disagreement, entitling a disputant to escalate a dispute beyond that of a mere difference in taste, in which both parties have personal justification. This norm is supposedly evidenced by a disputant using phrases such as ‘that’s not true’ or ‘that’s not correct’, as opposed to just, say, shrugging and saying ‘whatever, dude’. But, just as in the Tarski case, Price does not tell us what grounds a disputant feels they have for using these phrases, what concept they are using. It might be that they are saying that what the other person claims is inconsistent with the beliefs they share; it might be that the claim conflicts with worldly facts on which they both agree; it might be something else. But Price needs to tell us what notion the disputants are using in invoking the dispute-escalation norm. Without that definition of truth – ‘truth’ to the second grade of clarity – the norm of disagreement could just as easily be plimminess or grindokity, which are equally undefined. Interestingly, Price does tell us what ‘sincerity’ and ‘justification’ mean – he gives us definitions in terms of other concepts – but he does not do this for ‘truth’. Global expressivism is meant to explain the meaning of linguistic items, but Price seems to be proffering an explanation without first telling us what it is that he is explaining. There may very well be a norm of disagreement such as Price

²⁹Putnam (1995, 332–333) also argues, along different lines than here, that Tarski’s account does not provide a meaning, an intension, for truth.

describes, but he gives us little reason to believe that it is truth.

Only once we have decided on a definition for truth – ‘truth’ to the second grade of clarity – can we then proceed to contrive a genealogy that supposedly makes plausible the role it plays in language. Let’s try this for a version of correspondence truth: that a true sentence says how a portion of the world is, at least sufficiently well for some variety of successful action to be performed there.

Imagine some human-like creatures in an earlier state of linguistic development. They use language to communicate to each other where essentials such as food, water and shelter can be found and exploited, and also to flag up danger. These resources may well be in scant supply and they don’t want to waste energy searching for food that isn’t there or put themselves into excessively risky situations: this could very well be a matter of life and death. It is thus useful for them to distinguish utterances that do, in fact, pick out (safe) locations of these essentials from those that don’t. The ones that do are called ‘true’ and the ones that don’t, ‘false’.

This little just-so story could be elaborated further but, even as it stands it might, I suppose, go some way to explaining why truth understood as correspondence-with-reality is such an persistent notion among humans: it comes down to basic survival, or at least it used to. This genealogy has an advantage over Price’s because, firstly, it is clear what it is purporting to explain and, secondly, that it fully accepts that human linguistic practices are actions in an environment, which itself plays a role in the development of those practices.

Even if we accept that deflating truth in the way Price suggests leads to a quietist position, since it is not clear what Price is talking about when he talks of ‘truth’, we should not accept that quietist conclusion.

7.4.1.3 Practical choices without an environment

In addition to his treatment of truth, Price appeals to a Carnapian approach to discourse in his claim that global expressivism is metaphysically quiet.³⁰ In this approach, presuppositions are chosen according to ‘practical’ criteria such as expedience, fruitfulness and usefulness. These are what we might call theoretic virtues, and they are not meant to

³⁰Many of the contributions to Chalmers *et al.* (2009) address this approach directly or indirectly, but none of them seem to make the observation to be addressed here, which is that the environment seems to be excluded when making a choice of presuppositions.

be truth-conducive, in the sense they are not to be taken as evidence that the chosen presuppositions capture something of how the world is.

Certainly, expedience by itself is no guide to how the world is. If I were, say, a senior executive of a media company embroiled in a phone-hacking scandal – in a country that had criminal sanctions for such activity – it would be expedient for me to not remember what was said and done at the relevant time. Such expedient forgetting is no evidence for or against the criminal behaviour, which would have to be established otherwise, although it might tell against my competence as a senior manager in that I was seemingly unaware of relevant business activity under my purview.³¹

Fruitfulness alone is also not a guide to how the world is. Indeed, Peirce argued that it is in inverse proportion to security: the more fruitful a hypothesis seems, the less confidence we should initially have in its truth (EP2: 463–474). For instance, I might formulate some hypothesis, which I then go on to elaborate and test for the rest of my career, producing much published work. The suggestiveness of the hypothesis encourages others to do likewise. The idea has been fruitful in all the work it has led to. Then, just as I am about to retire, strong evidence emerges that the original hypothesis is wrong, that it does not say how the world is.³²

Usefulness, however – as distinct from expedience and convenience – is a different matter, because it may well provide evidence in favour of the presupposition saying how the world is; provided, that is, that we allow the world, the environment, to be considered when making our choice of presuppositions.

Something is only useful if it useful for some purpose, that is, it helps to achieve some end. Achieving some end requires successful action and, for something to be useful, it should enable successful action towards that end, or make such action more efficient. All action is interaction with an environment and, for an action to be successful, the environment in which it occurs has to be a certain way. A successful action involves the agent exploiting some affordance available in the environment (see Sections 3.6.4 and 3.6.5). Hammers and screwdrivers are useful in just this way, exploiting ways the environment is

³¹In this case, expedience might be equated with mendacity – as in the Peirce quote at the end of Section 7.2.1.1 – with the stability of a business supposedly at stake, or at least the job of the senior manager.

³²This does not mean the work was wasted. Inquiry on the question the hypothesis was meant to address has advanced by eliminating one line of inquiry – and its child branches – as mistaken.

to successfully hammer in nails and screw in screws more efficiently than, say, rocks and fingers. Moreover, something that is useful has different experiential consequences from something that is less useful or useless for that same purpose. A ceramic teapot is useful for making tea, while a chocolate teapot is not; the experiential consequences of trying to make tea with each are different.³³

Thus, to say that a presupposition is useful, is just to say that it captures, in some way, an affordance in the environment that an agent can exploit for successful action. In other words, a useful presupposition *does* say something about how the world is. Provided, again, that the environment is allowed to contribute to our choice of presuppositions.

Now, suppose someone wants to talk about fictions or propositions or something else usually regarded as abstract objects. To talk about something there has to be something to talk about, else the talk would be empty and so, on the Carnapian line, all they need do is choose a discourse with presuppositions that allow them to engage in such talk. It is certainly convenient or expedient for them to do so. But on that line, by using that discourse, they don't thereby become committed to any reasons why they are allowed to talk about abstract objects, they don't need to believe what the presuppositions say about the world.

It might be wondered how this is meant to work since this seems to involve, on the one hand, a performative contradiction³⁴ or, on the other, a refusal to believe something they have reason to believe. We have a performative contradiction when the conditions required for a sentence to be uttered do not obtain, such as in sincerely asserting 'I am dead': you cannot say anything when you are dead. If the conditions supposed in the presuppositions are not how things are, then the conditions for talking about abstract objects are not met, and in talking about such objects they are thus committing a performative contradiction. On the other hand, if those conditions do, in fact, obtain, then it would seem churlish for them to decline to believe that they do.

There is a sense here that there is some freeloading going on, that they haven't paid the price for talking about abstract objects by committing to the required presupposi-

³³When is a kettle not a useful kettle? When it is the one designed by Philippe Starck, on display at the Design Museum in London, which had a small label on it that read: 'do not use when hot'.

³⁴The notion of a performative contradiction was introduced by Apel (1973/80/98) and elaborated by Habermas (1983/1990).

tions, even though they have chosen those presuppositions: they are enjoying the play, but they didn't pay the entrance fee. And because they have chosen those presuppositions, they cannot resort to the Pyrrhonian 'I assent only to what I am forced to' or the Wittgensteinian 'this is just what I do'. They were not forced to sneak into the theatre: they could have stayed home and watched television instead. This is the Pyrrhonist's expedient freeloading only worse, because it doesn't have the Pyrrhonist's excuse of being trapped in phenomenology.

How they think they can get away with this lack of commitment – how they can get away without paying – is, I suggest, that the environment has been excluded from consideration in the meta-discourse, in much the same way as Price isolates his linguistic practices from the environment in which they occur. We can ask what are the grounds for such exclusion, why should the meta-discourse be isolated in this way? After all, in choosing presuppositions for a discourse, we should be allowed to access the resources of the whole of language – no matter how vague or imprecise – and that includes the target discourse, which is a portion of language distinguished by topic: we should be able to *use* the linguistic items of the target discourse as well as mention them. We should be so allowed because, if we want to change the presuppositions, the new ones are not yet available within the target discourse, but are to be found elsewhere in the whole span of language, and we need to connect them to the target discourse to establish whether they would be useful. In other words, the meta-discourse needs to be stronger than the target discourse.

Some discourses do involve the environment, such as Carnap's envisaged, but never completed, language for the natural sciences. This uses observational terms, and observations arise from interaction with the environment. If that is thought inadmissible because never completed, we have the everyday object language that Thomasson (2015) uses as her keystone. In her 'easy ontology', establishing the presuppositions of the object language often involves some empirical investigation to establish whether a concept is applicable, and such investigation involves interaction with the environment. Given that the meta-discourse should be able to access the whole of language, that includes discourses that involve the environment, so the meta-discourse should also be able to access the environment, and we should be able to consider the contribution the environment makes to our

choice of presuppositions. Moreover, it does seem odd to call the choice of presuppositions ‘practical’, and then exclude from consideration the environment in which practices occur.

The reason for this isolation of the meta-discourse might be traced to Carnap’s view that metaphysical theses have no experiential consequences (Carnap (1928/2005b)). That is, Carnap thinks *all* metaphysics is what Peirce calls *bad* metaphysics but, for Peirce, there is *good* metaphysics as well, and we don’t want to throw out the good along with the bad. Which is just what happens if the only discourse where metaphysics is allowed to operate – the meta-discourse – is isolated from the environment, from the world that metaphysics tries to get right. Not only is such isolation motivated by a belief that metaphysics does not – or cannot – speak of the world, but metaphysics cannot prove itself, so to speak, from that isolated position, without access to the world. The metaphysician has been denied access to the very resource required for their work. This is quietism by fiat, not by argument. If the idea is to dispense with only bad metaphysics then, much like Van Fraassen’s strategy to the same end discussed in Section 5.3.5, this ends up excluding too much.

Carnap includes the realist-nominalist dispute among those metaphysical theses that have no experiential consequences. But the Peircean maintains that there *are* experiential differences between the two. A nominalist – in this case an ordinary nominalist in the sense used in Chapter 5, one with a metaphysics of ‘I II’ – should be surprised if they can reliably make predictions, and when a piece of practical reasoning results in successful action. They can have no expectation that a prediction can be reliably fulfilled because they cannot account for how predictions can be successful (see Sections 3.6.4, 3.6.5 and 5.2.2). A Peircean realist, by contrast, is not surprised by a successful prediction because they can account for that success. Surprise in the one case and lack of surprise in the other is a difference in experiential consequences, and so we have metaphysical theses that can be distinguished in just the way that Carnap denied. This seems to be a clear counterexample for one of Carnap’s basic principles concerning metaphysics, at least from the Peircean point of view so, from that point of view, the Carnapian way with discourse cannot be regarded as metaphysically neutral because it isolates metaphysics from the world on an unsound basis.

This isolation of metaphysics from the world, from what it is supposedly talking about,

fits nicely with global expressivism, since the same isolation is evident there as well. That isolation might be traced to Price's nominalism, which undermines the claim that global expressivism can be any kind of metaphysical quietism.

7.4.1.4 Nominalistic quietism is not metaphysical quietism

As Legg and Giladi (2018) have observed, Price is a nominalist and a dualist. He clearly exhibits the nominalistic attitude towards reality – that reality is some sense unthinkable – and for Price that sense is that it is unrepresentable. This seems to be a prime motivation in his strong anti-representationalism. Such a metaphysical view is *prima facie* self-stultifying because, if it were true, it would be inexpressible. It's worth repeating the two quotations from Section 3.6.1, the first from Peirce:

The sole immediate purpose of thinking is to render things intelligible; and to think and yet in that very act to think a thing unintelligible is a self-stultification. (EP1: 275)

And the second from Tim Button:

How can I worry that my words express nothing about the world? Really: *How?* If the worry is right, nothing could express it. No worry could be more self-stultifying. (Button (2013, 60))

It is to try and avoid the problems that arise from this inability to express their view that nominalists have adopted a number of strategies, three of which were given in Section 5.1.1. Price has chosen dualism, with language on one side – that which is representable – and everything else on the other. This is why he is a strong anti-representationalist and why he wants an account of language *qua* language and not to include the rest of the world, because the latter is unrepresentable. The problem, as already discussed, is that he includes linguistic *practices* on the language side, but these are problematic if there is no environment in which they occur, that environment being on the other, unrepresentable side.

And this is why global expressivism is not a metaphysical quietism at all, because it is not neutral as between nominalism and realism. It presupposes nominalism and thus can never be quiet about the metaphysics, but is instead a façade for nominalism.

7.5 Chapter summary

Metaphysical quietism was defined and arguments presented, from a Peircean point of view, against it, both in general terms and specifically against three exemplars: Pyrrhonism, Wittgensteinian linguistic quietism and Huw Price's global expressivism.

Quietism blocks the way of inquiry by insisting that some things are unknowable, that presuppositions cannot be inquired into. This prevents inquiry even when we have good reason to doubt some presupposition. We cannot avoid metaphysics because we start every inquiry with presuppositions. Ongoing inquiry may give us reason to doubt a presupposition so we need to be able to inquire into them.

Pyrrhonism fails because the Pyrrhonist is (voluntarily) trapped in phenomenology and voluntarily chooses not to acquire the resources needed for metaphysical inquiry. Moreover, Pyrrhonian inquiry is a sham and cannot demonstrate that metaphysical inquiry is impossible or futile.

Wittgensteinian linguistic quietism fails for the same reasons as Pyrrhonism, if Wittgenstein is sincere about meaning being purely a phenomenological matter. However, if he is not being sincere, then it fails through self-contradiction.

Global expressivism fails because it expressly denies the metaphysician the resources they need through isolation from the environment. It is thus supposedly quiet only by fiat and not by argument. This isolation is self-undermining because linguistic practices cannot evolve and develop without an environment in which, and against which, to do so. It is also not quiet because it is a façade for nominalism.

Chapter 8

Conclusion

I have attempted to show that Peircean realism is a viable metaphysics for the special sciences. This endeavour started with Peirce's categories, which are basic principles of combination and organisation. This is a good place to start because all activities involve combination and organisation. Granted that there is activity in the universe – irrespective of whether it is constructive or futile – any metaphysics fit for the special sciences should admit these principles. The characterisation of the categories is critical, and it was shown that Peircean realism not only admits all three categories, but Peirce's characterisations provide the resources required for explanation and successful prediction.

The critical portion of the thesis showed what goes wrong when one or other category is denied, when nominalism is admitted, or when an attempt is made to ignore metaphysics. In particular, it was shown that Lewis's Genuine Modal Realism, Van Fraassen's constructive empiricism and French's eliminative ontic structural realism do not make the grade for being viable metaphysics for the special sciences. This further bolstered the case for all three categories as required, and for Peircean realism as just such a metaphysics.

However, it must be admitted that, even if it is agreed that the categories are required, a lot turns on how they are characterised. They are of the first grade of generality, so there is no reduction available and it may not be helpful to define them in terms of each other, so we must appeal to characterisations under various aspects. How Peirce characterises them may not be the best way to do so although some features, such as intrinsic modality, appear under the mathematical aspect and so would be difficult to discard without also revising the surrounding mathematics. While I have found nothing yet in my experience

that conflicts with Peirce's characterisations, they may yet be improved upon should such a conflict arise in the future. But that is just as it should be with truth-directed inquiry, and Peirce would not object should future inquiries show that the characterisations need revision.

8.1 Further work

There are a number of projects for further work arising from this thesis. A couple of these have already been mentioned: a properly Peircean account of fiction, further elaborating what was said in Section 3.5.3 while being fully engaged with the philosophy of fiction literature; and a reconstruction of Peirce's evolutionary cosmology (Section 4.4) in the light of modern developments, which might help with the problem of dark energy.¹ Another project might be to investigate further why nominalism is, and has been, so prevalent in modern thought, extending the brief discussion in Section 5.2.3.

There are some other related areas that have not been touched on so far, which could be made the topic for further investigation, and we'll say a little about a handful of these. One is dispositionalism, which accepts real Thirdness (Section 8.1.1), and another is scientism, which might be considered complementary to quietism (Section 8.1.2). Looking at some positions that seem more consonant with the Peircean view may also be helpful, so a few initial remarks will be made about the dappled world of Nancy Cartwright (Section 8.1.3) and Hasok Chang's active realism (Section 8.1.4). Finally, this entire thesis could be rewritten using Peirce's semiotics as the guide, instead of his theory of inquiry, and this would have some advantages, as mentioned in Section 8.1.5.

8.1.1 Critique of dispositionalism

The arguments put forward in this thesis concerning the reality of Thirdness may put the reader in mind of dispositionalism, and the dispositional essentialism of, say, Mumford (1998, 2002). This has not been considered here as a separate topic because, apart from the constraints of space, Thirdness is, so to speak, the genus of which dispositions – along

¹An interesting recent development is Oppenheim (2023) and Oppenheim *et al.* (2023), who propose that space-time is continuous but subject to random fluctuations, which fits nicely with the Peircean view. They also suggest an experimental test for this.

with habits, rules, laws, causal powers and capacities – are species, and we don't want to get bogged down in fine distinctions between the species when what's important here is happening at the genus level.

Nevertheless, dispositionalism probably deserves a proper Peircean treatment but, for the time being, I will only say – without argument – that the laws derived from dispositions by Bird (2005) are necessarily necessary, whereas Peircean laws are contingently probable; and that dispositional essentialism – such as that of Mumford (2002) – seems to have no independent Firstness, some consequences of which were discussed in Section 6.2.

8.1.2 Critique of scientism

This thesis concerns scientific metaphysics, that is, metaphysics *for* the special sciences, not *of* the special sciences: that would be a scientistic metaphysics. It might be worthwhile to have a closer look at scientism because it can be thought of as complementary to quietism in that both claim there is no work for metaphysicians to do: quietism by claiming that metaphysical inquiry is impossible or futile and scientism by maintaining that special scientists can either do without metaphysics or can do it themselves, although in this last case they would be engaged in metaphysics rather than their own discipline.

One reason for not proceeding with such a critique is that a major scientistic opponent – James Ladyman in Ladyman *et al.* (2007) – has more recently taken back – in Ladyman (2018) – a lot of what he had originally claimed.² However, it might still be helpful to make out the scientific-scientistic distinction more clearly in Peircean terms – and it would also help to situate the Peircean position within the ongoing debate about so-called 'naturalised metaphysics', as summarised by Jaksland (2023) – so here is a sketch of how I might proceed.

Scientific metaphysics is a truth-directed inquiry that starts with basic principles from pure mathematics and the normative sciences – especially logic in Peirce's broad sense – while taking its data and examples from the special sciences. It formulates hypotheses, deduces consequences from them and tests them, in the first instance, against everyday experience, while attempting to reconcile those results with the outputs of the special sci-

²As Susan Haack says, reporting an observation of J. L. Austin: “there's the part where he says it, and the part where he takes it back” (Haack (2007a, 33)).

ences. It aims to produce results that are general presuppositions that the special sciences can rely on when investigating matters in their particularity.

Scientistic metaphysics, on the other hand, starts with the particular outputs of the special sciences and attempts to generalise them but without, seemingly, having any general principles to do so, and without any general presuppositions to rely on in the first instance. As it starts with the outputs of the special sciences, it feels no obligation to reconcile those outputs with everyday experience.

The argument against scientism would start with Peirce's remark that 'to found the science of the general upon the science of the special is absurd' (EP2: 385) and then adapt the arguments of Haack (2009, 2007a, 2012, 2017), Andersen and Arenhart (2016) and several from the contributors to the volume *Scientism: Prospects and Problems* (de Ridder *et al.* (2018)).

The special sciences can, of course, produce results that raise doubts about presuppositions, and that is why we need a scientific metaphysics, so we can inquire into those presuppositions.

8.1.3 Cartwright's dappled world

There is much in Cartwright (1999) that seems consonant with Peirce. She says she is a follower of Duns Scotus (Cartwright (1999, 104)), that she is an empiricist with a broad notion of experience (Cartwright (1999, 2, 30)), and that laws are *ceteris paribus* and local (Cartwright (1999, 4)), a view raised in opposition to what she calls fundamentalism (Cartwright (1999, Chap.1)), which she characterises similarly to the way Peirce characterises necessitarianism: that the universe is deductively closed under universal laws.

But this similarity may only be superficial. While Peircean laws might be considered to be *ceteris paribus*, in the sense that, in covering a continuum of possible situations, they specify conditions and outcomes only in a general way, this is not what Cartwright means when she maintains that laws are *ceteris paribus*. Instead, she means that they are only applicable to – that they only govern – particular, even gerrymandered, situations, what she calls 'nomological machines' (Cartwright (1999, Chap.3)). Nor do they seem to be laws of nature, but rather laws of particular sets of experiments. It might even be the case that a law is only applicable to a single experiment, so it is not general at all. This is

not what Peirce means by a law, by a Thirdness. This is, however, what Cartwright means when she says that laws are local and not universal, so the notion of the universe having different localities with different laws – which is what ‘dappled world’ might suggest – is not what Cartwright means.

She explains these laws-not-laws by recourse to capacities (Cartwright (1999, 59ff)) – or casual powers or dispositions, there seems little to distinguish them, and her distinction that capacities are multiply instantiable while dispositions are not (Cartwright (1999, 59)) seems questionable (Chakravartty (2003a, 246); Mumford (2000, 615)). Laws arise through particular configurations of capacities that are only found in particular, possibly gerrymandered situations, such as experimental set-ups, although she does allow that the special kind of situation required could appear naturally (Cartwright (1999, 49)).

This might look to a Peircean as though she has split Thirdness into two of its species – laws and capacities – except that her laws are not Peircean laws, being more like Pierre Duhem’s experimental laws: summaries of results without any modal force. The capacities, however, are closer to Thirdnesses, being modal in their character. Unfortunately, Cartwright nominalistically makes them brute and inexplicable and, as a dispositionalist account, it seems to lack an independent Firstness.

The dappled world of laws, it seems, was a MacGuffin. While laws are important in the activities of special scientists, they are not where the metaphysical action is: that lies with capacities. Moreover, the special sciences are, according to Cartwright, best understood as tracking capacities and not laws. What the metaphysical picture of that is – perhaps a fundamentalism on capacities instead of laws, perhaps a dappled world of capacities, perhaps something else – is not clear from Cartwright’s account.

8.1.4 Chang’s active realism

Chang (2023) is explicit about his pragmatist leanings, and that he wants to reclaim the notion of reality from those who seem to make such a thing impossible, and this is in tune with Peirce. He argues that if we consider reality as something unthinkable – he says ‘not mind-framed’ (Chang (2023, 74, 90)) – then the notion of truth as correspondence with reality is senseless. Similarly, Peirce argues that correspondence truth is senseless on a nominalist construal of reality (EP2: 379–380). To counter this, Peirce adopts a realist,

zetetic notion of reality and, similarly, Chang adopts a notion of reality that is linked to his idea of operational coherence. While Peirce has reality and truth connected through the process of inquiry, Chang has them connected through operational coherence (Chang (2023, Chap. 3 and 4)).

However, there is a problem. Chang considers that the basic issue with truth as correspondence with reality is what he calls the ‘fallacy of pre-figuration’ (Chang (2023, 74)): the assumption that the world has structure independent of anyone’s conceptualisation of it. One problem with this³ is that it only seems to be a mistake to make this assumption if we adopt a nominalist construal of reality: that reality is, in some sense, unthinkable, and thus unconceptualisable by anyone. So Chang seems first to reject such a construal of reality and then proceeds to rely on it with his fallacy.

It does not seem to be a fallacy to claim that the world is conceptualisable by some inquirer, this requiring that there be some structure to the world such that it is conceptualisable. If we want a true answer to a question about the world, we should hope that the world is intelligible to us (CP: 7.601), otherwise our inquiry would be futile. There has to be something there and in such a way that it is susceptible to truth-directed inquiry: it cannot be an amorphous blob but should be discriminately responsive to action. A contrary, nominalistic view might be that we project those concepts onto the world, but this fails to address how we have such a power separate from the world, and how we got those concepts in the first place, since we are in and of the world. I would expect Chang to reject this nominalist view.

And yet, I have this nagging worry that Chang, with his fallacy of pre-figuration, seems to think that there simply is no world to speak of until some human comes along and – seemingly by magic – generates some concepts: that the world is featureless without human intervention. Of course, to talk about the world we need concepts, but there has to be a world for us to use concepts to talk about it. His view could suffer from a problem similar to that discussed earlier with the two senses of ‘phenomenon’ (Section 5.3.1.1): that we end up inquiring into our concepts and not into the world that the concepts are supposed to be of, implying that special scientists are mistaken about their targets of inquiry.

The worry then is that, despite his attempts to shake it off with respect to truth, Chang

³Crasnow (2023) also raises issues with this supposed fallacy.

is still in thrall to a nominalist world-view. Curiously, he never mentions nominalism in his book and perhaps this is unsurprising because, as Howat (2020, 692) notes, the ‘nominalism that Peirce opposed throughout his career is arguably hegemonic in contemporary philosophy’. However, *Realism for Realistic People* has only recently been published, so these brief remarks are only preliminary; perhaps after further digestion, this worry can be somewhat assuaged leading to a more nuanced Peircean response.

8.1.5 Semiotics instead of inquiry

This thesis was written using Peirce’s theory of inquiry as the bridge, so to speak, between the mathematical hypothesis of the categories and the metaphysics. But Peirce’s logic also includes his theory of meaning, his semiotics, so this thesis could be rewritten using that instead. The main advantage of this is that, once the semiotic notions are grasped – which admittedly can be a little tricky – the movement from mathematics to metaphysics is much clearer: basically, everything is of the nature of a sign and signs are classified according to stacks of trichotomies, each branch of which is associated with a category. This approach also links the metaphysics into the formal logic of relations, represented diagrammatically by Peirce’s existential graphs, so we have a ready-made formalism for the metaphysics, although further work needs to be done on modal graphs – Peirce’s gamma graphs not being quite up to the job – which would be critical since we are dealing with a form of modal realism.

If signs are considered only as a product of thought, such a position might be criticised as an implausible cosmopsychism, except that that criticism is itself founded on the implausible idea that in all the universe, humans are the only sign-users, the only meaning-makers. Instead, semiosis – the movement and transformation of signs – is a universal phenomenon, of which human thinking is but one example. We should not regard it as any kind of psychism: mind and matter, if we follow Peirce’s doctrine of synechism, do not constitute a genuine dichotomy but are portions of a continuum, which is best considered semiotically. But the full exposition of this view would take a monograph of its own, so we will leave it at that.

Appendix A

Glossary

Peirce tries to follow his own ethics of terminology (EP2: 263–267), which recommends that there should only be one word per concept, and one concept per word; we should say what we mean and mean what we say. As such, he invents some words and phrases while using other, more familiar ones in very specific ways. This glossary seeks to clarify some of this terminology, since it is the Peircean understanding of these words and phrases that is used in this thesis.

Architectonic

A classification of the sciences. Peirce’s architectonic is ordered according to how abstract each science is. Any attempt at an architectonic – whatever the ordering principle – is of course dependent on what is happening with the sciences at the time of the attempt, and so is subject to revision. For further elaboration see the entry for ‘Science’ and Section 2.2.2.

Belief

For Peirce, to believe a proposition is to hold it to be true. So in the sentence ‘Abigail believes that p is true’, the ‘is true’ is superfluous.¹ Beliefs are what we rely on in action. A belief is true if, when solely relied upon, such reliance would always result in successful action. A true belief is one that would survive all tests, even ones that we have not yet

¹This is not to be taken as the germ of a redundancy account of truth for the same reasons given in Section 7.4.1.2 for deflationary truth: truth remains undefined. Rather the concepts of truth and belief are considered as interdependent.

conceived of. Its consequences are expectations that would never be frustrated. Beliefs are themselves habits of action. In this, actions are always interactions: there is no action that does not have a reaction.

Categories

Peirce's categories of Firstness, Secondness and Thirdness are basic principles of combination and organisation. We need all three of them to be operative to form a system of categories in the style of Aristotle or Kant, and to even conceive of anything we could call a universe, even an impossible one.

Firstness comprises that which is as it is independently of all else. Firstnesses include non-relational properties, monadic qualities, possibilities, may-bes, vagues, pure chance. Secondness comprises that which is of the nature of interaction, independently of any reason for such interactions. Secondnesses include brute existence, actuality, haecceity, tokens. Thirdness covers that in virtue of which there is a Secondness. It includes generality, probability, necessity, habits, reasons, would-bes, types. This is discussed in more detail in Chapter 2.

Clarity, grades of

There are three grades of clarity of a concept, each associated with a category, which mark how well a concept is grasped. All three grades are required for the concept to be usable in truth-directed inquiry. The first is familiarity with the use of a concept; the second makes explicit the relations between concepts through definitions in terms of other concepts; and the third is clarification according to the maxim of pragmatism, according to the possible experiential consequences of the deployment of the concept. More on this can be found in Sections 3.2, 3.3 and 3.5.2.

Fiction

What is real is contrasted with fiction – or 'figment' as Peirce often styles it – which is something that is just as someone imagines it; its features can change simply from someone thinking them different. Nothing surprising can issue from fictions alone – though perhaps from their comparison with reality, in that it may be surprising that an author of fictions

can seem committed to one view in one work and a contrary view in another one – so there can be no frustration of expectations and thus no motivation for inquiry if we are dealing only with fictions. More is said on how a Peircean might treat fiction in Section 3.5.3.

General

When used as a noun, this is like the usual philosophical meaning of ‘universal’ but with a broader scope, encompassing not only repeating qualities but also types, kinds, laws, habits, dispositions, norms, indeed anything that can be predicated of many things, whatever those things may be. A general is a Thirdness and typically has the form: ‘if act A were performed under conditions C then R would result (with probability p)’ (Forster (2011, 72)), where A, C and R are all types. A general covers a continuum of possibility for its manifestation and so outstrips all its actual instances.

Inquiry: genuine, sham and fake

Genuine inquiry aims at truth (see the entries for ‘Science’ and ‘Truth’) and follows the ‘first rule of logic’: never prejudge the result of an inquiry (EP2: 48). A sham inquiry is where the answer has been decided in advance and the inquiry designed to obtain that answer (CP: 1.57–1.58). A fake inquiry is one where there is no interest in an answer and the trappings of inquiry are employed for other purposes, such as commercial, political or reputational advantage (Haack (1998, 9)).

Logic

For Peirce, logic is the (normative) science of good reasoning. This includes not only formal logic – which is effectively mathematics plus a commitment to the hypothesis of reality – but also theory of inquiry and semiotics (theory of meaning). Mathematics is prior to logic – Peirce is not a logicist – and uses a *logica utens*. Logic is the working out of a *logica docens*, for which we need to use a *logica utens*.

Logica utens, logica docens

Logica utens is our instinctive, evolved reasoning capabilities. This is what is relied on in mathematics. However, for metaphysical inquiry to be productive and not just idle speculation, we need a properly reasoned logic, a *logica docens*, so that we can better identify good reasoning and thus make sense of metaphysical inquiry. With this in hand we need not be condemned to the presuppositions we started out with, and can investigate doubts concerning them. More on this is found in Chapters 1 and 4.

Metaphysics

In this thesis, the subject matter of metaphysics is our presuppositions: what we take for granted just to get by in everyday life as well as what we start with when we start any inquiry. Metaphysics as an inquiry is, according to Peirce, the science of reality – and so is completely committed to the hypothesis of reality – and investigates those presuppositions. We should have a reason for our doubts concerning some presupposition, mere pretend or paper doubts not being enough. Metaphysical inquiry conducted in the fashion envisaged by Peirce is no mere idle speculation with nothing at stake: what is at stake is a sound basis for the special sciences.

Because of the nature of its subject matter, metaphysics as an inquiry comes after logic in Peirce's architectonic. We cannot blindly rely on our evolved capacity for reasoning alone – our *logica utens* – when pursuing an inquiry into our presuppositions, because that would most likely just end up back where we started: our evolved capacities and our initial presuppositions are inextricably linked. Indeed, it might be thought that we couldn't even make sense of any inquiry that might challenge what was taken for granted to begin with. To make sense of, and enable us to perform, such an inquiry, what is needed is a properly reasoned logic – a *logica docens* – that comes from investigations in logic, the science of good reasoning. So while the subject matter of metaphysics – presuppositions – comes before any inquiry, meaningful inquiry into those presuppositions only becomes available to us once we have sorted out how best to inquire. For more on this, see Chapter 4.

Nominalism

For Peirce, this is a metaphysical position characterised by one or more of the following commitments: reality is in some sense unthinkable or inaccessible; there is only a single mode of being, usually existence; there are only individuals; there is no real generality. A commitment to the last of these four is what makes nominalism, ordinary nominalism. This is further elaborated in Chapter 5.

Nominalistic Platonism

This is the name Peirce gives to a position that nominalists have typically called ‘realism’. It involves placing a putative *explicans* of some *explicandum* into an inaccessible realm; this *explicans* is thus unknowable and ‘the imagination can play about as it pleases’ (EP1: 100). It is a historically important strategy nominalists have deployed for dealing with the problems their view of reality entails. It is found in Berkeley, Kant, Dummett (1978) and Putnam (1981). See Sections 3.8 and 5.1.1 for more details.

Pragmatic, pragmatistic, pragmaticistic

‘Pragmatic’ will only be used in this thesis in its everyday meaning of ‘expedient’ or ‘convenient’, while ‘pragmatistic’ will be used in the technical sense of ‘compatible with the maxim of pragmatism and its associated commitments’. Since a Peircean line is taken throughout, the somewhat awkward term ‘pragmaticistic’ – to distinguish Peirce’s view from others going by the name of ‘pragmatism’ – is deployed rarely.

Reality

Something is real if it is as it is, irrespective of what anybody happens to think about it. In other words, something real does not change when someone’s opinion about it changes. The real is here contrasted not with the mental or the artefactual – the occurrence of a dream is a mental event just as real as a rock rolling down a hill; a house, once built, is just as real as any tree – but with the fictional.

Reality is connected to truth through the practical activity of well-regulated, truth-directed inquiry: a true answer to a question found through such an inquiry represents

a reality. This zetetic understanding of reality cuts across the common epistemic-ontic distinction because inquiry often involves acting on the environment and interpreting the reaction. The degree to which such interaction is involved – and thus to which epistemic and ontic reality line up – varies across the architectonic and can be gauged by the degree of commitment a discipline has to the hypothesis of reality.

Peircean realism is the view that there are real Firstnesses, Secondnesses and Thirdnesses. This view arises because true answers obtained through inquiry can represent things in any of the categories, so we ought to accept that at least some of what falls under each category is real.

Reality is not the same as existence. Existence is a matter of opposition alone, that is, of Secondness (CP: 1.432, 1.456–1.458). Peirce has three modes of being, one for each category.

See Sections 3.2 and 3.3 for more details.

Reality, hypothesis of

Since a reality is that which is represented by a true answer to a question obtained through well-regulated, truth-directed inquiry, for such inquiry to make sense, it must be hypothesised that there are real things which can be represented by true answers to questions. Or to put this another way, the hypothesis of reality purports to explain why it is possible for us to say true things about the world. This is not a transcendental element, but what Peirce calls a regulative hope. It is a matter of logic – the normative science of good reasoning – that we ought so to hope. If we do not hope that there is a reality, then we cannot hope to find true answers to our questions, and we may just as well believe whatever we find most congenial. If we do not so hope, then science is impossible, because it cannot be a meaningful, truth-directed inquiry.

While the hypothesis of reality is itself difficult to test, because it is the basis of truth-directed inquiry, it gains increased credence, through confirmation holism, whenever a hypothesis is confirmed through experiment.

In Peirce's architectonic – his ordering of the sciences – the degree of commitment to the hypothesis of reality varies across some of the sciences. Pure mathematics has no commitment to the hypothesis: mathematics is itself purely hypothetical and cares not

how its conclusions play out in the world. When we speak of truth in mathematics, it is of a minimal, hypothetical reality constructed from purely hypothetical resources. There is thus no sense in calling mathematical objects ‘real’ or ‘fictional’.

For more on this, see Sections 2.2.2, 3.2 and 3.3.

Science

Science is a process or activity of truth-directed inquiry, whatever the target domain or the tools used (EP2: 129–131). Peirce developed an architectonic – a classification of the sciences – which was not intended to be permanently correct, but was how he saw the relations between the sciences of his time. In this, the top-level division is between sciences of discovery, sciences of review and practical sciences (EP2: 258). He does not say much about sciences of review, other than they look at the activities and outputs of other sciences and try to make sense of them; the architectonic is a product of just such an exercise. Nor does he say much about practical sciences apart from giving a long list of them (CP: 1.243). These take general truths from the sciences of discovery and apply them to particular situations in the hope of solving individual problems: architecture and engineering are of this sort, and he also includes medicine under this head (CP: 1.281).

He has more to say about the sciences of discovery, which are divided into mathematics, philosophy and what he sometimes calls ‘idioscopy’ – special observing – but most of the time ‘special sciences’. The ‘special’ indicates both that they are concerned with matters in their particularity, and that they employ specialised resources. No special equipment is required for philosophy, which involves careful observation of and thinking about everyday activities and experiences. Peirce goes into some detail on subdivisions of the special sciences but we will only note here that the head includes what we might call human sciences – such as history, economics and sociology – as well as natural sciences such as physics, chemistry and biology.

Pure mathematics is unusual in that it is purely hypothetical and has no commitment to the hypothesis of reality. Philosophy – or ‘cenoscopy’, ordinary observing – is further divided into phenomenology, normative sciences – aesthetics, ethics and logic – and metaphysics. While Peirce does not explicitly state this, the sciences in philosophy seem to differ in their commitment to the hypothesis of reality, with phenomenology having a minimal

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