

Peircean Naturalism

by

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Dissertation submitted in partial fulfillment of
the requirements for the degree of Doctor of Philosophy in the Department of
Philosophy in the Graduate School
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ABSTRACT

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Abstract

Naturalism faces problems caused by a lack of agreement about whether there is or can be a meaningful and useful conception of naturalism as a general research position. Without a widely agreed upon account of what naturalism in general amounts to there is no clear and definitive way to adjudicate disputes as to what is consistent with naturalism; the absence of such an account also makes it impossible for specific projects in naturalistic inquiry to take guidance from naturalism in general. In the following, I develop a determinate account of naturalism in general, which I think could find acceptance among naturalists because it accounts for many of the features commonly associated with naturalism. To do this, I first lay out the problem to be solved, express its importance, and explain what a solution to the problem would involve. I then make appeal to an account of naturalism developed by Penelope Maddy and use this account to show that the published and unpublished work of Charles Sanders Peirce offers, *prima facie*, a more determinate account of naturalism than is commonly recognized and that goes beyond the account given by Maddy. With this Peircean account developed, I then measure it against the criteria I develop and conclude that a Peircean account of naturalism does promise to adjudicate various disputes in the naturalism literature and to offer guidance to the development and application of specific projects in naturalistic inquiry.

Dedication

For and because of Izis. Thank you for providing the rock upon which to build myself and this dissertation. I will spend a lifetime expressing my gratitude and love.

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1. The need for a common understanding of naturalism

Words have their rights as well as their duties, which must not be trampled upon. There is an ethics of words, because words are a social institution. Science, too, is a social business, and cannot prosper without a common understanding as to how words shall be used.—Peirce, MS 1573 X: ISP 31-34, as quoted in Ketner’s “Peirce’s Ethics of Terminology,” p. 337¹

In defining a word, if it be a word in current use, be it your care, that the import you are thus endeavoring to attach to it, be not only *determinate*, but as near to the *current* import, as a determinate import can be to an indeterminate one.—Bentham, *Crestomathia*, Appendix IV, p. 231

I take these quotes to capture well a problem with the current state of naturalism.

I will make this clear in this chapter by discussing historical and recent discourse about naturalism. In so doing, I will show that naturalism lacks a common understanding at the general level. I will then motivate the need for a common understanding of naturalism in general by showing what I take to be certain problems caused by the lack of such an understanding. I will then suggest a number of specific contributions that could be made to naturalistic inquiry by a widely accepted, detailed general account of naturalism. These will serve as the desiderata for the account of naturalism we seek.

From this, I will show that the lack of a commonly accepted understanding of

¹ In citing Peirce’s unpublished manuscripts, I adopt, when possible, the number system unique to the Institute for Studies in Pragmaticism (ISP) at Texas Tech. This system follows the MS number system of the Robin (1967) catalogue (MS 1573 in the above) and then adds to this a page numbering system unique to the ISP (ISP 31-34 above). This allows for specific pages to be referenced in a straightforward way, given that numerous manuscripts contain multiple drafts of a single page each of which is distinguished by Peirce in the manuscripts by an esoteric symbol system. I thank Houghton Library, Harvard University for permission to publish excerpts of MS Am 1632 (299), microfilm. All references to Peirce of the form (x.xxx) are to (volume.paragraph) of *The Collected Papers* (1935).

naturalism in general is due to two factors. First, while detailed accounts of specific local varieties of naturalism are common, there are a number of difficulties in extracting a general account from these. Second, I will show how numerous popular broad conceptions of naturalism are too vague to provide the desired benefits and suggest one reason general accounts of naturalism are often not detailed. From this, I will suggest that the apparent possible benefit of an accepted, detailed account of naturalism in general warrants the assumption that such an account can be obtained. I suggest the proper method for developing or identifying such an account is to consider naturalism at its most general. I then outline the structure of the current work by showing how I will use Penelope Maddy's treatment of naturalism as a starting place to developing the desired account of naturalism and how I will expand on this with appeal to certain aspects of the work of Charles Sanders Peirce.

1.1 The current state of naturalism

1.1.1 The lack of a determinate account of naturalism

The study and discussion of naturalism is hampered by a well-documented ambiguity caused by the vast and heterogeneous uses of the word 'naturalism'. While it is readily admitted that naturalism has something to do with science or the relationship between science, philosophy, and various other fields, there is no commonly understood

and determinate meaning attached to the term (see, e.g., Flanagan 2006, 432).² If we take naturalism to be a *social* business³ with widespread allegiance, then the lack of common and determinate meaning of ‘naturalism’ should concern us.

Consider some claims for this widespread allegiance to naturalism. Robert Audi (2000, 27) claims that naturalism is perhaps “the most pervasive and influential orientation in philosophy today.” He further points out that as early as 1922 R.W. Sellars had claimed that “[w]e are all naturalists now” (28). Similar claims of allegiance to naturalism can be found in the sciences, as noted in the *Kitzmiller v. Dover* ruling on creationism in the classroom: “Methodological naturalism is a ‘ground rule’ of science today which requires scientists to seek explanations in the world around us based upon what we can observe, test, replicate, and verify” (735).⁴

² It is worth noting here that what is sought is not an exhaustive definition of ‘naturalism’ in terms of necessary and sufficient conditions. I hold with Kant (1952), as I believe does Peirce, that “an *empirical* conception cannot be defined, it can only be *explained*” (215). And thus, “[i]nstead of the word *definition*, I should rather employ the term *exposition*—a more modest expression, which the critic may accept without surrendering his doubts as to the completeness of the analysis of any such conception” (216). Thus, and in line with the fallibilism to follow, the account we seek will not be immune to dispute or revision. Nonetheless, if naturalism as a *social* business is to thrive, we must seek an exposition of ‘naturalism’ that delivers the term some determinate *import*, as “[l]oose-ness of speech and loose-ness of thought are wife and husband” (Peirce, 7.603, fnt6).

³ While the account of naturalism I develop based on Peircean fallibilism is clearly committed to the social character of inquiry, this social character of inquiry or knowledge is often recognized as closely connected to naturalism. Kitcher (1992) goes as far as to claim that accounting for the social nature of knowledge is one of the main motives behind what he calls “traditional naturalism” (82, fnt 79).

⁴ It is my position that the lack of determinate meaning given ‘naturalism’ has played a central role in the “Intelligent Design” debate. Particularly the ambiguity between methodological and ontological theses common among discussions of naturalism have made possible straw-person attacks on naturalism as a “metaphysical” and thus objectionable, even hypocritical, position.

Despite this apparent and long standing widely spread allegiance to naturalism, Alex Rosenberg (1996, 1) notes that by 1955 Ernest Nagel was already pointing out the indeterminate use of 'naturalism' in that there are historically a notorious number of doctrines contrasted to and thus named by the term. This number of proposed contrasts, common-cores, or meanings attributed to naturalism is no doubt larger today (see, e.g., Flanagan, 2006).⁵ And because of this large and varied extension of the term 'naturalism', Larry Laudan (1990, 44) notes that "[n]aturalism is unique in being the only -ism generally less familiar to philosophers than the fallacy that is named for it." Laudan's point is that the naturalistic fallacy is a commonly cited, and sometimes understood, supposed block to the naturalization of ethics;⁶ while the naturalization of ethics and naturalism in general is less well understood. Accordingly, it should be no surprise that beyond the literature on specific, more or less well-defined varieties of

⁵ Among this number are accounts of naturalism as the rejection of the supernatural, rejection of the a priori, rejection of first philosophy, rejection of idealism, rejection of intrinsic value, rejection of Cartesian dualism, naturalism as identified with materialism, naturalism as a certain attitude toward the findings or methods of science, and naturalism as concerned centrally with Darwinism. Still more concerning is the disagreement about the implications of naturalism; some claim naturalism is committed to realism, and others claim it committed to some variety of non-realism. Among those that claim naturalism is committed to realism, some claim realism underwrites naturalism, others that naturalism underwrites realism. For more on the disagreement over the relationship between realism and naturalism see pp.8-10, 13, and 14 below.

⁶ One might think the common confusion of Moore's naturalistic fallacy and Hume's is-ought problem is partially a product of a lack of understanding of naturalism in general. Moore's problem is concerned with the reduction of moral properties to lower level problems and this charge of reductionism has long been leveled as a problematic aspect of naturalism (see, e.g., Dewey, Hook, and Nagel 1945; Flanagan and Williams 2010). Thus, understanding Moore's naturalistic fallacy requires a greater understanding of naturalism than does understanding Hume's is-ought problem. While it is itself often misunderstood, Hume's problem can be understood simply in terms of the syntactic nature of deductive logic. Since both Hume's and Moore's points are seen as challenges to naturalized ethics but Hume's is more readily understood by those without an understanding of naturalism, this could be part of the reason Hume's point often takes Moore's label.

naturalism those works that concern naturalism in general often point out its vague or vacuous nature.⁷

O. K. Bouwsma (1948) seems to be one of the earliest to point out the vague or vacuous nature of naturalism when he claims that “you can not [sic] refute [the] main thesis of naturalism . . . because there is no thesis” (20). Rather, the proposed accounts or main theses of naturalism “are strictly an enunciation of policy” (ibid). These theses are mere expressions of a widely held attitude: “Let us be scientific” or “No more metaphysics” (ibid). However, it seems to me that what it means to be scientific in a given area will depend on the specific sciences relevant to that area; with variations in what sciences are taken as relevant to a given project we will find variations in the related varieties of naturalism. Despite its vagueness, Bouwsma advocates naturalism as a useful policy in that its alignment with science provides it with criteria of proof absent metaphysics (21-22).

⁷ To be as clear as possible at this point, my prey is a general account of an unsubscripted naturalism as opposed to a specific account of a local variety of naturalism (see Scope Issue section, pp. 11-14 below). Unfortunately, the term ‘naturalism’ is often used in an unsubscripted manner to refer to specific varieties of naturalism or some collection/overlap of specific varieties as opposed to naturalism in general. While the references of these uses of ‘naturalism’ are generally clear from the context in which they occur, they do not make the current task any less difficult. Thus at this point, it is not entirely possible to give a clear account of my prey, but I believe that after considering Maddy’s exposition of naturalism in the next chapter it should become clear what is meant by a general account of naturalism. This will become even more clear in later chapters when I expand on Maddy’s treatment by appeal to Peirce; Peirce’s coenoscopic/idioscopic distinction introduced in chapter 3 in particular will provide a profitable way of understanding the difference between particular accounts of the varieties of naturalism and account of naturalism in general.

Additionally, my use of ‘naturalism’ should be taken to refer to this general, unsubscripted account of naturalism as opposed to a specific variety thereof. I hope any deviation from this will be clear from context.

Almost 50 years later, Barry Stroud (1996) echoes Bouwsma's position. After pointing out the apparent popularity of naturalism, Stroud notes that "[n]aturalism as a view of what is so, or what the world is like, must be given some determinate and restricted content" (47). However, he sees all attempts at giving such determinate content as potential distortions of the subject matter. This pushes naturalists toward an open-mindedness that demands they admit into their world view whatever they find is necessary to account for the world (e.g., necessary truths, mathematical entities, normativity) (52,53). Stroud then concludes that if this open-minded naturalism "is still called 'naturalism,' the term by now is little more than a slogan on a banner raised to attract the admiration of those who agree that no supernatural agents are at work in the world" (54). I take it that conclusions like Stroud's are common, because as Audi (2000) notes "as common as appeals to naturalism are, its defense is rarely accompanied by a general account of the position, and it is frequently defended at best from a restricted point of view, such as epistemology and ethics" (27). Because of this limited discussion of naturalism in general and a proliferation of the varieties of specific, localized naturalisms there is no common and determinate meaning assigned to 'naturalism'.

I take the above to present the current state of naturalism: while there are often detailed accounts of what naturalism amounts to in a given domain, e.g., epistemological naturalism, it is commonly held that naturalism in general amounts to nothing more than a hodge-podge collection of these local varieties and that due to the

little or no overlap across all the varieties of naturalism any attempt to extract a general account from a common core among these varieties will result in nothing more precise than a vague expression of team membership. Thus, it seems the literature suggests naturalism does not have and possibly cannot be given a determinate import.⁸

1.1.2 The need for a determinate account of naturalism

To return to the quotes that open this chapter, if naturalism as a general philosophical or research position—as opposed to a localized position in epistemology, ethics, etc.—is to prosper, there should be some *common* and *determinate* understanding of this general position. I hold that having a determinate account of naturalism in general is important on at least three fronts: i) without such an account it is not possible to judge whether variations among local varieties of naturalism are consistent with naturalism; ii) without such an account it is not possible to adjudicate disputes across varieties of naturalism over what is consistent with naturalism and who counts as a card-carrying naturalist; and iii) possibly most important, only with such an account can specific projects in naturalism gain guidance in their particular inquiries from their commitment to naturalism. These three points serve as the desiderata for a general account of naturalism. These are necessary conditions for the prosperity of naturalism.

⁸ While the question of whether a given account of naturalism is determinate or not is a judgment made in degrees, I lay out in the next section how much determinateness we should seek in a general account of naturalism.

Given this need for and current lack of a general account of naturalism, any study of naturalism faces the methodological problem of determining the import assigned 'naturalism' when used in a general manner. This means that the study of naturalism or any attempt to show a given author to have well-established naturalistic credentials should begin by identifying or recommending a *determinate* import for 'naturalism' that is consistent with import given the various local versions of naturalism despite the term's *indeterminate* usage.

It is my view that any position that holds naturalism to be vacuous—unless this view is the result of a detailed consideration of naturalism in general—serves as a premature block to developing a general account of naturalism. If there is a non-vacuous account of naturalism to be had, we must begin by assuming such possible and any claim to the contrary should be the product of a failed, detailed investigation of naturalism. If we do not make this assumption, we block the road to inquiry into any understanding of naturalism in general that may be had.⁹ Thus, I will proceed in this chapter under the assumptions that i) there is something to be made of naturalism

⁹ The theme of blocking the road to inquiry will become central to our discussion of Peirce in relation to naturalism in chapters 3-5 below and will eventually deliver us the realism to which Peirce sees scientific inquiry committed. A similar point about not blocking the road to inquiry has been made by Owen Flanagan (1995, 1104) as regards the study of consciousness; he argues for a *constructive naturalism*, which assumes success possible in studying consciousness with natural methods, as opposed to the *anti-constructive naturalism* of Colin McGinn, which holds consciousness to be natural but something we will never succeed in understanding. While the disagreement of these two positions seems contentful, I hold with Peirce that any such anti-constructive attitude not the result of inquiry (i.e., rather than we will never succeed, we have tried and failed) blocks the very inquiry we desire; anti-constructivism is a fatal methodological mistake.

beyond a mere family resemblance or a hodge-podge collection of specific undertakings that happen to share a term and ii) the goal, therefore, is to determine the best method for identifying or suggesting an import of naturalism.

To the end of offering a determinate import of naturalism, I consider both the method of trying to offer such an import by considering aspects of varieties of naturalism and the method of directly stating the import of naturalism in general. The most common method of developing an account of 'naturalism' seems to involve an indirect approach of surveying various specific accounts and attempting to extract some common-core or family resemblance had across these varieties of naturalism. At least partially due to how widespread allegiance to naturalism is, the studies that try to extract an account of naturalism from specific varieties generally fail to be exhaustive and instead focus on some proper subset of varieties. And thus this approach has again led to a lack of consensus. I reject this approach on the grounds that it is overly messy, complicated, and risks begging the question, i.e., in order to find common ground among the varieties of naturalism we must have in hand a means of separating the aspects of a variety that follow from its commitment to naturalism from the aspects that are merely consistent with naturalism or accidental aspects of the particular inquiry at hand.

In considering the second method—of directly suggesting a general account of naturalism—I suggest below that the fact that general accounts of naturalism are less

common than specific accounts and tend to be less detailed than would be needed to guide specific projects is due partially to claims made by Quine that naturalism is the rejection of first philosophy and the assumption (shown false by Maddy in chapter two below) that giving a detailed general account of naturalism assumes that naturalism would then be a philosophical doctrine above the level of science. While rejecting the extant general accounts considered as overly vague to meet the desiderata above, I suggest we should nonetheless begin with a direct consideration of naturalism in general.

1.2 Surveying specific accounts

As mentioned above, it is not uncommon to find fairly determinate accounts of the import associated with a given variety of naturalism. If there were some significant overlap of doctrines and methods amongst these numerous specific accounts, we might be able to take the overlap to determine the import of naturalism in general. But, rather than a nice domain of overlap we generally find a wealth of independent, even inconsistent local concerns. For example, Quine claims that naturalism shares its methods with the special sciences, i.e., naturalism has no methods open to its disposal than those of the special sciences (see, e.g., Quine 1980). However, it is not clear that this gives us a common core amongst the varieties of naturalism. It is certainly not the case that naturalism as a general philosophical position shares all its methods with the special sciences. In fact, the methods of the special sciences are not even shared across

these sciences. Chemistry has no need for a double-blind methodology. If it is true that naturalism shares its methods with those of the special sciences, then these methods must be a proper subset of the various methods used by the sciences. To determine the content of Quine's claim, we must look at the details of the varieties of naturalism and try to find a common core capable of giving naturalism a determinate import.

One problem we find in trying to extract a common core from the varieties is that just as with the localized methodologies of the special sciences, we find meanings or proposed major features of naturalism that are not shared by all varieties. We find Audi (2000) claiming that in the 20th century, naturalism has been adopted as a response to idealism, "ethical views that posit intrinsic value", and Cartesian dualism (29). Leaving aside for now the issue of idealism, it should be obvious that naturalism as an opposition to intrinsic value and Cartesian dualism is a local variety of naturalism. For one, mathematical naturalism is concerned with neither. Similarly, Dewey, Hook, and Nagel (1945) were concerned with deflecting the claim that "naturalism is materialism pure and simple" (515); they quickly point out that if this is true, it is true only in a limited domain as naturalism is concerned with general scientific conceptions of evidence and these allow much more than the material (e.g., temperature) (523). Alex

Rosenberg (1996) claims Darwinism to be an axiom of naturalism, but he does not claim Darwinism to be important to everything that has been labeled naturalism (3).¹⁰

Beyond a *lack* of agreement as to whether a given feature of naturalism is local or general, we find real *disagreement* over whether other features belong to naturalism at all. A prime example of such disagreement involves the debate over the relationship between naturalism and realism. Rosenberg (1996, 5) considers whether the realist or the antirealist is the true naturalist. On one side, we have realists like Richard Boyd claiming to be naturalists. On the other side, strong critics of realism like Larry Laudan claim their antirealism to have “at least as much, indeed more right to the title of naturalism” (6). This disagreement over whether the realist or the antirealist has the most right to claim naturalism is also found within mathematics. Penelope Maddy (1995, 251-254) claims mathematical naturalism is not committed to realism and further that successful mathematical practice requires a non-restrictive methodology which in turn requires something other than realism.¹¹ Jeffrey Roland (2007) claims Maddy’s

¹⁰ Rosenberg (1996, 22) points to “the centrality of Darwinian theory to naturalism, not only in philosophy of science, but in epistemology, philosophy of mind, and for that matter naturalistic moral philosophy and metaethics.” It is important to note that this does not exhaust the domains in which naturalism has been proposed. Moreover, Darwinism’s importance to naturalism in these domains could mean i) Darwinism is important to all or most of the specific varieties of naturalism or ii) Darwinism is important to naturalism at the general level, e.g., because it is the only way to “justify” scientific realism or a belief in scientific progress.

¹¹ This “something other than realism” should not be taken to mean anti-realism. As will be shown in the following chapter, Maddy is clear that she sees realism in mathematics to be commonly assumed because of the recognition that anti-realism is overly restrictive of the methods open to the mathematician. Recognition of this restrictive nature of anti-realism, she claims, often leads to the knee-jerk adoption of realism as opposed to recognizing the harm of restricting possible methods. This point of confusion may be the source

approach to mathematical methodology is not naturalistic (423) and that since realism is required for successful naturalism (431 ftnt 16, 435) even if Maddy's approach were naturalistic it would, in rejecting realism, fail to justify a successful mathematical methodology.

This point of Roland's brings to light a further concern within the disagreement over the relationship between realism and naturalism: not only is there debate between realists and antirealists as to which position is consistent with naturalism, there is disagreement within the realist camp about the direction of influence between naturalism and realism. We find at times claims that realism requires naturalism and at others claims that naturalism requires realism. That is, those who hold realism to be aligned with naturalism agree that the two positions tend to be correlated but within this agreement there is, at times, a disagreement over whether naturalism entails or requires realism or whether realism entails or requires naturalism. For Boyd, the apparent success of science can only be explained by realism and realism requires a commitment to naturalism (Rosenberg 1996, 5).¹² Thus, realism requires naturalism. However, Roland claims that it is naturalism that requires realism in order to

of Roland's claim that Maddy's mathematical methodology is non-naturalistic, i.e., because it denies realism within mathematics.

¹² As Rosenberg (1996) puts it: "It was realists—those who hold that our scientific theories not only embody truths about unobservables but ones we can know—who early recognized that their view required naturalism" (5).

underwrite a successful epistemology or methodology (Roland 2007, 431, 435). So, at the level of specific accounts of naturalism we find a messiness caused by disagreement over not only whether naturalism should be seen as committed to realism or not but also by disagreement amongst the realist naturalists over whether realism leads to naturalism or whether naturalism leads to realism.

I hold that this debate over the relationship between naturalism and realism is one of the many issues that we could have a better handle on by having an extant account of naturalism in general. While we find realism commonly correlated with naturalism, it is difficult to diagnose the cause of this correlation without having a general account of naturalism.¹³ It could be that naturalism does force a commitment to realism. It could be that naturalism when combined with certain local commitments of specific inquiry forces a commitment to realism and thus that realism holds within a given variety of naturalism but possibly not within others. And, it could be that a commitment to realism—either generally or locally—forces a commitment to naturalism.

¹³ Owen Flanagan has pointed out to me that there may be important differences in the realisms claimed in various domains. Realism in mathematics is often of a Platonic sort; while realism in the natural sciences is generally taken to involve some sort of correspondence to the real world. This greatly complicates the analysis of the possible causal relations between naturalism in general and in its varieties on one hand and the varieties of realism on the other. However, I still suggest that proper analysis of these possible causal relations would be greatly aided by an extant account of naturalism in general. We might find that in certain domains naturalism does entail realism while not entailing such in other domains. This might be a product of the local goals or methods of the domains concerned. It may be that certain varieties are countenanced by naturalism while others are not. In the next chapter, we will see Maddy claiming, by challenging Quine's claims about holism and indispensability, that the relationship between realism and naturalism is different in mathematics than in the natural sciences

I suggest that having an account of naturalism in general in hand offers to at least rule out some of these possible relationships between realism and naturalism.¹⁴

The above issues lead to the related issue of disagreement over whether a given individual has well established naturalistic credentials. Maddy sees herself as a naturalist, but Roland disagrees. Similarly, Ronald Giere (1985, 337) claims Laudan's meta-methodology of science to be non-naturalistic despite both Laudan's self-proclaimed naturalism and the widespread belief (as seen in Rosenberg above) that Laudan's approach is indeed naturalistic.

Thus, we find the discussion of naturalism greatly muddled by i) a *lack of agreement* about whether certain features are aspects of naturalism, ii) real *disagreement* about whether a given feature is an aspect of naturalism, iii) disagreement about the *direction of influence* between naturalism and certain purported aspects of naturalism and iv) disagreement over *who* counts as a naturalist. While this messiness caused by a lack of agreement and conflicting claims within naturalism seems to prevent our extracting a general account of naturalism from specific accounts, it is worth noting that this need not lead to the conclusion that naturalism is a confused hodge-podge of local views. Rather, one way of accounting for some of these issues is by recognizing that at times

¹⁴ We will see just such an argument from Maddy in chapter 2 below where she claims that her account of naturalism rules out certain accounts of truth without committing the naturalist to a particular conception of truth. In later chapters, I claim via Peirce that Maddy understates this matter and that naturalism is committed to a specific understanding of truth and a corresponding regulative realism.

disagreement turns on the scope of naturalism held by the individuals involved in the disagreement.

1.2.1 The issue of scope

I take it that the issue of scope—that is, over how many domains one’s naturalistic commitments range—is important largely because we find localized naturalists, i.e., individuals who claim naturalism in one domain but not in others. Flanagan points out that a naturalist in economics who is a non-naturalistic theist need not be considered inconsistent because the scope of naturalized economics does not overlap the domain of religion (434, 435). Audi (2000) similarly notes that an ontological naturalist could be a non-naturalist in other domains (29).¹⁵ The fact that seemingly simple claims about naturalism are often implicitly made within a given domain adds a significant level of complexity to the evaluation of such claims.

When considering scope, there seem to be two easily confounded concerns. First, there is a logical issue of the scope of one’s naturalistic commitments. If one is a naturalist about the physical sciences as a whole, this entails commitments to naturalism in each of the specific physical sciences. For example, it would be inconsistent to claim to be a naturalist about physical science but not about archaeology.¹⁶ Second, there is a

¹⁵ As Audi (2000) puts it “One could, for example, be a naturalist in rejecting transcendent beings, but a nonnaturalist in the philosophy of mind, ethics, or epistemology. Indeed, holding a form of naturalism in any one of these domains may well leave one free to reject it in all of the others” (29).

¹⁶ This claim could be challenged I suppose. I am making the claim from a Peircean view of science where higher level sciences provide guidance to lower level sciences. If there is a commitment at the higher level,

psychological issue of scope. It may be that those committed to naturalism in one domain tend to extend their naturalism to other domains despite there being no inconsistency in failing to make such an extension. For example, we might find that those committed to naturalism in the mind sciences tend to be theistic naturalists more often than do those committed to naturalism in economics even though there may be no inconsistency in being a naturalist in psychology but a non-naturalist in theism.

The logical issue of scope is concerned with the domains related to a variety of naturalism. The psychological issue of scope is concerned with the domains in which a given individual is committed to naturalism. Taking into account these two types of scope seems to explain some of the disagreements we find over whether a given commitment is required of naturalism and whether a given individual is a card-carrying naturalist. It may be a logical possibility to be a naturalist and a non-naturalist in some domains, e.g., mathematics, but not in others, e.g., philosophy of science. Further, it may be that a given commitment or its rejection is logically consistent with naturalism in various domains but that the psychological commitments of those working in these domains differ such that we tend to find these commitments in certain domains but not others. While the psychological question may be interesting and informative, our

then every science under that level, within the realm of the higher science share that commitment or some local version of such. Peirce's claims about the structure of science will be explored in the next chapter.

concern is with the theoretical scope and this, at least primarily, at the general level. After all, the issue of whether a given extension of psychological scope is acceptable will depend on the logical scope of the variety of naturalism at hand. However, gauging theoretical scope requires we be able to cut through any messiness that may be caused by differences in the psychological scope of various naturalists. Without an understanding of naturalism in general, it seems all too easy for a naturalist working in a specific area to notice different commitments held by self-proclaimed naturalists in other areas and from this conclude that either these self-proclaimed naturalists are not actually practicing naturalism or that naturalism is nothing more than a hodge-podge of local approaches.

As noted above, there is disagreement in both the philosophy of science (Giere v Laudan) and the philosophy of mathematics (Maddy v Roland) over whether naturalism entails realism. This can be cast as an issue of scope: does naturalism range over ontology in mathematics/philosophy of science? Maddy (1995) holds, contrary to the popular opinion, that mathematical naturalism need make no appeal to ontology (262). The disagreement between Maddy and the more common realist-mathematical naturalists could be due to either a difference in psychological scope or a disagreement on the theoretical question of the scope of naturalism in general. Regardless, the result is a lack of agreement about the theoretical question of scope of naturalism vis-à-vis mathematics.

Whatever the cause of the disagreement about realism within mathematical naturalism, it is not clear that the cause of disagreement is the same within the philosophy of science. The question in math is generally tied to arguments for the indispensability of math to science and this is parasitic on realism (and confirmational holism) in the philosophy of science, but the question in the philosophy of science is tied (at least for Laudan) to arguments for and against our epistemic abilities to know the truth.¹⁷ The possibilities here are great. It could be that naturalism at the general level does entail either realism across the board or in some variety or that it entails some negation thereof. It could be that naturalism at the general level does not entail anything about realism but places certain constraints on ontology, methodology, or acceptable goals such that when combined with specific aspects of, e.g., mathematics or philosophy of science we get a commitment to or against realism within that local domain (and if realism amounts to something different in these domains, then to different varieties of realism). Further, the disagreement could be a product of the psychological issue of scope in that a localized naturalist in, e.g., economics may not be under the same consistency requirements as an economist who is a naturalist across the board.

¹⁷ I will treat each of these roads to realism: indispensability and conformational holism for mathematical realism (later in this chapter) and our epistemic access to truth for science (In later chapters, particularly chapter 5). However, the point right now is that there may be different reasons for adopting realism in different domains. Because of this, a lack of agreement across local varieties of naturalism should not raise red flags.

The take home lesson again is that we cannot go from claims about realism in naturalized mathematics or philosophy of science to claims about realism in naturalism in general. The reasons are i) there is disagreement within each, let alone the entire collection of, local domain(s) of naturalism, and ii) were there agreement at the local level, this could be due to a) constraints inherited from the general commitments of naturalism, b) the interplay of aspects of naturalism in general with aspects of methodology or the goals within a given local domain, c) goal specific requirements within a given local domain, or d) psychological issues of consistency given the scope of commitments to naturalism of given agents in the various domains. Thus, again it seems that going from claims in a specific area of naturalism to claims about naturalism in general is prohibitively difficult in that it requires working out both the logical commitments of naturalism in a given domain and the effects had by the psychological scope of various authors.¹⁸ However, before moving on to consider some general accounts of naturalism, I want to look at a slightly different attempt to extract and account of naturalism from considerations of aspects of local varieties.

1.2.2 Audi's wrinkle

Audi (2000) wrinkles the survey method by conceiving of naturalism as the fulfillment of various naturalization projects (28). This functional approach allows us to

¹⁸ I again argue for a top-down approach in chapter 3 by considering Peirce's economics of research in response to Maddy's claims about naturalism being committed to a bottom-up approach.

avoid many of the messy issues of scope and potentially misleading rhetoric and instead look at the behavior of self-styled naturalists. On the surface, this seems promising in that there could be greater or clearer agreement in the behavior of naturalists than in their terminology and claims. However, while a unique approach, Audi's method ultimately moves us again in the direction of specific accounts of naturalism; while both are projects in epistemological naturalism, the projects of naturalizing rationality and belief may require different methods and result in different ontological claims. Audi runs into the problem of distinguishing the local projects and methods for fulfilling those projects from the same at the general level. Among the naturalization projects Audi considers are the rejection of idealism, intrinsic value, and Cartesian dualism. It should be clear that not all varieties of naturalism take these as their projects: does Cartesian dualism have anything to do with naturalism in mathematics? In looking for a general account, he is (or should be) concerned with the most general projects in naturalism, but the projects he looks at are specific to local varieties. Because of this, Audi is led to claim that if there is a unifying account of naturalism to be had, it is unclear as to what that account is (29, 39). While he does claim that all varieties of naturalism, regardless of domain, are committed to the reduction of the normative within their domain (40), he largely gives up the project of seeking a unified account and instead attempts to "be fairly specific regarding various forms of naturalism in the

several domains” of epistemology, metaphysics, and ethics (39). Again, this is a fine project in itself, but it is not the project of developing a general account of naturalism.

On the front of developing a general account, I take it that Audi’s wrinkle does not get him out of the problems facing the survey method. First, even if there is agreement across domains that, e.g., naturalism is committed to the reduction of the normative within that domain, it is not clear that all varieties of naturalism are concerned with the normative, or, what is different, that the kinds of normativity and motivations for their reduction do not vary across domains. Second, ultimately Audi applies his survey to clarifying a number of specific local varieties of naturalism rather than drawing conclusions about naturalism in general. And, finally, by considering projects specific to local varieties of naturalism he lets in the localized aspects of naturalism from which we cannot straight-forwardly support conclusions about the general aspects of naturalism. Despite the fact that Audi’s method of looking at the projects of naturalism inherits the problems of the more common survey method, it seems this is caused by his surveying local rather than general naturalization projects. The method itself may be promising if it could be carried out considering more general projects. In the next chapter we will see that this is the method Maddy takes when considering the all-purpose naturalist undertaking inquiry in general.

1.3 General accounts

In order to understand better what we seek from a general account of naturalism, it is useful to consider some of the general accounts that fall short of the stated desiderata. As mentioned above, there are accounts of naturalism in general as being opposed to the supernatural.¹⁹ However as Flanagan (2006) notes, attempting to give an account of naturalism as a position opposed to the supernatural gives an ambiguous meaning, which could be either epistemic or ontological in nature (434). Further, such an account is a mere negative claim; without a well-established account of the supernatural or supernaturalism, we are left in our search for a determinate account of naturalism right where we began.²⁰ Also from above, Bouwsma and Stroud have claimed that accounts of naturalism in terms of a rejection of the supernatural are mere expressions of team membership: “Yea team naturalism; boo team supernatural.” Thus, an account of naturalism as the rejection of the supernatural is vacuous to the degree

¹⁹ Among those who claim or consider naturalism as opposed to the supernatural are Flanagan 2006, 432-434; Stroud 1990, Roland 2007, 428 (naturalism as rejection of the “supranatural” [sic]).

²⁰ It might be claimed that we do have accounts of the supernatural. However, if this is true, such accounts will not help us in our current endeavor. It seems that such accounts would claim that the supernatural involves non-natural entities or properties. For this to be contentful, we need an account of natural properties. This could be given by claiming that natural properties are those studied by the sciences, but this would require a criterion of demarcation between science and non-science. The history of attempts to give such a criterion consists of a series of failures. We could also give an account of natural properties, and in turn non-natural properties and the supernatural, by pointing to a naturalized ontology. But, again this will not do, as a proposed naturalized ontology, in order to amount to more than mere dogma, requires a prior naturalized methodology (see, e.g., Stroud, 1990). We will see in Maddy and Peirce below that such a methodology is just what is needed for an account of naturalism in general. Prior to developing such an account of naturalism by way of an exposition of its methodology, we cannot rely on accounts of the supernatural to illuminate accounts of naturalism.

that naturalism under such a guise can play no positive, guiding role in the everyday activities of philosophers or scientists.

A second common general formulation of naturalism involves noting that naturalism has to do with a respect for, commitment to, or attitude toward science.²¹ However, when taken individually these claims are often ambiguous as to whether the relationship between naturalism and science has to do with the *content* of science, its findings, etc. or with the *methods* of science.²² Some accounts are explicit about whether naturalism concerns the methods, findings of science, or both (e.g., Rosenberg 1996, 4);²³ however, when taken as a group, there is a lack of agreement amongst these claims. Further, while certain sciences are widely held to be important to specific varieties of naturalism, e.g., psychology to epistemology, it is clear neither whether certain sciences are more important to naturalism than are others nor what determines this importance. Some (e.g., Rosenberg 1996) hold Darwinism to be of central importance to naturalism, but it is not obvious that Darwinism is important, and equally so, to all of the varieties of naturalism. It seems that Darwinism is of more central importance to, e.g., psychology

²¹ Among those who claim or consider naturalism as characterized by a relationship to science are Bouwsma 1948, 12; Roland 2007, 428 notes naturalism as having a “general reverence for the sciences”; Rosenberg 1996, 4; Kitzmiller v Dover 2005, 735 .

²² This is related to the debate in naturalism literature over whether naturalism is primarily an ontological or methodological doctrine. While I will not treat this issue explicitly, I will return to it in the final chapter to show that a naturalism based on Peirce’s treatment of inquiry and science does take a stance on this debate by showing naturalism to be first and foremost a methodological position with any ontological commitments or proscriptions following from its methodological commitments.

²³ When pointing out that scientism is one of the characteristics of naturalism, Rosenberg (1996) claims that “[t]he sciences—from physics to psychology and even occasionally sociology, their *methods and findings*—are to be the guide to epistemology and metaphysics” (4, emphasis mine).

than it is to, e.g., physics. And even if a given science or set of scientific findings or methods are important to all the varieties of naturalism, it is still a further question as to whether this importance is due to a commitment of naturalism in general or because of a heterogeneous variety of idiosyncratic local concerns amongst the varieties of naturalism. Again, it should be clear that a mere alignment of naturalism with science leaves us with more or less as much ambiguity and vagueness as an account in terms of rejecting the supernatural. After all, science is the study of the natural, not the supernatural world.

It is worth considering one possible reason general accounts of naturalism are often vague and seemingly less common than detailed accounts of its varieties. No doubt those who claim to be naturalists generally have their specific areas of interest, and thus the discussions of these naturalists will be largely limited to their local domain of interest.²⁴ However, it is my suspicion that at least part of the reason we do not often find general accounts of naturalism is due to a third common but vague general account of naturalism.

²⁴ When considering the claims of any given naturalist, one must consider the scope of that naturalist's commitments. As was discussed in the Issue of Scope section above, it is likely we find individuals with only localized commitments to naturalism

1.3.1 Quine's argument against first philosophy

W. V. O. Quine (1981a) famously characterized naturalism as the rejection of first philosophy (67).²⁵ Roughly, for now, first philosophy is a position which holds there to be a level above science from which science can be evaluated and from which we are to gain an account of reality. Quine sees August Comte as rejecting first philosophy as early as 1830 by holding “that ‘positive philosophy’ does not differ in method from the special sciences” (72).²⁶ Since Quine, it is common to see naturalism characterized as a rejection of first philosophy across various varieties of naturalism (e.g., Rosenberg 1996, 4; Maddy 1992, 276; Kitcher 1992). Kitcher claims that while there are a number of varieties of naturalism, all share a rejection of first philosophy (55). He also claims more strongly that “the essentially philosophical task of the naturalistic philosopher is that of separating the first philosophy from the scientific (or mathematical) practice” (as cited in Maddy 1995, 261 fn19). Maddy (2007), in the domain of mathematical naturalism, suggests the term ‘second philosophy’ for the sort of inquiry that begins with science and bases philosophy on the findings thereof as opposed to the first philosophy of

²⁵ Given that Quine's concerns were primarily with naturalized epistemology, there is room to wonder whether this rejection of first philosophy should be taken as a characterization or important feature of naturalism in general or as reserved to its epistemic variety. Nonetheless, naturalism as no first philosophy has been adopted widely and in a seemingly non-subscripted manner, and we will see in chapter two that Maddy takes such a rejection to be true of naturalism in general.

²⁶ It is important to note that what counts as first philosophy depends on what we take to count as the special sciences and what the method of these sciences. We will find a detailed account of first philosophy and its relationship to naturalism when considering Maddy in the next chapter.

Descartes which begins with philosophy and then aims to build science on the foundations established by such (19).

Given the influence of Quine on naturalism as well as the apparent central place epistemology plays in naturalism, it may seem unsurprising that we more readily find detailed accounts of the varieties of naturalism than of naturalism as a general approach. After all, if naturalism “assimilates [epistemology] to empirical psychology” (Quine 1981a, 72) there is no room for a prior (to empirical psychological investigations) pronouncement on the nature of naturalized epistemology. Any such account should rather arise as a second philosophy based on the results of the relevant science(s). If this holds for the relationship between epistemology and psychology, we might be tempted to think it holds for any given naturalized area of philosophy and its relevant empirical science(s). Thus, naturalism as a philosophical position must be characterized by the specific sciences and the associated scientists, not by the philosopher.

However, if there is a determinate import to be given naturalism in general, it is not given by a mere rejection of first philosophy without further specification of where the line between first philosophy and science falls.²⁷ If naturalism can be given an import by saying it is committed to rejecting first philosophy, something quite precise

²⁷ Beyond the treatment of first philosophy given by Maddy and considered in the next chapter, we will see in chapter three that much of the contemporary discussion of first philosophy and its relationship to the sciences is captured by Peirce’s coenoscopy/idioscopy distinction. For Peirce coenoscopy is (excepting mathematics) the most universal, general division of the sciences. Nonetheless, I see Peirce as being careful to exclude from coenoscopy much of what is often seen as objectionable in first philosophy, e.g., its foundationalism.

must be meant by first philosophy or else it is not clear what we are excluding from naturalism nor what is left once we do exclude such. It strikes me that there is lurking behind this line of reasoning the faulty assumption that formulating a general account of naturalism would amount to some sort of first philosophy. I believe this false and in chapter two I consider Maddy's approach to developing a general account of naturalism as a scientific investigation of scientific practice, an undertaking in second philosophy.

So, while I take there to be numerous succinct claims about what naturalism in general amounts to, these fail to be specific enough to meet our desiderata. I do not take from this that we should return to a survey of local varieties of naturalism and attempt to extract a general account, as this is prohibitively difficult and risks begging the question. Rather, I take it that we should assume it possible to formulate a contentful general account of naturalism; and I propose beginning this formulation with a consideration of naturalized inquiry in its most general form and then expanding on what we establish from such consideration.

1.4 Structure of the work

1.4.1 Chapter two

To the end of developing a common and detailed understanding of naturalism in general, in the second chapter, I focus on Penelope Maddy's careful study of the general project of naturalistic inquiry undertaken by an ideal agent. Maddy's treatment is motivated by a desire to apply naturalism to mathematics and the recognition that doing

so requires a general account of naturalism. I point out that Maddy recognizes the above mentioned lack of a widely accepted general account of naturalism. In explaining Maddy's treatment, I note her claim that the fundamental naturalistic impulse is to reject any system of inquiry that posits a level above science from which to answer canonical philosophical questions and to provide guidance to science. I then lay out the difference between Maddy's naturalist—the Second Philosopher—who begins with science and builds philosophy upon such and the First Philosopher, who begins with philosophy and uses such to dictate to the sciences. However, Maddy does not make the mistake mentioned above of assuming that giving an account of naturalism in general amounts to a return to first philosophy; rather she sees such an investigation as a naturalized, scientific inquiry into the nature of science. I then consider in detail Maddy's rejection of various two-level systems to make precise this meta-scientific inquiry, and I identify one of her main motivations to lie in a confidence in the evidential resources of science and a skepticism in the evidential resources of the proposed higher levels.

After considering Maddy's stance on two-level views and first philosophy,²⁸ I move on to explain her view of the relationship between naturalism and truth. Maddy holds that, while the commitments of naturalism are inconsistent with both a deflationary conception of truth and a transcendental correspondence conception of

²⁸ While first philosophy is a two-level conception of inquiry, it need not be that all two-level views of inquiry amount to first philosophy.

truth, without the aid of project-specific goals these commitments do not force the naturalist into any single understanding of truth. In laying out Maddy's account, I consider her rejection of the widely accepted Quinean doctrines of conformational holism and the role of indispensability arguments. From this, I explain Maddy's view that scientific theories are composed of a collection of hypotheses, models, and posits each with varying epistemic statuses. I then point out that while rejecting two-level approaches to science Maddy accepts two types of hypotheses: pragmatic/conventional and theoretical/empirical. I close chapter two by considering some possible problems with Maddy's account of naturalism and ways in which it may fall short of meeting our desiderata. Chief among these concerns are Maddy's claim that naturalism is not committed to any specific understanding of truth and the fact that the naturalist she describes and from which she extracts her account of naturalism acts on impulses but lacks the ability to state the principles upon which these impulses are based.

I take it that Maddy's treatment identifies certain methodological and theoretical commitments of naturalism at the most general level. While I do see certain problems and gaps in her account, I also see her as providing an *import* for naturalism at the general level that can be used as a starting place for developing an account complete enough for our needs. Her account does allow us to evaluate certain local varieties of inquiry as to whether they are consistent with naturalism (e.g., by rejecting any two-level view of inquiry or projects committed to a deflationary account of truth as

inconsistent with naturalism in general). This in turn allows certain disputes among naturalists to be adjudicated and provides us with some understanding of how local varieties of naturalism can vary broadly from one another while still maintaining consistency with the tenets of naturalism in general. Her account also provides some guidance to specific projects in naturalism, as is seen in her application of her conception of naturalism to mathematical methodology. However, I believe her account can be expanded and challenged in certain ways to more fully meet our needs. I make the transition to Peirce by noting that Maddy has shown that naturalism is committed to the rejection of foundationalism and that Peirce offers one of the most comprehensive extant accounts of non-foundational inquiry.

1.4.2 Chapter three

I expand on Maddy's treatment in the third chapter by beginning to lay out the parts of Peirce that are relevant to the current project. To do this, I take up the criticism I give of Maddy's naturalist as overly ideal and suggest the quasi-developmental account of inquiry given by Peirce as a way of naturalizing Maddy's naturalist. I consider Peirce's suggestion that there is a progression of modes of inquiry.²⁹ Peirce calls these

²⁹ I will note here that there is often found in the literature on naturalism a discussion of whether naturalism is an ontological doctrine or a methodological doctrine. An ontological naturalist is concerned with claims of the sort that the only things there are those things described by science. A methodological naturalist is concerned with claims of the sort that the only appropriate methods of investigation are those used by science. There is even at times (e.g., Stroud 1990) debate on whether there is a circular relationship between these two "varieties" of naturalism. It is claimed that to have a naturalized ontology, such must be delivered by a naturalized methodology; but a naturalized methodology cannot be checked unless its

modes of belief fixation by which the inquirer seeks to fix beliefs that are stable in the sense of being immune to the shock of error. These modes begin with the method of tenacity in which a given belief is held regardless of input; this mode of belief formation eventually falls to the repeated shock of error. From there, the method of authority is adopted, in which beliefs handed down from others are accepted; these beliefs are again found vulnerable to error. We then find the method of a priority in which beliefs are thought to hold objectively and be immune to revision; this method seeks objective and thus stable beliefs but its resistance to revision again allows frequent shock caused by confrontations with error. Finally, Peirce suggests the determined inquirer settles in the method of science in which beliefs are held fallible and open to constant revision in the face of error. This end point is a mode of inquiry that is largely the same as Maddy's. However, Peirce's naturalist can better understand and more directly respond to the skeptic than can Maddy's naturalist because of his understanding alternate modes of inquiry.

In continuing to build on Maddy's account of naturalism, I lay out the response a Peircean naturalist can give to the two-level skeptic, who demands a higher-level

products can be compared to an extant naturalized ontology. To give the game away a bit, both Maddy and Peirce are methodological naturalists in that they hold that a naturalized ontology must be the product of a naturalized methodology, which needs as a starting point only common-sense observations. This topic will finally be treated directly in the sixth chapter when I show that Peirce gives the naturalist an argument for why methodological naturalism must take priority over ontological naturalism.

account of truth, by making appeal to his treatment of the structure of science. I explain this structure by way of Peirce's concepts of coenosopic science—which is concerned with the overlap among the various sciences—and idiosopic science—those sciences defined by specific modes of investigation. This distinction gives us a more precise way of understanding both the differences in and the relationships between a general level account of naturalism and its local varieties. I then consider Peirce's claim, in opposition to Maddy, that inquiry should begin with the more global and then proceed to the more local. Peirce calls this the analytic method and contrasts it to the opposing view, which he labels the historic method and attributes to Hegel. I support Peirce's claim about the direction of influence from the higher to the lower and thus the analytic method by appealing to his economics of research. These points will reinforce the proposed method of beginning with a general account of naturalism rather than attempting to extract such from the details of specific localized accounts. This chapter will serve to expand Maddy's conception of naturalistic inquiry while laying the ground work for further expansion in later chapters.

1.4.3 Chapter four

In the fourth chapter, I connect aspects of Peirce's scientific epistemology to Maddy's claim that naturalism allows a distinction between pragmatic/conventional and theoretical/empirical hypotheses. To do this, I first consider the debate between William James and William Clifford over evidentialism or whether we are ever justified in

holding a belief that is not justified by evidence. I link this debate to the discussion Maddy gives to van Fraassen's constructive empiricism. I show that, like Maddy, Peirce sees inquiry as allowing (even requiring) the acceptance of beliefs not based on evidence. From this, I show that Peirce provides more explicit guidance as to when pragmatic/conventional hypotheses can and should be accepted. I then introduce a distinction between those beliefs justified by evidence and those warranted despite a lack of evidential support. I show this latter group to include those things indispensable to inquiry and this includes a regulative conception of inquiry complete with a specific conception of truth. I then consider this indispensability claim in light of Maddy's challenge to Quinean indispensability and show it to withstand her challenge. This chapter again expands on Maddy by providing more explicit guidance as to the adoption of pragmatic/conventional hypotheses and lays the ground work for claiming naturalism is committed to a specific conception of truth.

1.4.4 Chapter five

In the fifth chapter I develop a dual account of truth to which I see naturalism committed. This account is pulled from Peirce, and can best be understood by way of the Kantian distinction between the regulative and the constitutive. I show that this distinction falls in line with Maddy's distinction between the pragmatic/conventional and the theoretical/empirical. I argue that, in line with Peirce, the naturalist is committed to fallibilism within any given inquiry such that a given belief can always

turn out false; the best that can be had is a current satisfaction based on the coherence of beliefs to empirical findings. This is the theoretical and the constitutive understanding of truth open to the naturalist. But, beyond this I argue that Peirce shows the very endeavor of inquiry requires appeal to a further understanding of truth as a correspondence in which our beliefs converge towards an accurate reflection of the real world. This is an understanding of truth that is beyond what is justified by the evidence but is warranted because it plays an indispensable regulative role for inquiry. This is the pragmatic/conventional understanding of truth open to the naturalist.

I then go on to further flesh out Peirce's account of truth by considering a number of related claims from Peirce to the order that the community of inquirers provides a check against error, that science is committed to the idea that inquiry converges toward an accurate account of reality, and that the methods of science are self-corrective. I then consider whether these claims should be understood constitutively or regulative (or both), i.e., whether they are pragmatic/conventional or theoretical/empirical posits. I also consider whether Peirce's claim that a correspondence theory of truth is an indispensable part of science is empirically testable. While I consider such a question proper to a naturalistic inquiry of naturalism, I counter with a consideration of Peirce's argument against paper doubt, i.e., that one ought not pretend to doubt what one in fact does not doubt. I connect this to both claims made by Quine and Maddy's dismissal of the Cartesian method.

1.4.5 Chapter six

I use chapter six to summarize the previous chapters. I show that much of the Peirce fits nicely with Maddy's account of naturalism. Both reject two-level approaches to inquiry, reject the Quinean conception of science as homogenous, and accept a distinction between the empirical and the pragmatic. Both are committed to a variety of non-foundational inquiry method and a fallibilist ontology; both are concerned with avoiding restrictions on methodology and ontology when at all possible. However, Peirce differs from Maddy in taking the skeptical challenge more seriously, and this is due to his quasi-developmental account of inquiry. Because of this, he can offer a stronger response to the skeptic. This leads to the second major difference between Peirce and Maddy: an account of naturalism based on Peirce is committed to a regulative account of truth. I conclude the work by considering whether an account of naturalism based on Peirce meets the desiderata for a project-guiding general account of naturalism. That is, I consider whether such an account can evaluate the consistency of a given local project with naturalism, adjudicate disputes among naturalists, explain the apparent divergence of the varieties of naturalism, and offer project-guiding advice for specific projects in naturalism. I conclude that Peirce provides a framework that can meet these requirements to a large degree and then consider some possible ways in which the account could be strengthened.

2. Maddy's second philosophy as a general account of naturalism

Penelope Maddy has given extensive attention to naturalism as a general position. While Maddy has a specific interest in the application of naturalism to mathematics (as seen in Maddy 1996, 2001a, 2002, 2007), she has recognized that applying naturalism to mathematics requires some prior understanding of naturalism in general. In the course of her work on naturalism, Maddy has recognized the problem noted in the first chapter above that naturalism seems to admit of numerous varieties and is rarely given a contentful general formulation. In *Second Philosophy* (2007), Maddy notes that when she began to apply naturalism to mathematics she believed it would require merely extending an agreed upon naturalism to her favored field, but she soon found “that everyone, naturalist or not, seemed to harbor his or her own firm notion of what ‘naturalism’ requires” (vii). And thus, “it seems there are at least as many strains of naturalism as there are self-professed naturalistic philosophers” (Maddy 2001b, 37). As an example of the lack of agreement about naturalism, Maddy notes, when considering the relationship between naturalism and logic, that numerous views of logic have been proposed as following from naturalism: Quinean, psychologism, inductivism, and linguistic conventionalism (Maddy 2002, 60). But these various claims cannot be adjudicated in a straight forward manner because “[t]he trouble is that ‘naturalism’ means something different in each case, or that it comes encumbered with various inessential add-ons (like holism)” (ibid.). This plurality of meanings of and inessential

add-ons to naturalism is one reason we have disagreement about the nature of naturalism and a difficulty extracting from specific varieties of naturalism a single, contentful general account.

The problem for Maddy is that in order to extend naturalism to mathematics (instead of studying the various non-identical varieties of mathematical naturalism) some conception of naturalism in general is needed. However, the general accounts that do exist tend to be too vague for their extension to mathematics to amount to anything precise. “These days, as more and more philosophers count themselves as naturalists, the term has come to mark little more than a vague science-friendliness” (Maddy 2007, 1). Maddy has herself used similarly vague conceptions of naturalism when her concern is to trace the general connections between her brand of naturalism and other philosophical methods: “I’m using ‘naturalism’ here as a general term implying no more than a vague methodological kinship between philosophy and natural science” (Maddy 2011a, 2). Yet, Maddy does hold hope that naturalism amounts to something more than a hodge-podge of positions with at most a rough family resemblance. “Any discussion of naturalism these days is—overtly or covertly—an attempt to define the term” (Maddy 2000, 114). Indeed, Maddy’s project of extending naturalism to mathematics requires that naturalism in general amounts to something specific enough to have implications for mathematics.

To this end, Maddy does identify a number of theses she sees as common to naturalism in general. It will be helpful before considering Maddy's particular method for studying naturalism to consider some of the theses she sees as common in naturalism. The above quote about attempts to define naturalism continues when Maddy points out that she has "tried to locate the fundamental naturalistic impulse in a stubborn skepticism about any of the recurring two-level philosophies, about any philosophy that posits an extra-scientific perspective from which to view science" (ibid.). This fundamental naturalistic impulse will be important for Maddy's in-depth treatment of naturalism and the chapters that are to follow. Beyond the fundamental naturalistic impulse, Maddy points out that of the variety of stances naturalism has been associated with hers is largely in line with the Quinean conception of naturalism as a rejection of first philosophy (Maddy 1995, 250; 2000, 92). While developing an account of the first philosophy Maddy rejects takes some consideration (to be given below) of arguments she gives, as a quick treatment a number of points can be made. Maddy doubts there is a "sharp boundary between first philosophy and naturalistically acceptable philosophy", but she does believe some cases can be categorized as belonging to one or the other of these two styles of philosophy (Maddy 1995, 260-261). She also seems to agree with Kitcher's claim that "the essentially philosophical task of the naturalistic philosopher is that of separating the first philosophy from the scientific (or mathematical) practice" (ibid., 261, ftnt. 19). That is, if naturalism is characterized by a

rejection of first philosophy, the understanding what naturalism amounts to requires an understanding of what is first philosophy and what is not and is thus in turn open game for naturalism. So, as a starting point, Maddy clearly holds that naturalism is at odds with first-philosophy and any philosophy that posits two levels—one level in which the science or math occurs and one by which to evaluate the work at the other level by extra-scientific or extra-mathematic means. It should be clear that this opposition, even if true of naturalism in general, does not give us enough to draw out the implications for the various domains to which naturalism has been extended. For the desiderata laid out in the previous chapter to be met and for Maddy to be able to extend naturalism to mathematics, more is needed.

However, Maddy holds that naturalism is not a doctrine but a method of inquiry. “Strictly speaking, to my way of thinking, there is no explicit doctrine answering to the name ‘naturalism’. There is, rather, a distinctive way of approaching questions about the world, a distinctive method of inquiry, practiced, most often unselfconsciously, by a figure I’ll call the ‘naturalist’” (Maddy 2002, 61; see a similar claim in 2001b, 37). Because of her view of naturalism as an approach to inquiry, Maddy is a methodological naturalist as opposed to an ontological naturalist. That is, while Maddy’s naturalist is a naturalist across the board, with regards to both method and ontology, she sees the naturalized ontology as following from the naturalized methodology. The naturalist

begins with methodology, and so, under this view, the question is how well this methodology can be specified.

If Maddy is correct in her claim that naturalism is not a doctrine but an approach to inquiry carried out in a less than self-conscious manner, then it is no surprise the naturalism literature has struggled to give a unified account of naturalism in general. For one, if naturalism is not a doctrine, then trying to give a neat, agreed-upon account or definition of naturalism in general seems futile. Second, if the naturalist follows an inquiry method non-reflectively and naturalists work in specific areas, attempts to record the general naturalistic method of inquiry would no-doubt be difficult and muddled by the specific details of the areas of inquiry in which the various naturalists work.¹ However, Maddy does not take from this that naturalism is a hodge-podge of vaguely similar approaches to inquiry but rather believes that she can capture a general approach to inquiry that characterizes naturalism.² To capture such a methodology,

¹ It may be that Maddy's naturalist, her Second Philosopher, is significantly different from the practicing naturalist, and it may only be Maddy's naturalist who follows an inquiry method non-reflectively. I have reason to believe that to some extent this is the case, and I will say more about this in 2.6 below.

² It is important to note that while Maddy goes on to give an account of naturalism in general, she does not see her account to be the only viable account of naturalism in general: "My goal . . . is to delineate and to practice a particularly austere form of naturalism. One minor difficulty is that the term 'naturalism' has acquired so many associations over the years that using it tends to invite indignant responses of the form, 'but that can't be naturalism! Naturalism has to be like this!' As my project is to spell out an approach that differs in subtle but fundamental ways from other 'naturalisms', it seems best to coin a new term, on the assumption that I will then be permitted to stipulate what I intend it to mean. Thus, 'Second Philosophy'" (2007, 1). The extent of confusion and debate over the nature of naturalism has led Maddy to develop her own term.

Maddy describes the behavior of a practicing inquirer who embodies Maddy's version of naturalism; she calls this inquirer the Second Philosopher.

Because Maddy holds there is no way to demarcate science from non-science, an account of her Second Philosopher cannot be given in terms of the methods of science (Maddy 2007, 1).³ If we could demarcate the methods of science from non-scientific methods then we could say simply that the naturalist is the inquirer who founds beliefs on (only?) the methods of science. Maddy states "Second Philosophy, as I understand it, isn't a set of beliefs, a set of propositions to be affirmed; it has no theory" (ibid.). Because of this, Maddy's method of giving an account of the Second Philosopher is to give a character study by "introduc[ing] a distinctive inquirer and record[ing] her progress through a particularly venerable philosophical neighbourhood" (Maddy 2003, 73). I will now turn my attention to Maddy's character sketch with an eye to pointing out the more general themes that can be extracted and seen as playing a part in giving an account of naturalism.

2.1 A sketch of the second philosopher

While Maddy rejects the idea of being able to give a direct definition of the Second Philosopher, there are a number of clear qualities of the Second Philosopher that come out when Maddy describes "her thoughts and practices in a range of contexts"

³ By demarcate here I mean to draw explicitly the lines between science and non-science. Maddy thinks there are some clear cut cases of science and some clear cut cases of non-science (e.g., painting), but the required demarcation must not only find something that are science and some that are not but rather all and only those things that are science.

(Maddy 2007, 1). Consideration of these qualities does paint a fairly vivid picture of the Second Philosopher and will allow us to move forward and consider in more detail whether we can extract from this method of study an account of naturalism in general that is determinate enough to guide particular projects in naturalism.

The Second Philosopher is an idealized character. She is “simply born native to late twentieth-century common sense and the scientific attitude that extends it” (Maddy 2001b, 47). This Second Philosopher is a “natural-born naturalist” who follows her method of inquiry “unselfconsciously, without talking or even thinking much about it” (Maddy 2007, 118). This idealized inquirer is “without strict disciplinary allegiance” (ibid. 117) and can apply her style of inquiry equally well to any of the particular sciences (ibid. 2) or to the scientific investigation of philosophical or meta-philosophical questions (ibid. 117). This inquirer “begins from commonsense perception and proceeds from there to systematic observation, active experimentation, theory formation and testing, working all the while to assess, correct, and improve her methods as she goes” (ibid. 2).⁴ But, this “methodology isn’t ‘trust only science!’; her methodology just *is* a certain range of methods, which happen to be those we commonly regard as scientific” (Maddy 2001b, 48). The Second Philosopher does not take the meta-scientific view we

⁴ We see here that Maddy starts with minimal theory. She and her naturalist begin only with commonsense perception and then applies a naturalized method of inquiry to such. Any additional theoretical or ontological claims will then be a result of the inquiry method. Peirce makes a similar phenomenological start to considering inquiry and adds a place only for those things found indispensable to inquiry. Thus both Maddy and Peirce begin with minimal, and fallibly held, theory and build a naturalized method from this; the ontology then follows in turn.

might often attribute to the naturalist that one forms beliefs because science tells one to do such; rather, the Second Philosopher justifies her beliefs by the actual detailed findings of science (ibid.). Nonetheless, the Second Philosopher “applies no necessary and sufficient conditions; as a native of the contemporary scientific world view, she simply proceeds by the methods that strike her as justified” (ibid.).

Maddy then goes on to sketch Second Philosophy by following the reactions her idealized inquirer, complete with internalized scientific methods and a “faith in ‘ordinary evidence’”, to specific situations (ibid. 48-49). She applies these scientific methods to her study of the world and to her study of science itself (ibid. 50). When faced with a request for extra-scientific justification of her methods or beliefs, “she is open-minded but puzzled” (ibid.). From all this, “she aims to understand how and why particular principles and practices either help or hinder her efforts to determine how the world is, and she attempts to fine-tune her overall methodology in light of this understanding” (ibid.) Further, “[a]long the way, observing the forms of her most successful theories, she develops higher-level principle” (Maddy 2007, 14-15). With these aspects of the Second Philosopher laid out, Maddy then goes on to further sketch Second Philosophy by considering her inquirer’s reaction to a number of major philosophical issues and contrasting her inquirer’s methodology with the methodologies of well-known non-naturalists and proto-naturalists. It will be useful for our purposes to consider some of these contrasts here.

2.2 Naturalism as a rejection of (or inconsistent with) First Philosophy

As mentioned above, Maddy's naturalism follows Quine and accepts his "abandonment of the goal of a first philosophy" (Quine 1975, 72).⁵ Maddy expands on this Quinean dictum by contrasting the Second Philosopher from the Cartesian First Philosopher:

While Descartes's meditator begins by rejecting science and common sense in the hope of founding them more firmly by philosophical means, our inquirer proceeds scientifically and attempts to answer even philosophical questions by appeal to its resources. For Descartes's meditator, philosophy comes first; for our inquirer, it comes second—hence 'Second Philosophy' as opposed to 'first' (Maddy op. cit., 19).

For Maddy's naturalist, philosophical methods and theses will be the result of scientific investigation not prior commitments which inform scientific investigation. This is what it means to say that naturalism holds there to be a vague methodological relationship between the sciences and philosophy. Maddy's attributing a rejection of first philosophy to the naturalist finds support from Philip Kitcher, who "once proposed

⁵ In "Five Milestone of Empiricism" Quine (1981, 67-72) lists the move to naturalism as the fifth "turn for the better" empiricism has taken over the past 200 years. The first four of these turns for the better support his rejection of first philosophy in favor of naturalism. These five turns include the shift to emphasizing words over ideas, of locating meaning in sentences over words, further locating meaning in collections of sentences and a resultant holism, and then a move to methodological monism. The result of these turns is to remove all a priori support for analytic sentences different in sort from the synthetic sentences of science. First philosophy holds that philosophy plays a role prior to or above science and thus provides a ground from which to criticize science which is not itself scientific. The rejection of such a position follows from these first four turns and offers Quine's version of naturalism as the rejection of first philosophy: all propositions are scientific, synthetic, differing not in kind but only generality and degree.

Maddy shares Quine's rejection of this two-level view of science while expanding on the details of why we should join in on such a rejection. I take it that Peirce's treatment of inquiry and science provides similar support for accepting the rejection of first philosophy as something above and beyond science.

that the essentially philosophical task of the naturalistic philosopher is that of separating the first philosophy from the scientific (or mathematical) practice” (Maddy 1995, 261-269).

Thus, the rejection of first philosophy as a starting point that deals with traditional philosophical questions and then informs science is seen as central to naturalism for Maddy. Naturalism treats these traditional philosophical questions with the methods of science and it is these same methods that provide guidance for the very same scientific investigation. Thus, we have implicitly here rejected the a priori. All truths to be had are a result of investigation not something possibly known before investigation. Further, while first-philosophy is the most obvious conception of a higher-level that informs the level at which scientific investigation occurs, Maddy sees naturalism as rejecting all two-level views of inquiry, i.e., and view of inquiry that takes there to be a level above science from which science can be guided and critiqued.

2.2.1 Naturalism as a rejection of two-level views

While Maddy claims her naturalism is a rough method of inquiry and not a doctrine, there is a thesis that plays a central role in her account of naturalism, i.e., the claim that naturalism is committed to a rejection of two-level views of inquiry. From “Naturalism and the A Priori” (2000): “I’ve tried to locate the fundamental naturalistic impulse in a stubborn skepticism about any of the recurring two-level philosophies, about any philosophy that posits an extra-scientific perspective from which to view

science" (114). Rather, "[t]he naturalistic philosopher is the Neurathian sailor, working within science to understand, clarify, and improve science; she will treat philosophical questions on a par with other scientific questions insofar as this is possible" (ibid. 108). For the naturalist, all inquiry occurs at one level, the level of science. We find this fundamental naturalistic impulse as characteristic of naturalism and Second Philosophy throughout Maddy's writing. Maddy (2001) repeats that skepticism toward any two-level view is fundamental to naturalism. Maddy (2007) reminds us that for the Second Philosopher, "[n]ot on principle, but relentlessly in practice, her investigations are pursued on one level, as part and parcel of the single mosaic of natural science" (47). Maddy (2011b) still connects her naturalist with a rejection of two-level views of philosophy in arguing against the philosophical system of Bas van Fraassen (126). Because the rejection of two-level views is fundamental to Maddy's naturalism she commits significant energy to contrasting her Second Philosopher from various two-level philosophers; it is worth considering these contrasts in detail.

To develop her naturalism, Maddy uses as a foil the proto-naturalistic rejection of two-level views to be found in the work of Hans Reichenbach, W. V. O. Quine, Bas van Fraassen, and Arthur Fine. It will be illuminating to consider these proto-naturalists in turn. To do this, consider first Reichenbach's reaction to the two-level view of philosophy found in Immanuel Kant. Maddy notes that Kant divides inquiry into two levels: the empirical level from which we get his realism and the transcendental level

from which we get his idealism (Maddy 2001b, 37). But, in Kant's system only the empirical level is investigated by the scientific methods preferred by the Second Philosopher (ibid. 38). The transcendental level allows us a priori access to constitutive necessities of the world. But, as Maddy notes, while the deliverances of inquiry at the transcendental level are impressive, "it is not so clear what tools or methods or principles are involved, or what justifies them" (ibid).

Maddy claims that Reichenbach is a proto-naturalist, i.e., he took a step towards naturalism by rejecting a doctrine inconsistent with naturalism without rejecting all such inconsistent doctrines. Reichenbach aimed to rid Kant's philosophy of its appeal to certain truth. Doing so would allow empirical investigation to overturn those beliefs Kant thought established by a priori methods (ibid. 38). Reichenbach recognized that this move robbed the Kantian system of its higher level: "Of Kant's two levels, Reichenbach admits the cogency only of the empirical, the scientific. Philosophy is part of science, conducted by scientific means" (ibid. 39). Thus, Maddy finds the fundamental naturalistic impulse in Reichenbach's rejection of the Kantian transcendental level. This is a move in the spirit of naturalism. However, Maddy labels Reichenbach as a mere *proto*-naturalist and not a full-fledged naturalist because she sees him returning to the a priori with his later theory of confirmation (ibid. 46). This return to the a priori revokes Reichenbach's naturalist status because of its violation of the fundamental naturalistic impulse.

The next proto-naturalistic chapter of philosophy Maddy considers is Quine's reaction to the work of Rudolph Carnap. Carnap posited linguistic frameworks—consisting of semantic objects, syntactic rules, “primitive assumptions,” and rules of evidence and deduction—between which an inquirer could choose (ibid. 39). There are different linguistic frameworks used in different fields of inquiry, but within a given field a single framework must be adopted. Once a given linguistic framework is adopted there will be certain truths that turn on empirical fact and others that are true given only the rules of the framework; these latter truths are a priori in nature, when considered internal to the chosen framework (ibid. 40). This allows Carnap to maintain the a priori without removing himself to a second level above the scientific level to deliver such. Instead, there is only consideration of those questions internal to a given framework and those pragmatic external questions concerned with choosing between frameworks (ibid.). Once the pragmatic choice of frameworks is made (this being a pre-scientific choice), these external questions promise to deliver a framework with a priori content, but these frameworks and their a priori truths lack the necessary and constitutive aspects present in Kant's system (ibid. 41). However, Carnap's approach also differs from Reichenbach's in that the external, pragmatic questions occur prior to the adoption of a scientific framework and thus occur outside of the empirical, the scientific (ibid. 41-42). As Maddy puts it, “while Kant's a priori truths are unrevisable certainties of human knowledge, Carnap's are a priori only in the sense that revising

them would constitute a revolutionary change in language, not a garden-variety change in belief" (ibid. 40).

Like with the Kantian system, this leads Maddy to question the evidential resources used to answer external questions (ibid. 42). Since the choice of frameworks is made on pragmatic but pre-scientific grounds, they are not made with scientific resources. She notes that Quine claims the evidential rules for answering external questions in Carnap's system are just the same as those evidential rules used to answer internal questions (ibid. 42). So, Quine rejects the two-level system of Carnap by collapsing the higher-level into the lower, scientific level: "it is within science itself, and not in some prior philosophy, that reality is to be identified and described" (Quine 1981a, 21). This is Quine's statement of Maddy's fundamental naturalistic impulse.

However, again for Maddy, Quine only counts as a *proto*-naturalist. Maddy's reasons for denying Quine naturalistic credentials are complicated and numerous. Among these reasons are her rejection of Quine's use of indispensability arguments (Maddy 1992). Quine's holism holds that scientific theories are tested in toto with each of a theory's constitutive parts receiving confirmation with the theory. Quine holds that because mathematical entities are an indispensable part of scientific theories, they are confirmed with the theories in which they are contained. This delivers Quine a mathematical realism. However, Maddy believes Quine's claims about the ontological status of mathematical objects via conformational holism and indispensability are just

inaccurate assessments of how science is carried out. And thus she claims that “the lure of global accounts—of confirmation (holism), of ontology (to be is to be the value of a bound variable)—has overshadowed the detailed analysis of actual scientific theory and practice that’s incumbent upon the naturalist” (Maddy 2001b, 46). If Maddy is correct that scientist do not actually behave as Quine claims, then his treatment of holism and mathematical realism is not scientific, not naturalized. And thus, the general objection Maddy has to Quine is that he does not develop these global accounts from the scientific ground up but rather tries to deliver the global accounts prior to scientific investigation. This smells of First Philosophy and thus violates the fundamental naturalistic impulse.

Maddy finds a third proto-naturalistic turn in Bas van Fraassen’s constructive empiricism and Arthur Fine’s response.⁶ Maddy summarizes van Fraassen’s constructive empiricism: “though we have good reason to believe in what we observe, we should refrain from belief in the unobservable posits of our theories” (ibid. 43). This view gives us a two-level system in which the scientist holds a theory to be empirically adequate if it accurately describes what we observe but remains uncommitted to the actual existence of any theoretical, i.e., unobservable, entities in the theory (ibid.). When considering scientific methodology, the scientist is free to consider the theoretical entities as real, but when pressed on the matter and forced to take an epistemic stance

⁶ The constructive empiricism of van Fraassen seems to be epistemically similar to the evidentialism that will be considered in 4.3.1 below. Specifically, van Fraassen’s verificationist-style theory of truth seems quite similar to the evidentialism of William Clifford.

the scientist is forced to admit “that no evidence can be enough to establish the existence of entities that cannot be perceived by unaided human sense” (ibid. 44). Maddy points out that van Fraassen’s refusal to believe in unobservables is a result of an underlying commitment to empiricism (Maddy 2007, 305). While this stance was once scientifically acceptable, “the van Fraassenite errs in holding to this requirement on a priori grounds when it has long been rejected on a posteriori, scientific grounds” (Maddy 1994, 394). van Fraassen’s reserving real status to only those entities that are observable is a dogmatism the naturalist will not tolerate.

Arthur Fine rejects van Fraassen’s constructive empiricism and puts in its place the Natural Ontological Attitude (NOA). Fine’s NOA holds that the standards of belief should be just those of the sciences, and these include not only belief in observables but also belief in what is detected indirectly (Maddy 2001b, 44). Fine points out in dramatic fashion that when the philosopher “sidesteps science and moves into his own courtroom, there to pronounce his judgments of where to believe and where to withhold, he [commits] the sin of epistemology” (Fine 1986, 147). In this, Fine rejects van Fraassen’s two-level approach and espouses the fundamental naturalistic impulse. Nonetheless, Maddy finds certain passages in Fine that suggest he sees philosophers as standing outside of the domain of science and in need of being convinced to utilize the methods of science (Maddy op. cit., 47). But, Maddy’s *Second Philosopher* begins with science and then considers whether there is reason to step outside the methods of

science rather than beginning outside science and then moving to adopt scientific methods (ibid, 48).

Beyond these three two-level views and the proto-naturalistic responses to them, Maddy points out that often the realist can be seen as appealing to a two-level view. When faced with the skepticism of van Fraassen's constructive empiricist, a dedicated realist might abandon the good-enough scientific evidence that justifies considering, e.g., atoms real for an epistemic-level defense that atoms Really exist (ibid, 45.) Confronting the constructive empiricist at this higher level "is what leads to the foot-stomping *really* of the Realist" (ibid). "Our scientist had perfectly good evidence for her realism about atoms, but in response to van Fraassen's challenge, she sets herself up to defend Realism, an epistemological rather than a scientific view. By the naturalist's lights, this is a fool's errand" (ibid). For Maddy's naturalist, there is no epistemological level beyond that of science. Epistemology (and metaphysics) is a broadly scientific undertaking that is informed by scientific method, and thus Maddy embraces the label of scientism despite the negative connotations often connected to the term.

Overall, Maddy sees the two-level approach as faced with two main difficulties: "how to explain the status of this extra-scientific analysis, and how to differentiate revisions in the purportedly a priori claims from ordinary scientific progress" (Maddy 2000, 114). The naturalist avoids these difficulties "by adopting the methods and results of science and working from within to understand, clarify, and improve them" (ibid).

There is no extra-scientific analysis to be explained and all changes in belief and methodology are a part of ordinary scientific progress.⁷

There is one important wrinkle to Maddy's rejection of two-level approaches that will be important in what follows. Maddy challenges Quine's uniform pragmatic account of science (and his use of indispensability arguments and their connection to his confirmational holism). In doing so, she considers as an example the use of continuum mathematics in physics (Maddy 2000, 109). Such a move is powerful and useful, but, pace-Quine, Maddy holds "the pragmatic success of a theory is not enough to fully confirm it" (ibid. 110). Maddy notes that physicists hold the continuous nature of space time to be an open question (ibid.). The indispensability of continuum mathematics in our best physical theories does not deliver the mathematical theory confirmation as Quine would claim. That is, descriptively, naturalistically, scientists do not behave as Quine would claim they do.

From this, Maddy claims "there is a distinction to be drawn, within science, between hypotheses that are subjected to the full range of empirical testing and available for full confirmation, and those that are not; indeed, hypotheses in the second category

⁷ At this point we merely find Maddy speaking to those who have adopted naturalism and not some other undertaking, e.g., painting. Maddy holds that those who have committed themselves to the inquiry methods of science, to naturalism must use only the methods of science and abandon any higher-level hopes. Maddy does not offer a motivation for being a naturalist and her Second Philosopher has no motivation but merely finds herself a naturalist. We will see in the next chapter that when discussing the various methods of belief fixation Peirce does give an argument that one ought adopt the method of scientific inquiry.

might well be described as having been adopted on pragmatic, conventional grounds” (ibid.). This distinction does not promise to underwrite an account of the a priori, but neither does it return us to a two-level view: “our methodological inquiries—part of our scientific study of science itself—suggest that the conventional/pragmatic vs. theoretical/empirical distinction, which Quine also rejects, might be revived without appeal to an external level of analysis” (ibid. 112). This means that naturalism “turns up a methodological contrast within science between hypotheses subjected to the full range of empirical testing and potentially confirmed thereby and hypotheses adopted for conventional, pragmatic reasons” (ibid. 114).⁸ This does not commit Maddy to holding that these are two distinct types of hypotheses, as she suggests there are times we cannot clearly determine whether a given hypothesis is conventional/pragmatic or theoretical/empirical in nature (2000, 113). There are however cases in which certain hypotheses within a given theory are clearly posited on conventional or pragmatic grounds, e.g., when a known-to-be-false mathematical framework is used for good enough calculations; since the mathematics are known to be false the success of any theory containing them does not extend confirmation to them. So, while Maddy’s naturalist rejects two-level views, there are two different (if not distinct) types of

⁸ This distinction *within* science between two different sorts of hypothesis will be found important in the following chapters where I will use Peirce’s account of the structure of science to distinguish in a manner parallel to Maddy here between those hypotheses that are justified by the evidence (Maddy’s first sort of hypothesis) and those whose acceptance is warranted despite a lack of evidential justification (Maddy’s second sort). Following Maddy’s treatment of indispensability arguments, hypotheses found indispensable to well confirmed theories will be of this latter, warranted but non-justified sort.

hypotheses and thus epistemic stances open to the naturalist.⁹ This begs the question of what the naturalist's stance is on truth, and towards the end of the following section we will find that Maddy holds the naturalist as countenancing a range of epistemic statuses that vary within parts of a given theory.

2.3 Maddy on truth

We have seen above some claims Maddy has made about truth for naturalism, but it is worth considering in more detail what account(s) of truth she sees as open to the naturalist. To begin, Maddy claims that there is no particular understanding of truth that follows from naturalism: "my naturalist isn't committed to any particular position on truth simply on account of her naturalism; she is committed to a scientific approach to the question, but this alone doesn't prejudge or predict how that inquiry will turn out" (Maddy 2001b, 58). Maddy's naturalist is open to accept whatever theory of truth is found to be needed by and consistent with her scientific inquiry, and Maddy points out that the type of truth required for science is an open question (ibid.). Despite these claims, Maddy does have something to say about the naturalist's conception of truth, particularly by pointing out various understandings of truth she believes are inconsistent with naturalism.

⁹ While Maddy's later work does not bring in the two-hypothesis view as explicitly as does Maddy (2000), the distinction is implicit in her objection to Quine's indispensability-holism arguments, and these objections run throughout her work (See also Maddy 1992, 1995, and 2007).

Following her treatment of van Fraassen's constructive empiricism, Maddy claims that "observations of the practice of science will rule out the range of verificationist-style notions of truth" (ibid. 60). The naturalist is not forced to limit truth claims to only what is verifiable, whether this is taken to mean what is observable or what is in some broader sense detectable. The reason such accounts cannot be accepted by Maddy's naturalist is that scientific evidence goes beyond the observable to the detectable and still further, and damning such evidence requires a remove to the higher level that she sees as contrary to the fundamental naturalistic impulse.

Maddy also considers Putnam's rejection of both the correspondence theory of truth and deflationary accounts of truth. Putnam claims the correspondence theory of truth in which a statement is true if and only if it matches the world is beyond our ken because the world is "independent of our representation of it" (Maddy 2007, 101).¹⁰ Putnam sees the correspondence theory of truth as requiring a match between a claim and the noumenal world of Kant. This is clearly not an option of the naturalist operating on the fundamental naturalistic impulse.

On the other hand, Putnam claims deflationary accounts of truth require that for a statement to be true it be rightly assertable according to the standards of a given culture (Maddy 2001b, 59). The problem here is that the scientific culture (or any culture

¹⁰ Maddy gives extensive attention to Putnam's arguments against correspondence theories and deflationary theories of truth in (Maddy 2007, 97-111; and 2001b, 50-62).

for that matter) does not contain a norm of right assertability (ibid. 60). Thus, if the claim of right assertability (that a statement is true only if rightly assertable in a given culture) is true, then it is false because there is no such accepted norm. This challenge of Putnam's appears to apply to Maddy's naturalist: "To determine whether or not a statement is true, the naturalist applies the norms and standards of her science. From here, the Putnamian line of thought concludes that she is committed to an account of truth in terms of 'right assertability' rather than 'correspondence'" (ibid). Maddy rejects this by pointing out that:

defining truth as 'right assertability' would convert one important challenge for her scientific study of science—the task of showing that her norms and standards are dependable methods for determining how the world is—into an analytic certainty. Any theory of truth that trivializes this difficult undertaking should certainly be rejected (ibid).

Maddy sees it to be a part of the scientific investigation process to evaluate and correct the norms and standards of scientific inquiry by way of scientific inquiry.¹¹

So, if we accept Putnam's dichotomy, the naturalist is forced (by the need to justify her standards and norms) into a correspondence theory of truth and according to Putnam satisfying the standards of such a conception of truth is not possible by the one-level naturalism that appeals to only the standards of science. Maddy responds: "We've seen that the naturalist does hold that we can think and talk about mind independent

¹¹ This has the obvious air of circularity to it and naturalism is often accused of circularity. However once a higher-level is rejected, there is no other option for the naturalist but to apply the methods of scientific inquiry reflexively and hope for self-correction of those methods. If there are no other methods available to be used to evaluate the methods and course of science, then any charge of circularity is toothless.

things; we've also seen that whether or not this involves a robust correspondence theory of truth is still open to debate" (ibid. 61). The problem with Putnam's challenge to the correspondence theory of truth according to Maddy is that it is made at the higher level of a two-level philosophical system. Putnam's characterization of correspondence is transcendental: it requires a match between our first-level scientific claims and a second-level noumenal world (ibid.). But, Maddy's naturalist can make appeal to correspondence in terms of "a connection between the words humans use—as understood by linguistics, psychology, etc.—and things—as understood by physics, chemistry, biology, etc." (ibid.). So, Maddy rejects Putnam's dichotomy and does not believe the naturalist is committed to either a deflationary account of truth or a transcendental correspondence theory of truth; she does however believe "that the jury is still out on what theory [of truth] she should embrace" (ibid.). And, the verdict is to be delivered by science, specifically by the scientific study of science.

Beyond rejecting as inconsistent with naturalism verification-style, transcendental correspondence, and deflationary theories of truth, Maddy does make some claims about truth that give us a bit more detail about what sort of truth naturalism may be committed to once the scientific verdict is in. An important part of Maddy's naturalism is that the naturalist's methods are applied reflexively so as to be self-correcting (Maddy 2002, 63). The naturalist uses her methods to evaluate her methods and norms, correcting any problems found in such. However, in recognizing

that the various particular sciences in which she is comfortable working have varied methods and norms, the naturalist recognizes that “we would expect rightness to be judged in terms of the goals of the particular practice” (Maddy 2001a, 20). One way in which we might find variation in the norms and methods of a given set of sciences is by these sciences drawing the line between the two types of hypotheses— theoretical/empirical and conventional/pragmatic—in different places.

However, Maddy expands on her above point about two kinds of hypotheses by further arguing against the popular Quinean conception of a homogenous scientific theory in which “our statements about the external world face the tribunal of sense experience not individually but only as a corporate body” (Quine 1980, 41). Maddy claims that by looking at the history of scientific practice “we find what is useful distinguished from what is true, with some parts of the current theory falling under one heading and other parts falling under the other” (Maddy 1994, 395). This is a restatement of her claim about two kinds of hypotheses that we considered in the previous section, but she goes further by noting that the lesson for scientific practice is “to carefully examine the various aspects of that practice, to assess the levels of scientific commitment in more subtle gradations to evaluate the bearing of evidence on various aspects of theory with more sensitivity to distinctions drawn between them by practitioners” (ibid.). And, paying attention to these practitioners we find that “science is viewed as a patchwork of hypotheses, models, approximations and experiments”

(ibid.) and that “epistemic status varies from one patch to another” (ibid.). And, thus, Maddy points out that contrary to Quine’s claims of homogeneity, “the truth of scientific theory cannot simply be inferred from its appearance somewhere in the scientific fabric” (ibid.). This point, and Maddy’s original aim to apply a developed account of naturalism in general to mathematics pushes us to consider briefly Maddy’s view of mathematical naturalism. While much has been said above as to what Maddy’s account of naturalism amounts to, her application of naturalism to mathematics further develops her account; and thus I will postpone a summary of her account of naturalism in general until after considering her mathematical naturalism.

2.4 Mathematical naturalism

One reason to consider Maddy’s treatment of mathematical naturalism is that if certain aspects of a naturalized account of mathematics differ from familiar and well accepted aspects of naturalized accounts of other fields (e.g., epistemology), then we must consider these differences (assuming each account is consistent with naturalism in general) to say something about the degrees of freedom the various fields of inquiry have while still falling under the heading of a consistent naturalism.¹² This point will be

¹² The parenthetical here is of the utmost importance. I am not making the mistake noted in Chapter 1 of trying to draw a lesson for naturalism in general from agreement or disagreement among varieties of specific naturalisms. Rather, the lesson that could be learned depends on us having an extant general account of naturalism in hand against which to evaluate the varieties of naturalism. Since we do not yet have such an account, anything found here will only be a potential bit of evidence about the degree of variation within the varieties of naturalism that are allowed by naturalism in general.

of central importance to our main goal of determining whether and to what degree a general account of naturalism can guide specific naturalistic inquiry.¹³

To begin, Maddy (2001a) notes that “the approaches, insights and methods” of mathematics vary across the branches of mathematics (18). This is combined with the above mentioned point that what is right for a given inquiry is judged relative to the goal of the practice at hand (ibid 20). Further, the various branches of mathematics have many different goals, some of which are entirely divorced from the natural sciences (ibid. 24). But, the presence of these idiosyncratic goals does not divorce mathematics from science entirely because “one among the many goals of modern mathematics as a whole remains the goal of providing tools useful to natural science, theories applicable to the physical world” (ibid.). So, it seems there will be a certain overlap of concern between mathematics and the sciences and thus some shared conception of what is right, but there may also be conceptions of rightness specific to the branches of mathematics.

One place in which mathematics may differ from the sciences is in its relationship to realism.¹⁴ Maddy (1995) points to Quine in noting that naturalism is

¹³ It is worth pointing out that Maddy’s naturalistic credentials within mathematics are not without challenge. Jeffrey W. Roland (2007) claims that Maddy’s treatment of mathematics is not naturalistic in that it cannot account for the reliability of mathematical practice. It is not entirely clear to me what to make of this claim. It could be that this is a debate amongst mathematical locals or it could be a more general debate over what is required by naturalism in general. Either way, for the dispute to be adjudicated, we must have a extant account of naturalism in general in hand.

¹⁴ What follows is from Maddy (1995) an earlier work than those discussed in the previous section on truth. Some claims made in in Maddy (1995) seem to be more certain about realism in the sciences, but Maddy’s

often seen as committed to unregenerate realism: “the naturalistic philosopher is (tentatively) a realist about tables and chairs, rocks and genes, black holes and quarks” (248). The question then is whether the case is the same for mathematics as it is for the natural sciences. “[N]aturalism counsels us to second the ontological conclusions of natural science, and natural science ratifies a commitment to objectively existing physical objects of many kinds” (ibid. 251). However, “[o]ur beliefs in physical things, [the] skeptics insist, are supported by empirical evidence, by experiment, but the proposed belief in mathematical things is not” (ibid.). Here the gap between mathematics and the sciences is often closed by the arguments Quine gives for the indispensability of mathematics to science and the confirmational holism of theories. We have seen Maddy’s rejection of these Quinean arguments above. Maddy sees a real difference in the way mathematical and scientific posits are handled:

On examination, we see that mathematical things are countenanced when they are convenient and effective, but that physical things are held to a more demanding standard. Furthermore, it seems that physical things are held to this more demanding standard because physical theories are taken to describe the objective world in which we live. Convenience and effectiveness aren't enough to establish this; no matter how much we like the theory in which the (physical) posit appears, the posit itself must be subjected to direct verification (ibid. 257).

earlier (and possibly abandoned) stance on scientific realism is not the point of bringing in this work but rather the point is to emphasize the greater certainty Maddy has that mathematical naturalism is not committed to realism even if scientific naturalism is. This is a position that seems unchanged in Maddy’s work from Maddy (1995) on.

Leaving aside Maddy's later claims that science does not demand direct verification (as we saw in the previous sections), it is still obvious that there is a difference between mathematics and science: "mathematical reality, whatever it may be, does not constrain our mathematical theories as physical reality constrains our physical theories" (ibid.). Maddy then extends this claim to mathematical methodology: "assuming that the methodology of mathematics is to be judged only by criteria internal to the practice of mathematics and that ontological questions are external to the practice of mathematics, it follows that the naturalistic methodologist must carry on without appeal to ontology" (ibid. 262). Thus, mathematics, unlike what is often claimed for science, is not committed to making ontological claims, is not committed to realism.

With this conclusion in place, Maddy then considers why, if this is true, Platonism is so widely held in mathematics. She notes that this is not because of the appeal of the realism itself but a problem with anti-realism. In the various arguments for mathematical Platonism "[w]hat has been shown is that anti-realistic philosophy is unhealthy for mathematics because it would lead to a ban on various particular methods" (ibid. 263). An example here is helpful. Maddy considers the debate over whether impredicative definitions should be allowed in mathematics. She notes that this debate could be adjudicated on one of two grounds: philosophical grounds concerning the existence of mathematical entities or on purely mathematical grounds (ibid. 261). Arguments in favor of impredicative definitions made on philosophical

grounds could be based on the real existence of mathematical entities; arguments in favor of impredicative definitions made on mathematical grounds could be based on the fact that such definitions allow for “a powerful and elegant theory of real numbers” (ibid.). Antirealism rules out impredicative definitions. Thus, those in favor of impredicative definitions often adopt a Platonism. However, the naturalized mathematician will argue on solely mathematical grounds and not take on any ontological commitments pro or con: “The moral is not that realism is true, but that it is a bad idea to place constraints on the development of mathematics” (ibid.). I suggest that this proscription against constraints should be seen as following from Maddy’s naturalism both in mathematics and in general.¹⁵

And so, Maddy holds that there is one significant way in which mathematical realism differs from a common conception of naturalism in the sciences:

nothing I have said rules out consideration of ontology or extra-theoretic truth or any such philosophical matters; if such studies were conducted within natural science, I see no reason they shouldn't be fully acceptable, even welcome, to the neo-naturalist. What I have suggested is merely that these matters are irrelevant to methodological issues within mathematics, that these studies would be descriptive rather than prescriptive.

¹⁵ Maddy notes in numerous places that her Second Philosopher will adopt whatever methods of inquiry and accept whatever conclusions are found necessary in the course of her inquiry for the success of her inquiry: accept no constraints. One place in which this is made clear is Maddy (2007) in which she states that her Second Philosopher is “without strict disciplinary allegiance” (117). Rather, she is equally comfortable in any of the specific sciences or in dealing with more traditional philosophical, meta-level issues; in doing so she will take on whatever is needed for a given investigation and pull from any and all fields that have relevant input, e.g., a study of methodology pulls from “psychology, physics, and the methodologies of mathematics and the natural sciences” (ibid. 115).

In sum, I have argued that naturalism does not, in fact, generate the familiar unregenerate realism about mathematics. Rather, I claim that naturalism, properly understood, will redirect the methodologist's focus from ontology to a study of evidence and maxims internal to the practice of mathematics itself (ibid. 268).

If naturalism is committed to realism within the realm of the natural sciences, it seems the case is different within the realm of mathematics where it is not so committed. This is the case because of the different goals of the two realms and despite arguments (now held to be faulty) for the conformational connection between mathematics and science.

2.5 Theses of naturalism

While Maddy claims that naturalism does not amount to a doctrine but only an approach to inquiry, we have seen a number of theses she takes as characteristic of this approach to inquiry. Here, I will spend some time recapping the various theses that have come out in the above discussion. Overall it seems that we have more than a mere sketch of the Second Philosopher's behavior, but maybe less than what is needed for an account of naturalism in general that is detailed enough to inform specific projects in naturalism. Further, there is still reason to take care in trying to separate any theses that may be idiosyncratic to Maddy's approach or to her mathematical naturalism specifically from theses that are characteristic of naturalism in general.

Maddy notes that there are a large number of understandings of naturalism, and this is due at least partially to the fact that a given conception of naturalism is often a

result of unnecessary add-ons and the fact that the methods of inquiry and criteria of rightness for a given naturalistic inquiry are relative to the specific project at hand. So, for example, we find different claims about what type of logic naturalism is committed to not because of a disagreement over the implications of naturalism in general but because of different local concerns added to the core of naturalism and the implications of this complex. Similarly, a naturalist working on mathematical naturalism may be committed by local concerns to a different position on, e.g., truth from that of a naturalist working in naturalized epistemology.

If we recognize the role local commitments play in apparent debates over the nature of naturalism in general and remember that Maddy's naturalist is an all-purpose inquirer free from disciplinary allegiance, we can understand her position that naturalism in itself is not committed to any particular understanding of truth. While certain conceptions of truth were shown above to be inconsistent with naturalism, the account of truth that a given naturalist adopts will depend on the specific project at hand and will arise via the scientific investigation of the relevant methodology. Through this process, methodology will be modified by self-correction and any higher-level principles that are found needed will be formulated and adopted. This scientific investigation of scientific method encompasses much of what is traditionally placed under the headings of epistemology and metaphysics. But, the questions of these fields are held to be broadly scientific as opposed to belonging to a second level of inquiry

above the scientific level. This conception of inquiry as involving only one level that must evaluate itself and establish its own conception of, e.g., truth is held to be the fundamental naturalistic impulse.

By rejecting a higher level by which to evaluate scientific practice we are able to avoid certain constraints upon methodology that could frustrate successful inquiry. Similarly, constraints are further avoided by recognizing that the methods of inquiry are a product of naturalism in general plus local considerations. One point in Maddy's conception of naturalism that I did not emphasize greatly above but did come out to some degree in her treatment of Quine's holism is that the naturalist ought to prefer local investigation over global investigation.¹⁶ The practicing naturalist has specific scientific concerns initially, and then through the course of inquiry, the naturalist expands her focus to bring in other disciplines and to formulate higher-level principles that are found necessary. The naturalist begins with specific local concerns and takes on global concerns as a product of the findings of the local investigation. Because of the order of investigation, the good naturalist should be reluctant to posit constraints for fear of the risk of making a global pronouncement based on a local concern.

Finally, Maddy points out that, despite the lack of a higher level, within the single scientific level confirmation admits of degrees. There is not a single homogenous

¹⁶ Maddy (2001b) calls a "preference for local rather than global analyses in our scientific study of science" "the secondary naturalistic theme" (47).

scientific theory at test during a given investigation but rather a hodge-podge of hypotheses, posits, models, etc. and among the hypotheses of the theory there are both conventional/pragmatic and theoretical/empirical hypotheses. I take it that these conventional/pragmatic hypotheses will often be more global than will the theoretical/empirical hypotheses.

To recap at a more general level, the naturalist is born into the scientific world and uses common sense methods of investigation to understand that world. This investigation leads to changes in beliefs about the world and a modification of the methods for finding out about such. Naturalism tutors itself, corrects its own methods, accepting all and only what is found needed. It begins with specific, local concerns and moves to more general concerns only when such is found needed for the success of the local inquiry.

Thus, it seems Maddy has given us a great deal of information about what naturalism in general is by considering the inquiry methods of an all-purpose naturalist. In doing so, Maddy has provided us with some material by which to recognize a general account of naturalism and evaluate the consistency between a specific variety of naturalism and naturalism in general. However, it seems there are some problems in Maddy's account, and considering these problems will show us what is still needed for an exact account of naturalism in general.

2.6 Problems with Maddy's account of naturalism

The main problem I see in Maddy's account of naturalism is that it falls short of what Chapter 1 established as necessary for a general account of naturalism. That is, it does not seem that Maddy has given us an account of naturalism in general that is detailed enough to guide specific naturalistic inquiry or adjudicate between specific disputes over the nature of naturalism or its role at lower, localized levels. It strikes me that there are two main reasons for this. First, while Maddy points out that the naturalist extracts higher-level principles from the day-to-day practice of inquiry, she fails to deliver enough detailed theses to give a project-guiding account of naturalism. Second, Maddy's naturalist, her Second Philosopher, while guided in her inquiry by her naturalism is a non-natural character that cannot even specify what principles guide her behavior. Consider these issues in turn.

One of Maddy's main motivations is to apply naturalism to mathematics, but despite this she claims naturalism is not a doctrine but merely a way of approaching inquiry. This position seems to be at tension with some of the ways she describes her naturalist. Maddy (2007) claims that by "observing the forms of her most successful theories, she develops higher-level principles" (14-15). Among these higher-level principles she mentions things like a belief in mechanism (ibid. 15). However, for some reason. Maddy is reluctant to extend the extraction of higher-level theses to the broadly scientific field of epistemology. She is resolute that there is not a specific account of

truth needed for naturalism and that the extension of realism is an open-question for the naturalist; but, I am dubious of her position here. I think this position is due to her preference for local over global considerations. I think this preference follows for Maddy from her rejection of higher-level theories. She utilizes a bottom-up approach to inquiry, and this works for her because her investigation into naturalism takes the form of a character sketch of a non-natural character. But, describing a character who is guided by her nature does not give us the principles upon which that character acts.

While Maddy proposes to be able to develop an account of naturalism from studying the way a specific naturalist, her Second Philosopher, behaves during inquiry, her Second Philosopher is non-natural. Maddy describes this character as born native to our contemporary world-view. Her Second Philosopher is a *tabula methologicis completum*; she is born with a complete working methodological system. This is not to say that her methodology is final, it will be updated through the inquiry process, but it is the case that she is born with an extant methodology complete enough to undertake scientific inquiry. Thus, she is non-natural, i.e., she is different from all of us and everyone science has experienced; a freak.

Maddy's Second Philosopher does not defend the products of her inquiry by claiming that she trusts science, she merely points to the specific scientific evidence; she does not have a confidence in science because she has seen it out perform other methods of inquiry "she simply proceeds by methods that strike her as justified" (Maddy 2001b,

48). This is why when faced with the skeptical challenge that has led others to try and mount a higher-level defense it “is not that she insists ‘you’re proposing methods that go beyond the legitimate range of science’, but that she is puzzled” (ibid. 49). If the Second Philosopher developed her cognitive, methodological machinery like the rest of us she would understand better the motivation of these two-level philosophers and better understand the skeptical challenge. As it is, the Second Philosopher’s naïve confusion allows Maddy to side step the skeptical challenge and negates the need for her to give a precise account of truth for naturalism. The Second Philosopher is born defective, “she is deaf and blind to the lure of the Kantian transcendental project” (Maddy 2007, 101). Thus, I suggest that a naturalized study of the epistemological developments that occur over the course of developing an idealized naturalistic inquirer will provide a more realistic picture of what naturalism in general needs than does studying an unnatural “natural-born naturalist.” Chapter three will give us just such a developmental account by considering C. S. Peirce’s treatment of the methods of belief fixation. This will give us a starting point for developing a more complete account of naturalism in general based on the work of Peirce.

3. Peirce's naturalistic treatment of science

In the previous chapter we saw Penelope Maddy give an account of naturalistic inquiry by sketching the behavior of her Second Philosopher, who is born ready with scientific inquiry methods. While this account does help illuminate various commitments of naturalism, I claimed that it is not itself naturalized due to the unearned and unjustifiable commitments of the Second Philosopher, i.e., the Second Philosopher is ready born with her method of inquiry and cannot explicitly defend those methods. Charles Sanders Peirce gives an account of inquiry that is quasi-developmental, which begins with historically and developmentally more basic inquiry methods and progresses to more advanced methods of inquiry based on finding the more basic methods inadequate to the goals of inquiry. This progression results in a method of inquiry quite the same as that of the Second Philosopher's. However, despite this similarity, I suggest that considering the developmental course of inquiry is a more naturalistic approach and offers various insights absent in Maddy's account.¹

¹ It is, of course, presumptuous at this point of the investigation to claim Peirce's treatment of inquiry to be more naturalized than Maddy's. However, it seems to me that Maddy should take serious Peirce's developmental account because it is a more empirical, more scientific study of how the naturalist's mode of inquiry develops.

3.1 Belief fixation

Peirce begins “The Fixation of Belief” by noting, contra-Maddy’s Second Philosopher, that a natural-born scientific inquirer is not to be found: “We come to the full possession of our power of drawing inferences the last of all our faculties, for it is not so much a natural gift as a long and difficult art” (5.359).² This is true both in individual epistemic development and the course of scientific history.³ Peirce notes the historical development of scientific inquiry from the authority based system of the Romans, to the increased reliance on experience found in Roger Bacon, to the emphasis on verification and reexamination through crude experiments of Francis Bacon, to the realism of Kepler (5.359-362). Peirce claims that a detailed study of the history of science reveals that “each chief step in science has been a lesson in logic” (5.363). The individual inquirer is certainly benefitted from this historical development of logic, but is not ready born with this developed logic. Peirce then moves on to make more precise certain stages in this development of logic as it occurs in the individual.

To explain the development of inquiry skills, Peirce begins by laying out some preliminaries. He offers in the most general terms a definition of reasoning: “The object of reasoning is to find out, from the consideration of what we already know, something

² While this and numerous references to follow are originally from “The Fixation of Belief”, *Popular Science Monthly* 12, 1877, pp 1-15, I will cite the collected papers so as to make more direct reference to the passages of concern.

³ Cf. 6.3: “Scientific men are made out of youths who during the plastic period of life are set to study science for a number of years.”

else which we do not know" (5.365). Recognizing the evolutionary necessity of such, Peirce notes that we largely "reason correctly by nature" but only with regards practical matters (5.366). When departing from practical matters, the inquirer "is like a ship in the open sea, with no one on board who understand the rules of navigation" (5.368).⁴ To come to understand the rules of navigation, the rules of inquiry, we must first recognize the existence of and note the difference between two types of facts: those that are presupposed in the course of inquiry and those that are not (5.369). Recognizing the former allows us to understand and justify the latter.⁵ Among those facts that are a necessary part of inquiry are "that there are such states of mind as doubt and belief—that a passage from one to the other is possible, the object of thought remaining the same, and that this transition is subject to some rules by which minds are alike bound" (ibid.). These are psychological and logical facts of the human epistemic system.

Peirce goes on to elaborate the distinction between belief and doubt with a number of points. First, "there is a dissimilarity between the sensation of doubting and believing" (5.370). Second, there is the practical difference that "beliefs guide our desires and shape our actions . . . the feeling of believing is a more or less sure indication

⁴ Curiously, Maddy's Second Philosopher is just such a mariner who happens by chance to always navigate correctly without being able to express the rules by which such navigation occurs. This is largely the nature of the average inquirer on practical matters: we are good by our nature at reasoning on practical affairs (albeit with some degree of positive illusion (5.366)) but cannot without a study of logic express the rules by which reasoning can be justified.

⁵ When considering Peirce's realism in Chapter 5 we will see that Peirce claims his variety of realism to be presupposed in the course of inquiry; this realism then allows us to understand and justify the parts of inquiry that are not presupposed in undertaking the inquiry.

of there being established in our nature some habit which will determine our actions. Doubt never has such an effect" (5.371). Third, "[d]oubt is an uneasy and dissatisfied state from which we struggle to free ourselves and pass into the state of belief; while the latter is a calm and satisfactory state which we do not wish to avoid, or to change to a belief in anything else" (5.372). From these points, Peirce notes the positive effects of both belief and doubt. Belief instills in us a disposition to act when put in appropriate circumstances, while doubt "stimulates us to inquiry until [the doubt] is destroyed" (5.373). From this, Peirce defines 'inquiry' as the struggle to attain belief given the irritation of doubt (5.374). Thus, Peirce has given an account of inquiry in basic phenomenological terms from which we can develop more theoretically-loaded conceptions of inquiry that go beyond the facts indispensable to the very pursuit of inquiry.

Peirce continues his developmental account of inquiry in these basic terms. As inquirers, we are satisfied with our beliefs and hold them to be true, as able to "truly guide our actions so as to satisfy our desires" (5.375). We think all of our beliefs true until we are met with doubt through the shock of error, i.e., when we find one of our held beliefs fails to guide our actions to satisfy our desires.⁶ "Hence, the sole object of

⁶ Peirce gives an account of shock that I take to characterize confrontation with error: "The shock which we experience when anything particularly unexpected forces itself upon our recognition, (which has a cognitive utility as being a call for explanation of the presentment,) is simply the sense of the volitional inertia of expectation, which strikes a blow like a water-hammer when it is checked; and the force of this blow, if one could measure it, would be the measure of the energy of the conservative volition that gets checked" (1.333).

inquiry is the settlement of opinion” and this fact “sweeps away, at once, various vague and erroneous conceptions of proof” (ibid.). Considering these erroneous conceptions of proof furthers our understanding of the role played by doubt in inquiry.

Certain skeptics hold that inquiry can begin by merely stating a question “and have even recommended us to begin our studies with questioning everything!” (5.376). In rejecting this conception of inquiry we find Peirce rejecting with Maddy the Cartesian project (Cf. Maddy’s treatment of Descartes’s project in 2.2 above). But stating a question is not the same as struggling with “a real and living doubt” (ibid). The distinction between Cartesian “paper doubt” and real living doubt will come into play in the following chapters when considering the relationship between realism and naturalism. However, I want to urge at this point that Maddy’s Second Philosopher seems to see the challenge made by the two-level philosopher who demands a more robust account of truth than she can provide as a mere stated question which fails to lead her to doubt and the inquiry into the objection that would result from such. Maddy’s Second Philosopher rejects the two-level challenge since it does not strike a nerve in her because she cannot understand it; she is deaf and dumb to the Kantian project. The question then is whether this is because the two-level philosopher issues only a paper challenge or because the Second Philosopher lacks a developmental history that would allow her to be panged by the challenge. I will below suggest that the latter is the case and that Peirce’s inquirer does feel the sting of the two-level challenge and

from this is driven to develop a two-level account of truth without positing a level above science from which to deliver this account.

A second conception of proof that Peirce sees washed away by his account is foundationalist in nature. This position holds that proof requires “some ultimate and absolutely indubitable propositions” (ibid.). In rejecting this foundationalist conception of proof, Peirce is again in line with Maddy. He notes that according to his account “an inquiry, to have that completely satisfactory result called demonstration, has only to start with propositions perfectly free from all actual doubt. If the premises are not in fact doubted at all, they cannot be more satisfactory than they are” (ibid). This is a reiteration of his pragmaticistic⁷ account of belief given above. In the previous chapter we found Maddy’s account of naturalistic inquiry to be thoroughly non-foundationalist, and as Richard Bernstein (1989) claims, there is not “an important argument in the anti-foundational arsenal that was not anticipated (and sometimes stated in a much more trenchant form) in the remarkable series of articles that Peirce published in 1868” (7).

With the preliminaries laid out and certain conceptions of proof rejected, Peirce goes on to lay out four increasingly better modes of inquiry; and in the course of

⁷ I use “pragmaticistic” here to separate Peirce’s philosophy from that of William James. Once James adopted ‘pragmatism’ as the term for his philosophy – which Peirce held as a bastardization of his own – Peirce adopted ‘pragmaticism’ as a term “ugly enough to be safe from kidnapers” (5.414). While I will touch a bit more on the differences between James’s pragmatism and Peirce’s pragmaticism in the next chapter, roughly the difference is that Peirce limits his doctrine to meaning – the meaning of a concept is exhausted by the possible differences it could make to experience – while James extends his doctrine to truth – such that the differences made to experience could affect the truth-valence of a concept. Thus, in Peirce’s account of inquiry we find that, until a premise is met with reason for doubt, believing the premise true (failing to doubt it) is experientially no different from a premise being actually true.

considering these various modes of belief fixation we find other considerations important to inquiry. This investigation begins with *the method of tenacity* by which an inquirer maintains belief by choosing any position, reiterating the position by focusing on anything that supports the belief, and dismissing anything that could lead to doubt (5.377). An inquirer often falls into this method because “the instinctive dislike of an undecided state of mind, exaggerated into a vague dread of doubt, makes men cling spasmodically to the views they already have” (ibid.). Encounter with error is unpleasant and doubt an uncomfortable state of mind; if one could go through life maintaining initially held beliefs, Peirce says “[i]t would be an egotistical impertinence to object that [this] procedure is irrational, for that only amounts to saying that his method of settling belief is not ours” (ibid.). Given that the sole goal of inquiry is to fix belief against the shock of error, such a method, if successful, would fulfill the goal of inquiry.

However, this position cannot be maintained, because “[t]he social impulse is against it” (5.378). The inquirer who pursues this method will eventually meet with disagreement from other inquirers and at some point, due to “an impulse too strong . . . to be suppressed,” will be forced into doubt by conflicting opinion (ibid.). This recognition of the importance of the views of other inquirers is “a distinctly new step” that cannot be avoided in the course of inquiry (ibid.). “Unless we make ourselves hermits, we shall necessarily influence each other's opinions; so that the problem

becomes how to fix belief, not in the individual merely, but in the community" (ibid.). Here we have derived a concept central to (naturalistic) inquiry beyond the indispensable ones we began with: proper inquiry is social in nature.⁸ That is, if we want to fix our opinion against the risk of error (and as inquirers that is exactly our commitment), then we must recognize the social nature of inquiry.

Though Maddy's Second Philosopher does not adopt the method of tenacity, I find it curious that she does not take more serious the skeptical two-level challenge based solely on the fact that it is a widely held opinion contrary to her own. Maddy accepts the social nature of inquiry and the Second Philosopher supposedly acts on such, but she somehow fails to respond to contrary opinion when it comes to the two-level challenge to her naturalist's commitment to the fundamental naturalistic impulse. I return to this concern below, but first consider the other three methods of inquiry considered by Peirce.

Once the role of the community is recognized, there is a natural progression from the method of tenacity to the *method of authority*. This second method is much like the first but at the social level. This method fixes opinions of the community by way of official doctrine taught to the community from a young age and maintained by suppressing any beliefs that would cast doubt on the official doctrines (5.379). In the

⁸ I claim here that the social nature of inquiry is a concept that goes beyond those concepts indispensable to inquiry. However, I will point out in Chapter 5 below that there is both an indispensable, regulative conception of the social aspect of inquiry and a constitutive conception of such, which develops through the course of inquiry.

limit, the official doctrine can be entrenched by an appeal to the passions of the community or genocide carried out against those who dissent. Peirce claims this method of inquiry is commonly found in theology and politics. "Wherever there is an aristocracy, or a guild, or any association of a class of men whose interests depend, or are supposed to depend, on certain propositions, there will be inevitably found some traces of this natural product of social feeling" (ibid.). Like with the method of tenacity, the motivation here is natural and phenomenological; as a matter of natural, psychological fact we seek to avoid error and we have an impulse to seek out and respect the opinions of others.

The method of authority is a natural development of the method of tenacity based on the desire to avoid error and an attempt to fulfill the social impulse. Peirce claims that, while cruel, this method has "immeasurable mental and moral superiority to the method of tenacity" (5.380). It tends to have greater success in fixing opinion than does the method of tenacity and has historically often led to great results. These great results can be seen in the long life of various forms of organized faith and the "structures of stone" such belief systems have produced (ibid). While the systems of beliefs produced through this method do change over time, their change is so slow "that individual belief remains sensibly fixed" (ibid). So here we find that while social in nature the method of authority serves for the individual inquirer more efficiently much the same role as does the method of tenacity.

However, again, this method cannot be practically maintained because not all opinions can be the result of official doctrine (5.381). Those opinions that are not officially dictated will eventually be found to conflict across inquirers and this will lead to doubt. These inquirers “possess a wider sort of social feeling” by recognizing that opinions differ in different times and places and that “it is the mere accident of their having been taught as they have . . . that has caused them to believe as they do” (ibid). From this recognition that some beliefs differ, a general doubt in the method of authority arises and a new method must be put in its place.

These first two methods provide “an impulse to believe” but no means to “decide what proposition it is which is to be believed” (5.382). The third method, the *a priori method*, offers a means for making such decisions. In pursuing this method, inquirers begin with “natural preference”, proceed socially through discourse, and “gradually develop beliefs in harmony with natural causes” (ibid.). This method does not make much appeal to observation and is the driving method in opinions on art and the history of “metaphysical philosophy” (ibid.). The *a priori* method begins with the single inquirer basing opinion on what is “agreeable to reason” and by “the shock of opinions will soon lead [inquirers] to rest on preferences of a far more universal nature” (ibid.).

It seems possible to conceive of the two-level skeptic’s position as resulting from the *a priori* method; even Maddy (but not her Second Philosopher) seems to recognize a

natural impulse for a higher-level account of truth, and her consideration of various two-level views looks very much like the resultant social discourse that aims at developing disparate “reasonable” accounts of higher-level truth into an account of a “more universal nature.” In evaluating this method of belief fixation, Peirce holds that “[t]his method is far more intellectual and respectable from the point of view of reason than either of the others” (5.383). Ultimately, this method is largely the same as the method of authority. While it lacks an external ruling body officially fixing doctrines of belief, it is eventually found that what counts as “agreeable to reason” has accidental causes and varies across time and place. Thus the inquirer, recognizing that a belief formed by the a priori method is “determined by. . . circumstance[s] extraneous to the facts, will from that moment not merely admit in words that that belief is doubtful, but will experience a real doubt of it, so that it ceases to be a belief” (ibid.). Thus, the historical and personal development of inquiry methods leads us to the position that “[t]o satisfy our doubts, therefore, it is necessary that a method should be found by which our beliefs may be caused by nothing human, but by some external permanency—by something upon which our thinking has no effect” (5.384).

This leads us to the final, and highest, method of belief fixation, the *method of science*, in which “the ultimate conclusion of every [inquirer] shall be the same” (ibid.). Without this ultimate agreement, we will eventually find doubt in divergent opinion. The fundamental hypothesis of the method of science is that:

[t]here are real things, whose characters are entirely independent of our opinions about them; those realities affect our senses according to regular laws, and, though our sensations are as different as are our relations to the objects, yet, by taking advantage of the laws of perception, we can ascertain by reasoning how things really are; and any man, if he have sufficient experience and reason enough about it, will be led to the one true conclusion (ibid.).

The newly derived concept here is that of *reality*. While I will return in the following sections to a discussion of realism, I will here give Peirce's quick defense of this newly derived concept.⁹

Peirce recognizes that the method of science cannot be taken to support the derived realism, if the realism is the only support for this method of inquiry. And, in treating this concern he makes four points. First, the scientific method while not proving the existence of reals does not lead to a doubt of reals. That is, the other

⁹ Owen Flanagan has pointed out to me that there are interesting parallels between Peirce's developmental account of the methods of inquiry and Plato's Divided Line analogy from the Republic. While the dissimilarities are great, both accounts are quasi-developmental both personally and historically.

Plato offers four stages or mental states each progressively better (i.e., for Plato, closer to the Truth as knowledge of the Forms): Illusion, Belief, Reason, and Intelligence (1987, 249-250). These do correspond to some extent to Peirce's four methods of belief fixation. Plato's Illusion is a state of mind common to lay persons. While this state of mind need not be maintained solely with the method of tenacity, we do see in the corresponding cave analogy a tenacity had by those in the cave such that they must be forced to challenge their favored opinions. Plato's Belief is a state of mind useful in running daily affairs. Again while this state need not be maintained solely by the method of authority, Peirce notes that this method does best serve social stability. Plato's Reason is deductive in nature and is uncritical of its assumptions. While Peirce's a priori method need not be thought solely deductive, it does base beliefs on those assumptions that are comfortable. Finally, Plato's Intelligence is the state of mind had when one has obtained ultimate truth. Peirce's method of science aims for just such a state of mind.

The main source of dissimilarity between Plato's stages and Peirce's lies in the fact that Plato is concerned with states of mind and how the beliefs of such correspond to the Forms while Peirce is concerned with the methods used to produce beliefs and how stable these beliefs are vis-à-vis error. The relationship between the states of mind represented in Plato's Divided Line and the methods of belief fixation of Peirce deserves a more complete treatment than the current project allows. One interesting part of such a treatment would be to consider whether Peirce's system is a naturalization of Plato's or whether they concern quite different epistemic matters.

methods of inquiry produce beliefs that are constantly faced with error and thus must either continually dismiss the error or face the fact that the method itself is flawed.

Peirce claims that our natural tendency to pursue stable beliefs eventually leads us to dismiss these methods as faulty. But the belief in reals does not meet with error and thus the method of science which produces the belief in reals does not inevitably lead to doubt of the method as do the other three. Second, the spur to inquiry from experienced doubt is derived from “a dissatisfaction at two repugnant propositions” (ibid.). When we doubt, there is the held belief and the evidence that conflicts with this belief; these two combined produce the shock of error and require the conflict be remedied by a change of belief so as to remove the doubt. This entire process is phenomenologically basic to the nature of belief and evidences a commitment to there being one right answer about any given matter of belief. Thus, no one doubts there is one right answer (a real) or else there would be no source of doubt. Third, “[e]verybody uses the scientific method about a great many things, and only ceases to use it when he does not know how to apply it” (ibid.). Fourth, not only has the use of the scientific method not led to doubt but “has had the most wonderful triumphs in the way of settling opinion” (ibid.). Peirce then claims that based on these considerations any proposed doubt of realism would amount to mere paper doubt. What we make of this claim will depend on the details of Peirce’s realism; because of the complexity of the topic, I will postpone my evaluation of this claim of realism until Chapter 5 below. However, I will note here that this variety of

realism is decidedly non-metaphysical: it says nothing about noumena but only that inquiry will result in a single agreed upon opinion. This is a variety of realism that is ontologically weaker than that rejected by Maddy in the previous chapter.

Peirce claims that only this method provides a means of evaluating its own methodology. It can find its approach to inquiry right or wrong and modify itself (5.385). The other methods cannot do such. The method of authority always holds that whatever is necessary to maintaining a held belief “is necessary according to that method” (ibid.). Similarly, the method of authority is evaluated according to “what the state thinks; so that it cannot pursue the method wrongly” (ibid.). While the a priori method allows a development of belief, the judgment of method is ultimately determined by the thought of the inquirer so that whatever is held agreeable to reason at a given point will be judged appropriate method.

But with the scientific method the case is different. I may start with known and observed facts to proceed to the unknown; and yet the rules which I follow in doing so may not be such as investigation would approve. The test of whether I am truly following the method is not an immediate appeal to my feelings and purposes, but, on the contrary, itself involves the application of the method. Hence it is that bad reasoning as well as good reasoning is possible; and this fact is the foundation of the practical side of logic (ibid.).

Thus we find that another of the characteristics of naturalism found in Maddy’s investigation above—the self-corrective method of inquiry—is delivered by Peirce.

Peirce concludes his investigation of the varieties of inquiry methods by noting that each of the other methods offers its own benefit. The a priori method offers

“comfortable conclusions” (5.386). The method of authority is “the path of peace” and “will always govern the mass of mankind” (ibid.). The method of tenacity offers a “strength, simplicity, and directness” which underwrites instant action (ibid.). But, none of these methods can be met with lasting success. Peirce suggests that these benefits should be considered carefully and weighed against the consideration that we wish our “opinions to coincide with fact [so as to best make us immune to the shock of error], and that there is no reason why the results of those three first methods should do so” (5.387). From the initial impulse to inquire—to make our beliefs immune to the shock of error, to avoid doubt—we are led to the method of science.

So, we find in Peirce’s investigation of these various methods of inquiry a number of features also present in Maddy’s treatment of naturalistic inquiry. Initially, there is a distinction between two levels of propositions, those that are necessary for the very idea of inquiry or its success and those that are derived from these in the course of inquiry. These former propositions are akin to Maddy’s pragmatic/conventional hypotheses and include for Peirce i) a distinction between the phenomenological nature of belief and doubt and ii) recognition that the goal of inquiry is to fix belief against the threat of doubt.¹⁰ Propositions of the latter sort are akin to Maddy’s

¹⁰ To be more exact, the phenomenological nature of belief and doubt and the result desire to fix beliefs against doubt is found out through coenosopic investigation and are thus empirical in nature and apt to be undermined by further findings. However, once inquiry is undertaken, these beliefs play a primary role that makes them, internal to the inquiry method of science, much like conventional/pragmatic hypotheses. We will see in Chapter 5 below that Peirce’s realism is truly of this pragmatic/conventional nature.

theoretical/empirical hypotheses and are developed through the course of considering the types of belief fixation. The first of these theoretical/empirical propositions is found in the transition from the method of tenacity to the method of authority with the recognition that the opinions of others matter and opinions contrary to ours effect doubt and spur further inquiry. This is the social aspect of inquiry we found in Maddy. Second, in the rejection of the method of authority and the a priori method we rid our conceptions of inquiry and proof the need for foundational truths. We end up with a fallibilistic inquiry method. This delivers the third point that the method of inquiry has a conception of right and wrong method that allows it to self-correct.

Beyond these points of agreement between Peirce and Maddy, we also find points of disagreement. Peirce's account is historical and developmental, whereas Maddy's Second philosopher is born with a complete fallible, self-correcting method of inquiry. Because of this, Peirce's inquirer and not Maddy's is able to identify and explain the rules upon which the inquiry is based, and, I suggest, Peirce's inquirer is motivated to take the two-level skeptical challenge more seriously and can thus offer a stronger response to such challenge. Finally, Peirce draws an initial conclusion that realism is a part of the developed method of inquiry whereas Maddy rejects such. Much of what follows in this chapter and the next two will elaborate on these points of difference and argue on Peirce's side of the matter.

It is important to note here that the method of inquiry that Peirce leaves us with is the method of science. This is a method of inquiry at the most general of levels and is not to be confused with the scientific method, which is a set of general methodological commitments of science and of special methodological commitments of the various special sciences. It is only once we have the method of science in hand that we can properly conduct the inquiry that delivers us an account of science and its methodology. That is, under the other three methods of inquiry, we might find specific methodological considerations but they would be dogmatic and conservative in nature; these methodologies would not look anything like the social, fallible methodology of the sciences. This is not to claim that the method of science comes from something higher than science; it is not a bit of first philosophy. Rather, the method of science is a natural development of science at the highest level and is then used to develop more specific methodological guidelines. This can be seen clearly once we consider Peirce's account of the structure of science. With the method of science laid out, I will now go on to give an account of Peirce's view of the structure of the sciences, the relationship between various sciences, and the methodological issues involved with the economics of research. Once this is done, I will make additional points in relation to Maddy's account of naturalism from the previous chapter.

3.2 Peirce's architectonic of science

To better appreciate the above discussion of the methods of inquiry and the role they play in science/naturalism, it is necessary to consider Peirce's architectonic of science and note the level at which the above discussion occurs.¹¹ To begin, Peirce notes that he is not concerned with giving an architectonic of all possible sciences or the future structure of sciences "but with sciences in their present condition" (1.180). While it has been 100 years since Peirce offered his classification of the sciences, I do not think there have been any changes in the sciences that would alter the main structure he gives the sciences; newer developments would alter his structure at only the most detailed level. Peirce next notes that his treatment of the sciences builds on an idea from Auguste Comte: "namely, the idea that one science depends upon another for fundamental principles, but does not furnish such principles to the other" (ibid.). In a more poetic manner, Peirce attributes the following picture to Comte: "the sciences form a sort of ladder descending into the well of truth, each one leading on to another, those which are more concrete drawing their principles from those which are more abstract and general"

¹¹ Peirce offers at least two non-identical treatments of the structure of the sciences: one at 1.180-1.202 and a slightly different one at 1.238-1.283. The main difference between these two seems to be that the former begins with three branches of science—Discovery, Review, and Practical—while the latter begins with two branches—Theoretical and Practical—and divides the Theoretical into two sub-branches—Discovery and Review. It seems there are benefits to both ways of categorizing: the latter separates Discovery and Review, which are maybe more closely related, from the more distantly related Practical; but the former does not risk presenting it as if Practical is thoroughly non-theoretical. My exposition will focus on the former of these two treatments.

(2.119). That is, the sciences higher in the hierarchy establish principles that apply to the sciences under them; these lower level sciences do not return this influence.

Table 1 demonstrates the structure and direction of influence (i.e., top-down) of the various sciences. If we establish at the level of the Physical Metaphysics a commitment to a physical ontology, then such a commitment is adopted by all of the branches of the Physical Sciences.¹² Similarly, if we establish as a methodological principle of Psychology a need for experiments to be double-blind, then this principle holds for each of the specific sciences falling under the heading of Psychology. This direction of influence from more general to more specific holds for all science.

It is important to note that Peirce's classification of science seems to be quite broad and it may seem to include things (e.g., logic, philosophy) that are not commonly understood as science at all today. This should not be taken as a concern for two reasons. First, everything Peirce classifies as a science, whether commonly seen as such or not, shares the method of science and is observational in the broadest of senses. Second, the inclusion of non-canonical sciences is more in line with naturalism than are accounts of sciences that exclude philosophy from the family of sciences. This is exactly

¹² This is one place in which it becomes apparent that some of the higher level principles of naturalism established at the coenosopic level apply to the idioscopic levels in a relative manner. That is, an idioscopist aiming to explain a physical phenomenon will find that higher level principles established in Physical metaphysics limit such explanation to occurring in terms of a physical ontology; an idioscopist aiming to explain a psychic (mental) phenomenon will find no such limitation (and will actually find a different limitation as imposed by principles established by Psychical Metaphysics).

as we should expect if Peirce is able to make a contribution to naturalism. With this in mind, consider Peirce's architectonic.¹³

Peirce divides the sciences into three branches: Science of Discovery, Science of Review, and Practical Science (1.181). Science of Discovery is what is most commonly recognized as science proper and is what concerns us here. Science of Review involves "arranging the results of discovery, beginning with digests, and going on the endeavor to form a philosophy of science" (1.182). This is the branch in which the classification itself occurs. It should be noted that this branch depends for its work on the Science of Discovery, and thus there is a natural direction of influence from the latter to the former.

So, even though both the Science of Discovery and Science of Review are branches of science one takes priority over the other, and indeed it was Peirce's scientific work and study of the Science of Discovery that led him to his classification of the sciences.

¹³ At this point, I will only carry Peirce's classification to a level of detail useful to the current project. That is, if the Science of Discovery, the Science of Review, and the Practical Sciences are considered branches of sciences under which there are sub-branches, classes, sub-classes, and still further sub-divisions then I do not go beyond consideration of the sub-classes and I do not even go that far in considering the Science of Review and the Practical Sciences. Peirce actually has a number of different terms by which to refer to the various levels of the sciences based on the classifications Louis Agassiz used in zoology (as can be seen in 1.229, 238). I will not attempt to argue for one of Peirce's set of terms over the other as it does not impact the current discussion. However, what is left out of my discussion at the lowest levels of classification does not impact the main structural and methodological claims that concern the current project.

Table 1: Peirce's Architectonic of Science (incomplete)

Mathematics	Mathematics of Logic			
	Mathematics of Discrete Series			
	Mathematics of Continua and Pseudo-Continua			
Philosophy (Coenoscopy)	Phenomenology			
	Normative Science	Esthetics		
		Ethics		
		Logic	Speculative Grammar	
			Critic	
			Methodetic	
	Metaphysics	General Metaphysics, Ontology		
Psychical or Religious Metaphysics				
Physical Metaphysics				
Idioscopy	Physical Science	Nomological or General Physics	Molar Physics, Dynamics, and Gravitation	
			Molecular Physics, Elaterics, and Thermodynamics	
			Etherial Physics, Optics, and Electrics	
		Classificatory Physics	Crystallography	
			Chemistry	Physical
				Organic
				Inorganic
		Biology	Physiology	
			Anatomy	
	Psychical or Human Science	Descriptive Physics	Geognosy	
			Astronomy	
		Nomological Psychics or Psychology	Introspectional Psychology	
			Experimental Psychology	
			Physiological Psychology	
			Child Psychology	
		Classificatory Psychics or Ethnology	Special Psychology	
Linguistics				
	Ethnology			
Descriptive Psychics or History	History Proper			
	Biography			
	Criticism			

Practical Science includes those sciences that involve everyday affairs often making use of the findings of the Science of Discovery and includes a wide hodge-podge of activities, including such things as pigeon-fancying, surveying, navigation, and etiquette (1.243). Peirce gives relatively little attention to Practical Science and Science of Review compared to Science of Discovery, and this is because he does not see the structure of these branches to influence the logical structure of the sciences; this can be established by considering only the Science of Discovery.

So, I will consider the divisions of the Science of Discovery in more detail. This branch is sub-divided into three sub-branches: Mathematics, Philosophy, and Idioscopy. It is worth noting that Peirce also alternately refers to philosophy as Coenoscopy. I will tend to use this latter term to make clear I mean by it philosophy as defined by Peirce and not anything it may otherwise be taken to mean. The relationship between Coenoscopy and Idioscopy will be considered in detail below. But first, I will treat these sub-branches in more detail.

Again we have a direction of influence from Mathematics to Coenoscopy and then to Idioscopy. Mathematics “meddles with every other science without exception. There is no science whatever to which is not attached an application of mathematics . . . [And] pure mathematics has not, as a part of it, any application of any other science. . .” (1.245). This reiterates Peirce’s commitment to Comte’s conception of a direction of influence from the more general to the less general sciences; it also anticipates the

indispensability claims of Quine, which concern Maddy as seen in the last chapter. As for definition, “Mathematics studies what is and what is not logically possible, without making itself responsible for its actual existence” (1.184).¹⁴ Peirce then divides Mathematics into the classes of the Mathematics of Logic, the Mathematics of Discrete Series, the Mathematics of Continua and Pseudo-continua (1.185). And, again there is a direction of influence from the former to the latter.

Coenoscopy is, with Idioscopy, our main concern in the current project. Peirce defines it as “*positive science*, in the sense of discovering what really is true; but it limits itself to so much of truth as can be inferred from common experience” (1.184). This branch is divided into the classes of Phenomenology, which “ascertains and studies the kinds of elements universally present in the phenomenon”; Normative Science, which “distinguishes what ought to be from what ought not to be”; and Metaphysics, which “seeks to give an account of the universe of mind and matter” (1.186). Among these classes we find the usual direction of influence. Because Coenoscopy is of central interest to the current project and much of what is needed for the current project occurs

¹⁴ It is important to note that for Peirce saying mathematics does not concern what is existent does not mean it is not committed to realism. For Peirce there is a clear distinction between the existent and the real with the latter being a broader category characterized by those things for which there is a single right account. This difference will be considered in more detail when I connect Peirce to Maddy’s discussion of realism; it may very well be that mathematics has no need for an appeal to ontology, just as Maddy claims, and yet is still committed to realism. This point will require some explanation and will help us understand the variety of realism to which Peirce thinks science/naturalism is committed.

within Coenoscopy, it is necessary to consider still more detailed levels of classification within these classes.¹⁵

Normative Science has “three widely separated divisions”: Esthetics, Ethics, and Logic (1.191). Esthetics involves the study of intrinsically valuable ideals (ibid.). Ethics concerns what is right and wrong as informed by the values established by esthetics. And finally, “Logic is the theory of self-controlled, or deliberate, thought; and as such, must appeal to ethics for its principles” (ibid.). It should be obvious here that Peirce employs the terms ‘Esthetics’ and ‘Ethics’ (and possibly ‘Logic’) more broadly than is common. Esthetics concerns the things held intrinsically valuable for any given undertaking and thus informs the goals of a given type of inquiry. These values, goals are then taken up by Ethics for a consideration of what methods should be adopted given the values, goals at hand. Logic then steps in and informs the proper way to realize these goals.

Since the current project is concerned with the controlled thought of naturalistic inquiry, we must consider the divisions of Logic itself. These include Speculative Grammar, which is concerned with the meaning of signs of all varieties (1.191); Critic, “which, setting out with such assumptions as that every assertion is either true or false,

¹⁵ Peirce holds that Phenomenology has (at his time) no sub-class (1.190). Skipping Normative Science for a moment, Metaphysics is divided into Ontology, Psychical Metaphysics, and Physical Metaphysics. The definitions of and sub-divisions within these divisions of Metaphysics will not impact our current considerations, and thus I will skip them to provide more detailed consideration of the definitions and divisions of Normative Science.

and not both, and that some propositions may be recognized to be true, studies the constituent parts of arguments and produces a classification of arguments" (2.205)¹⁶; and *Methodetic*, which "must contain the general conditions requisite for the attainment of truth" (2.207). Roughly, these divisions of logic concern in turn, establishing how anything could be true or false, what counts as truth and falsity, and finally how best to obtain truth. Thus, again there is influence from the grammar to the critic and in turn to the *methodetic*.

Moving back up to the third branch of science, *Idioscopy*, we find that it "embraces all of the special sciences, which are principally occupied with the accumulation of new facts" (1.184). Peirce separates *Idioscopy* into two sub-branches: the Physical Sciences and the Psychical or Human Sciences (1.187). The direction of influence here is just as above: "Psychical science borrows principles continually from the physical science; the latter very little from the former" (*ibid.*). Without concerning ourselves with the details of each, it may help understand the nature of these sub-branches to see that the Physical Sciences is divided into General Physics, Classificatory Physics, and Descriptive Physics (1.188), while the Psychical Sciences is divided into Psychology, Ethnology, and History (1.189). Each of these classes is further divided and

¹⁶ Peirce goes on to explain that the term 'critic' and its project has been passed down from Aristotle to Hobbes and Locke and eventually to Kant "who is emphatic in the expression of the wish that the word may not be confounded with critique, a critical essay" (2.205). Peirce then points out that Kant's "*Critic of Pure Reason*" is concerned with both *Speculative Grammar* and *Critic* (2.206).

sub-divided. The overall structure is one of hierarchy with a general direction of influence from higher to lower.

Applying this architectonic to the consideration of methods of inquiry from the previous section, we find that investigation to occur at the coenosopic level. Peirce begins with an account of belief and doubt that is phenomenological: belief and doubt feel different and have different effects on us. These phenomenological considerations then inform the normative sciences: the esthetic consideration of what is valuable (avoiding error and doubt); the ethical consideration of the right and wrong way to go about such (by fixing belief by way of inquiry); and the logical stages concerned with developing a theory of self-controlled inquiry. These logical stages involve the speculative grammar of defining terms, the critical stage of establishing what would count as truth, and the methodeutic stage concerned with establishing the right way of attaining truth, the proper method of inquiry to fix belief as immune to error and thus doubt. It is in this last stage of the methodeutic that the consideration of the four methods on inquiry occurs.¹⁷ The principles derived from the consideration of the methods of inquiry and of methodeutic generally are then made use of by the various

¹⁷ In a slightly different presentation of logic, Peirce connects this subclass of philosophy to other divisions in much the way I suggest here: "It is the business of the logician to study the nature of the fourth method of inquiry and to discover the rules for conducting it with success. The whole subject will in the exposition of it here offered to the reader be divided into three parts. The first [speculative grammar] shall treat of the essence of investigation in general, by whatever mind it is conducted and to whatever subject it is applied. The second [critic] shall treat of those maxims of investigation which become necessary owing to the peculiar constitution of man in his senses, and his mental nature. The third [methodeutic] shall give some slight outline of the special methods of research which are applicable in the different branches of science, and which arise from the peculiarities of the matter investigated" (7.326).

sub-classes of metaphysics at the coenosopic level. As seen above, these include coenosopic ontology, psychical metaphysics, and physical metaphysics. The latter of these “discusses the real nature of time, space, laws of nature, matter, etc.” (1.192). From there the various principles established are made use of by idioscopy and its various divisions. I say ‘coenosopic ontology’ above to distinguish such ontology from the ontological claims made by the various special sciences at the idiosopic level. To understand this distinction and to help more precisely formulate what a general account of naturalism would amount to, further consideration should be paid the coenosopic/idiosopic distinction.

3.2.1 Peirce’s coenoscopy/idioscopy distinction

Peirce adopts, and I believe expands the extension of, the terms ‘coenosopic’ and ‘idiosopic’ from Bentham.¹⁸ Bentham (1983) introduces these terms in *Chrestomathia*, in which he presents his proposal and curriculum for a secondary school superior to those of his day. The thrust of his proposal was to develop a curriculum that was superior for the realization of a number of ends than those extant in his day. Hence, his choice of calling his proposed school ‘chrestomatic’, which is “[a] word, formed from

¹⁸ Bentham (1983) precedes the introduction of ‘coenosopic ontology’ and ‘idiosopic ontology’ with a distinction between art and science that seems to be drawn on the lines of know-how versus know-that, with science limited to the latter (179-181). However, his wording just after introducing the terms and his claim that science and art always accompany one another seem to allow something like an idiosopic/coenosopic distinction in methodology, a matter of art. Thus, it might be possible to read Bentham’s distinction as concerning more than just ontology, but I take it to be clear from the discussion of the structure of science given above that Peirce applies the distinction to more than ontology.

two Greek words, signifying *conducive to useful learning*" (19). One problem with the extant schools of his day, to which Bentham saw his proposal superior, was the use of language that was not conducive to learning. Bentham proposed a language he saw as *clear, correct, and complete* each term of which expressed both the identity of its referent and the relation of this term to other terms (140-141). As part of this process Bentham introduces 'coenosopic' and 'idiosopic' as predicates limiting the extension of 'ontology'.

Part of Bentham's concern over the use of 'ontology' in his day is that it had departed traditional use: "For the designation, of whatsoever portion of science may be regarded as capable of being attained, concerning being taken in its utmost conceivable extant, the word *Ontology* has, for ages, been employed" (ibid., 181). However, "[f]amiliar as is the name *Ontology*, the idea commonly attached to that appellation has hitherto been subjected, by usage, to a restriction, which is not exactly conformable, either to the present purpose, or even to the etymology and original signification of the word, as above" (ibid.). This leads Bentham to separate the traditional, wide and more recent, narrow uses of ontology so as to increase the clarity, completeness, and correctness of the language to be used in his chresthomatic school.

By *Coenosopic ontology*, then, is designated that part of the science, which takes for its subject those properties, which are considered as possessed in common by all the individuals, belonging to the class which the name ontology is employed to designate: i.e., by *all beings* (ibid. p182, ftnt a).

The term coenoscopic ontology, as used by Bentham and by Peirce in his architectonic, maintains the historical import given 'ontology' by philosophers and is contrasted with the more narrow and specialized sense of localized ontology.

In *Idioscopic ontology*, then, we have that branch of art and science, which takes for its subject such properties, as are considered peculiar to different classes of beings: some appertaining to one such class, others to another (ibid. fnt b).

Thus, we may find different ontological claims made at the coenoscopic and idioscopic levels as well as across types of idioscopy.

Peirce indeed recognizes that idioscopy and coenoscopy, as well as different idioscopic studies, are often committed to different ontologies (1.252). But, he goes further in noting that methods (say of observation) also vary with kinds of idioscopy (1.238, 1.250) and between the idioscopic and coenoscopic levels (1.278).¹⁹ The same seems to hold for the goals of inquiry: "A science is defined by its problem; and its problem is clearly formulated on the basis of the abstracter science" (1.227). Thus, while Bentham's distinction seems concerned solely with ontology, Peirce expands the

¹⁹ In an unpublished section of the manuscript entitled *Phaneroscopy: Or, The Natural History of Concepts* Peirce also makes this point: "The Cenoscopist, in so far as he has employed his time exclusively developing his capacities as a Cenoscopist, neither carries in his skull the nearly encyclopedia of facts that every kind of Idioscopist possesses, nor has he the dexterity in making microscopically thin slices through hard and soft that the Biologist needs, nor the Chemist's beautiful manipulative neatness, nor the scent of the historical investigator for records, monumental or documentary. His science rests upon experience, no doubt, no less than does the Idioscopist's. But with him it rests not upon any particular personal experiences of his own, but upon the experience of all men" (MS 299: ISP 8-9; MS Am 1632 (299), via microfilm Houghton Library, Harvard University).

distinction so as to capture a more contemporary conception of science as concerned with the ontology, methodology, and goals of a given scientific undertaking.

So, notice that in seeking a general account of naturalism, we are concerned with naturalism as a stance on all things as opposed to on specifically epistemological or ethical entities and methods. Thus, the question that concerns us now takes the form of whether there is a naturalism that amounts to anything at the coenosopic level, has something to say above and beyond its specific claims on various local, idiosopic issues. If there is, then it follows from Peirce's architectonic that any idiosopic variety of naturalism will inherit certain principles from this coenosopic naturalism. That is, the general account of naturalism will inform, guide the varieties of naturalism just as we want. In illustration, consider that a general methodological commitment delivered at the coenosopic level to admit only what one has perceptual evidence for (i.e., evidentialism) could play out quite differently for the idiosopic fields of say physics and psychology.²⁰

Similarly, if we find naturalism in general committed to some sort of evidentialism, we might find ontological disagreement about realism across various idiosopic studies based on the interplay between this general commitment and the types of evidence open to these idiosopic studies. Likewise, we might find differences

²⁰ In pointing out that different sciences may appeal to different ontologies, Peirce notes that physicists, in their domain, admit only physical phenomena and psychologists, in their domain, admit (or ought so admit) only psychic phenomena (1.125)

in the goals of idioscopic studies. Physics may seek a reduction of certain higher level properties to lower level properties while sociology may have no such goal. Because the methods, ontology, and goals of the varieties of idioscopic naturalism will vary based on their field of inquiry and specific modes of observation as delimited by general coenosopic commitments, this variation need not show that one area of study is naturalized and the other not. Indeed, prior to an account of naturalism at the coenosopic level, we cannot make such a judgment. I have already mentioned above how various methods vary at the idioscopic level. The point is that disagreement about ontology, methodology, or appropriate goals across the idioscopic level does not in itself tell us anything about whether there is a non-vacuous, determinate meaning to be had by naturalism at the coenosopic level.

Two further aspects of Peirce's understanding of idioscopy and coenoscopy are important for the current project. First, whereas Bentham's distinction seems binary— all ontology is either idioscopic or coenosopic—Peirce seems to allow degrees of distinction such that he classifies theoretics (one of the subclasses of coenoscopy) as being “of a nature intermediate between coenoscopy and idioscopy; but in the main their character is philosophical [that is, coenosopic]” (1.278).²¹ This can be seen by

²¹ Here we see a further difference between the treatment of the structure of science I draw most directly on as found at 1.180-1.202 and the slightly different one at 1.238-1.283, from which the quote is taken. In this latter treatment, Peirce divides Coenoscopy into Necessary Philosophy, which contains all the subdivisions given to Coenoscopy above, and Theôrics, which is subdivided into Chronotheory and Topotheôry (1.278,279). Adopting this structure as opposed to the one treated above would make no difference to the

looking at table 1 and remembering the direction of influence is top down. For any given pair of sciences, one is more coenosopic than the second and thus the second is apt to adopt principles established by the first. This is true of those logical principles established by the Critic and Methodetic and adopted by the physical science, as has been shown above. But it is also true that, e.g., biology inherits principles from, e.g., chemistry. Thus, coenoscopy and idioscopy for Peirce are relative terms that note the relationship between two sciences.

Second, Peirce holds that, partially because of this order in influence, the correct method for studying the sciences is the “analytic method” of going from general issues to specific ones rather than the Hegelian “historic method” of trying to handle general issues by beginning with the specific issues in all their detail (1.64). This is related to the fact that for Peirce there is a clear direction of influence from the coenosopic to the idiosopic.²² As above, the idiosopic sciences are characterized by their problems, which are formulated from the standpoint of coenoscopy. Further, Peirce holds that

current discussion, beyond the above cited support it gives to conceiving of the coenoscopy/idioscopy distinction as one of degree. Conceiving of the distinction in such a way is also in line with Peirce’s Synchism, which posits the actual existence of continua—the importance of which to all of science can be seen by the high level at which the Mathematics of Continua occupies in the architectonic.

²² It is obvious to me that the direction of influence claim is one about the structure of the coenosopic and idiosopic sciences while the analytic method claim is one about appropriate methodology for studying science. Peirce’s stance on the structure of science and the direction of influence from the coenosopic to the idiosopic plus certain economic concerns is what delivers us a preference for the analytic method over the historical method. The analytic method is considered in detail in the following section.

mathematics is the only science that can support coenoscropy and “Cenoscropy [sic]²³ cannot lean upon any branch of Idioscopy, when all Idioscopy is obliged to draw support from Cenoscropy. Whatever categorical knowledge, then, can never be worked out by Idioscopy must be worked out by Cenoscropy so far as it is ever to be worked out at all” (Peirce MS 299: ISP 45; MS Am 1632 (299), via microfilm Houghton Library, Harvard University).²⁴

On the surface, it seems some varieties of naturalism are (more) coenoscopic (e.g., ontological naturalism) while others are (more) idioscopic (e.g., ethical naturalism).²⁵ Failure to make this distinction leads to confusion. Quine’s claim that there is a continuity of method between naturalism and the special sciences looks very

²³ Peirce seemed to favor and use ‘cenoscopic’ rather than ‘coenoscopic’ in his original manuscripts (see, e.g., Robin 1967). However, I adopt the latter spelling as that was the chosen spelling of Bentham and the editors of the Collected Papers.

²⁴ This gives idioscopy a potential indirect influence on coenoscropy. That is, if we find, as we will below, that there are issues that cannot be handled at the idioscopic level, we are informed by our idioscopic investigations that a given issue is one for coenoscropy. Nonetheless, it is a further issue as to whether this input is needed or whether it is a by-product of an unfinished coenoscropy.

²⁵ As with Peirce’s theoretics, I believe it necessary to talk of degrees of coenoscropy and idioscopy here. Methodological and ontological naturalism (in the sense of a worldview rather than as localized ontology) seem to be the most coenoscopic of the *varieties* of naturalism; at a lower, more idioscopic, level we have ethical and epistemological naturalism as well as naturalized philosophy of science. At the lowest, most idioscopic, level we have those naturalisms defined by specific naturalization projects: naturalizing normativity, freewill, consciousness, etc.

For our purposes, a generalized account of naturalism is concerned with the highest level of coenoscropy that the current import is concerned with; this is a level coenoscopically higher than methodological and ontological naturalism. Notice, as Peirce claims, the direction of influence should be top down: a generalized account of naturalism will limit and help define methodological and ontological naturalism which will then inform the specific methods and ontologies of the more idioscopic studies. Despite the fact that the distinction does admit of degrees, I will often use ‘the coenoscopic level’ etc. to refer to the generalized account of naturalism sought and ‘the idioscopic level’ etc. to refer to the specific varieties of naturalism. I hope all departures from this (say in referring to methodological naturalism as coenoscopic relative to philosophy of science) will be clear from context.

different from the coenosopic and the idiosopic levels; there is a clear lack of continuity of method at the idiosopic level (e.g., chemists and metaphysicians have no need for a double-blind methodology while psychology is doomed without such), but to go from this to a conclusion about a lack of continuity of method at the coenosopic level is a mistake, as there may be some general methods universal to philosophy and science (say “make only fallible posits”).

It is worth noting that the coenosopic/idiosopic distinction seems to offer us a way of understanding the skeptical two-level challenge to provide an account of truth beyond that open to the (idiosopic) sciences without returning to First Philosophy. Maddy held a rejection of all two-level approaches to inquiry to be the fundamental naturalistic impulse. Thus, we might be tempted to see the Second Philosopher as rejecting Peirce’s coenoscopy/idioscopy distinction as a bit of First Philosophy. However, this would not be a fair treatment of Peirce. Peirce’s coenoscopy does not occur at a level higher than science; it is itself a division of science. The sciences that concern Maddy are largely idiosopic in nature. If we can understand the skeptic’s challenge from a coenosopic standpoint, then the challenge can be appreciated and answered from within science. Indeed, the normative part of coenoscopy and the logical part of the normative sciences is concerned exactly with developing a general account of truth above any account of truth used by the special sciences. I will return to this issue in the next chapter, but first the analytic method must be considered in more detail in

that it provides a direct challenge to Maddy's claim that we should ignore general problems (including a general account of truth) whenever possible.

3.2.2 The analytic method

If we accept Peirce's architectonic and his claims about the direction of influence had by the higher-level sciences providing their findings to the lower-level sciences, then it is still possible that Maddy's claim that we should avoid general considerations until required holds true for the naturalist. That is, it is still a logical possibility that despite this structure of the sciences and the direction of influence the right way to go about science is to start on the ground with idioscopic considerations and from there proceed only when needed to higher considerations.²⁶ These higher-level considerations might then lead us to modify some positions at the idioscopic level by providing new principles. However, Peirce recognizes this logical possibility: "The long discussion of the Classification of the Sciences . . . was intended to bring to light the modes of relationship of logic to other theoretical inquiries; . . . for as yet the truth of what has been said has yet to be proved" (2.119). He then goes on to support his claim that we must begin our investigations with the more general sciences by claims both internal to the above discussion and rather independent, external economic reasons. Consider first the internal reasons.

²⁶ Cf. 2.5 above, where it is shown that Maddy holds that the naturalist begins with the special sciences and from such derives higher-level principles only when necessary.

Peirce holds that it is natural and right to begin with general and abstract questions (1.52). He sees the belief that the most general and abstract problems are the hardest to deal with as due to Francis Bacon and his lack of “acquaintance with actual science” (ibid.). Peirce admits that it is indeed the detailed, concrete problems of idioscopy that first suggest themselves to us, but these problems cannot be solved initially due to their complexity (1.63). Instead,

[w]hat ought to be done, therefore, and what in fact is done, is at first to substitute for those problems others much simpler, much more abstract, of which there is a good prospect for finding probable solutions. Then, the reasonably certain solutions of these last problems will throw light more or less clear upon more concrete problems which are in certain respects more interesting (ibid.).

This is the “Analytic Method to which modern physics owes all its triumphs” (1.64).

This method is contrasted to the Historic Method advocated by Hegel, “which studies complex problems in all their complexity, but which cannot boast any distinguished successes” (ibid.). To apply this to the issue of truth, it should be clear that a conception of truth in a particular domain will strike us as needed, but such a conception cannot be developed without a prior general consideration of truth at the level of logic (speculative grammar, critic, and methodetic).

Scientific classification, just as with all natural classification, according to Peirce is “an attempt to find out the true genesis of the objects classified”, where genesis is understood by “the final action which produces the parts because they are needed to make the whole” (1.227). And to do this we must begin with the more general sciences,

because the special sciences are defined by their problems and these problems are determined by higher-level sciences. So, the idioscopic sciences cannot be properly accounted for or related to one another without a prior consideration of coenoscopy.²⁷

Further, the direction of influence among the sciences from more general to more specific is not limited to only general principles. Rather, coenoscopy:

must necessarily have its application in every other science. For be this science of philosophy that is founded on those universal phenomena as small as you please, as long as it amounts to anything at all, it is evident that every special science ought to take that little into account before it begins work with its microscope, or telescope, or whatever special means of ascertaining truth it may be provided with (1.246).

This is because the “sciences must be classified according to the peculiar means of observation they employ” (1.101). What separates inquirers in the different special sciences from one another is the fact “that they are trained and equipped to make a peculiar kind of observations” (1.100). These observations are often tied to methods and tools specific to the given area. But, since the coenoscopy is concerned with observing universal phenomena, its findings must necessarily be taken into account by each and every idioscopist regardless of their specific methods of observation.²⁸

²⁷ A further way of understanding this claim is that the idioscopic sciences do not themselves have any unique way of observing their nature or the nature of their fellow special sciences.

²⁸ When discussing his triadic Kainopythaogorean categories of experience in which all experiences are monadic, dyadic, or triadic, Peirce makes similar claims about the observational nature of logic: “Logic is a branch of philosophy. That is to say it is an experiential, or positive science, but a science which rests on no special observations, made by special observational means, but on phenomena which lie open to observation of every man, every day and hour. There are two main branches of philosophy, Logic, or the philosophy of thought, and Metaphysics, or the philosophy of being. Still more general than these is High Philosophy which brings to light certain truths applicable alike to logic and to metaphysics. It is with this high philosophy that we have at first to deal” (7.526). In this passage the normative sciences are limited to

This sniffs of the First Philosophy against which Maddy rails and to which she contrasts naturalism. Peirce points out that the special sciences must take general principles from the various classes of coenoscopy (philosophy) including metaphysics, “because [the special sciences’] ways of working afford no means of bringing these propositions to the test. In short, they always rest upon metaphysics” (1.129). But, this need not be taken as First Philosophy, which passes judgment on science from a level higher than science because according to the classification above and due to shared method the philosophy and metaphysics of concern here is scientific in nature. Peirce continues: “Find a scientific man who proposes to get along without any metaphysics . . . and you have found one whose doctrines are thoroughly vitiated by the crude and uncriticized metaphysics with which they are packed” (ibid.). Such an inquirer would operate on a priori or tenacious considerations.²⁹ “We must philosophize, said . . . Aristotle—if only to avoid philosophizing” (ibid.).³⁰ The special sciences cannot begin without taking lessons from the higher sciences. This order of influence and the

only logic and Peirce refers to phenomenology as “high philosophy.” He goes on to offer his categories as the most general, basic, and exhaustive types of phenomenal experience from which all other categories of logic and metaphysics can be constructed. This reinforces the claims made about the order of influence among the sciences and the need to begin with the higher levels.

²⁹ Cf. 6.1-6.6, where Peirce treats metaphysics directly, noting again the influence it has on the special sciences, the fact that its study must then come before these science, and diagnoses the sad state of metaphysics as due to it being conducted according to methods other than the method of science.

³⁰ Cf. 7.579, where Peirce says largely the same thing in different words. “No man is so enthralled by metaphysics as the totally uneducated; no man is so free from its domain as the metaphysician himself. Since, then, everyone must have conceptions of things in general, it is most important that they should be carefully constructed.”

resultant analytic method is not what is objectionable in First Philosophy. Rather the objectionable point is that First Philosophy is conducted by a method of inquiry other than the method of science. Only the method of science allows principles to be handed down in a self-critical and fallible manner.³¹

The claim that the analytic method is the right way to conduct scientific/naturalistic inquiry follows directly from Peirce's architectonic of science. Therefore, if we accept Peirce's claims about the structure of the sciences, we must reject Maddy's claim that general issues should be treated only when a need for such is found in the investigation of specific, concrete issues. In turn, Maddy's claim that naturalism does not need and is not committed to any general understanding of truth can be challenged. Because of this, the skeptic's two-level challenge is cast anew and requires a direct, scientific, i.e., coenosopic response. However, the above considerations of the

³¹ In an unpublished section of the manuscript entitled *Phanerescopy: Or, The Natural History of Concepts* Peirce says the following about the necessity of coenoscopy, particularly the critic and methodetic, to guide scientific method: "As it first comes to us, this fundamental and unscientific knowledge is immeasurably more trustworthy than any scientific results ever can be; for the scientist rests his whole procedure upon propositions that form parts of it, and that hardly anything can drive him even to correct a little, and that nothing at all can induce him to deny. But that fundamental knowledge as we first find ourselves possessed of it is exceedingly vague. It answers well as a guide in everyday life; but when we come to scientific theory, it is insufficient and must be subjected to criticism. That criticism has, however, unfortunately hitherto yielded only doubtful and actually much doubted results. Yet without it, all scientific conclusions are uninsured against disastrous fallacies. It must be completely done over again with the utmost thoroughness. That is, no step must be taken without first thoroughly considering the proper method to be pursued; and the proper method of determining that method; and so on until we reach (as we probably may) a point at which the results of all further questioning along that endless line can be evidently foreseen, and its limiting upshot ascertained. This study by which that upshot is to be so ascertained that all men must assent to it, will constitute the department of science that Bentham call Cenoscopy for the reason that it rests on the experience of all men distributively taken, and must be acknowledged by all" (MS 299: ISP 3-5; MS Am 1632 (299), via microfilm Houghton Library, Harvard University).

analytic method are internal to Peirce. If we reject his structure of the sciences and his acceptance of Comte's claim about the direction of influence among the sciences, we can ignore the above arguments in favor of the analytic method. However, Peirce provides external support for the analytic method that is largely independent of the details of his architectonic.³²

3.2.3 The economics of research

Peirce holds that the logic of science dictates an economics of research.³³ One problem Peirce has with Hegel's and Bacon's historic method—beyond it being factually wrong in his eyes—is that it takes on problems in all their detail and this will tend to slow the progress of the inquiry. Rather for Peirce, which hypotheses should be tested and how inquiry should be undertaken is a function of three factors: cost, value, and effect (7.220). The *cost* of a given inquiry (hypothesis test) is determined by the amount of resources (money, time, energy, thought) required. The *value* of an inquiry is determined by the instinctive and reasoned belief we have that the inquiry will lead to truth. The *effect* of an inquiry has to do with the impact a failure of inquiry (falsity of hypothesis) would have on other inquiry/hypotheses. One consideration when judging

³² I say "largely independent" here because while the economic concerns treated in the next section do not depend on the details of the architectonic, they do occur at the methodetic level. Thus, Peirce takes the economics of research to apply to the special sciences because of his architectonic and the direction of influence. However, I take it that Maddy and her Second Philosopher would accept the economics of research and its application to scientific inquiry as methodological considerations internal to science (or the scientific study of science, which of course is a coenosopic undertaking).

³³ "The whole service of logic to science . . . is of the nature of an economy" (7.220 fnt 18).

effect is whether one inquiry requires another to be undertaken first (7.93). While these three factors can interact in complex ways such that the economics of the matter may occasionally prod us to consider the more costly inquiry before a less costly inquiry because of their relative value and effect, careful consideration of these three factors promises to aid inquiry regardless of type.

For Peirce, the analytic method of beginning with general questions and then working toward the more detailed questions is favored over the reverse approach of the historic method on economic grounds. The analytic approach is less *costly* than the historic approach in that there are fewer details to be taken into account. The analytic approach also wins out on the measures of *value* and *effect* in that a small number of general hypotheses can be handled by eliminative deduction more easily than a large number of detail hypotheses. Finally, there is reason to believe, given the structure of science and direction of influence laid out above that the truths at the more detailed level will depend on the truths from the general level, and thus successful historic method requires all the work of the analytic method be done.³⁴ Thus, we have reasons internal to and independent of Peirce's architectonic of science for adopting the analytic method.

³⁴ This consideration is stated as internal to the above discussion, but it seems even the Second Philosopher believes there are high-level principles that inform the special sciences. She is merely wrong that these should arise through inquiry in the special science on grounds of the above mentioned considerations of cost, value, and effect.

3.3 Coenoscropy as a general account of naturalism

In the above discussion, I established that there are a number of parallels to be found between Peirce's treatment of the methods of inquiry and architectonic of science on the one hand and Maddy's treatment of naturalism on the other. In rejecting paper doubt and the skeptical conception of proof, we found Peirce to agree with Maddy in rejecting the Cartesian Project. To the extent that such a project captures the two-level approach that Maddy rejects, this is an acceptance by Peirce of the fundamental naturalistic impulse. We also found Peirce to join Maddy in rejecting foundational accounts of science and proof. In the transition from the method of tenacity to the method of authority, we found a social aspect to inquiry in Peirce just as in Maddy. We also found that one of the main motivations for Peirce in adopting the method of science is found in its self-correcting methods, yet another aspect of naturalism for Maddy. A final point of parallel was found in that Peirce's coenosopic/idiosopic distinction offers to underwrite the two kinds of hypotheses Maddy holds open to the naturalist.

However, we also found a number of points of conflict between Peirce and Maddy. Peirce rejects the possibility of a Second Philosopher born with something like the method of scientific inquiry and offers instead a developmental account of progressing to the method of scientific inquiry from less advanced and less successful forms of inquiry. I suggest this, among other considerations, means that the skeptical challenge produces a living doubt for Peirce where it does not for Maddy. Peirce also

claims the method of science, and thus a naturalism based on such, is committed to a variety of realism, something apparently denied by Maddy. Finally, it was seen that in advocating the analytic method Peirce directly challenges Maddy's claim that we should begin inquiry with the details of the special sciences and develop general principles from such.

The most important consequence of the differences between Peirce's and Maddy's treatment of scientific inquiry for us is the impact they have on the current project of developing a general, project-guiding account of naturalism. Considering the project of abstracting a general account of naturalism from specific varieties thereof as Maddy does, we find that doing such is to attempt to pull support for a coenosopic issue from idioscopy and this is what Peirce says cannot be done. Peirce's rejection of such an approach finds support in both his architectonic and his economics of research.

The architectonic support is found in the fact that if it is true, as I suspect (and as Peirce would hold), that local varieties of naturalism take the form they do because of an interaction between general, coenosopic commitments and various local concerns, then understanding how a given variety of naturalism arose as it did and took on various commitments requires having the general positions worked out already. Much of what is needed by the varieties of naturalism (e.g., accounts of truth and self-correction) is coenosopic in nature and thus cannot be worked out by the idioscopic varieties of

naturalism as they have no unique methods of observing, e.g., truth or convergence to such.

The economic support is found in the fact that trying to extract a coenosopic account of naturalism from the various specific accounts requires we consider not only the claims made within and across varieties of naturalism but the scope of the naturalism of those making the claims, the specific projects concerned, etc. Rather than a data set that says “naturalism is committed to realism” and so on, we have a data set that says “naturalism in this domain given the task at hand is committed to realism.” This presents a prohibitive cost to extracting a common core from the various specific claims made at the idioscopic level. Further, approaching the inquiry as if we can directly develop a coenosopic account of naturalism without wading through the wealth of idioscopic details is of much greater value (promises greater possibility of truth) than does the anti-constructive position that naturalism amounts to nothing at the coenosopic level.

While Maddy largely denies the need for such a general account and instead sketches naturalistic inquiry at the level of its varieties, Peirce provides a means of understanding precisely what a general account of naturalism would amount to as distinguished from an account of the varieties of naturalism. This in turn provides us with some idea of how such a general account could guide projects at the level of specific naturalisms. Thus, the contributions made by Peirce to the current project are as

follows: i) a general account of naturalism must be at least primarily concerned with the coenosopic, ii) this account must be developed by a direct consideration of naturalism in general, because according to the analytic method, aspects of the coenosopic, and hence naturalism in general, cannot be read straight from the idiosopic aspects of specific varieties of naturalism, and iii) by way of the direction of influence, a coenosopic account of naturalism delivers its findings to the idiosopic varieties of naturalism so as to influence their projects.

In the next chapter I consider in more detail Peirce's claim that the method of scientific inquiry is committed to realism, and thus to an account of truth. In so doing, I further the parallel between Peirce's coenosopic/idiosopic distinction and Maddy's pragmatic/conventional and theoretical/empirical hypotheses. This will lead me to consider more closely the indispensability of Peirce's variety of realism and conception of truth to idiosopic inquiry, contra-Maddy.

4. The will to truth

4.1 Introduction

In the previous chapter I pointed out that Peirce's architectonic of science delivers a distinction between two types of hypotheses. The first of these are established in the course of the critic and methodeutic (or in the higher ethics and esthetics) as necessary for inquiry. The second of these are determined in the course of inquiry. I further showed how hypotheses of each type play out in the course of inquiry. Peirce begins with a phenomenological treatment of belief and doubt and a consideration of the goal of inquiry as establishing stable beliefs to insulate the inquirer from doubt. Once these hypotheses of the first order are in hand, Peirce continues to consider how the various methods of inquiry fit with the established phenomenology and realize the goal of inquiry. On these grounds, Peirce argues for the method of science over other methods of inquiry, and in the course of developing this method he delivers other hypotheses (e.g., the social aspect of investigation, the lack of foundations, and the self-corrective nature of the method of science). I then made the suggestion that hypotheses of this first type are similar to the pragmatic/conventional hypotheses of Maddy while hypotheses of the second type are akin to Maddy's theoretical/empirical hypotheses.

While this represents a parallel between Maddy and Peirce on what types of hypotheses are open to the naturalist, there is also a point of conflict in that Peirce sees a specific understanding of truth and thus realism as pragmatic/conventional hypotheses

required for successful inquiry while Maddy denies such. Maddy rejects such a requirement based on the fact that scientists often act as instrumentalists using hypotheses without attributing ontological status to their posits. Further, it seems that Peirce's method of science requires he take serious Maddy's opposition to his view. This is because it is a central aspect of this method, which separates it from the other methods, that it takes serious all genuine disagreement, i.e., any disagreement that is not merely feigned in being based on paper doubt. According to Peirce's phenomenological treatment of inquiry, the disagreement should elicit doubt and this in turn will produce inquiry into the matter.

To consider how Peirce would respond to this disagreement, I first consider his fallibilism in more detail. Having done this I will show the issue to involve the nature of evidence and when, if ever, it is possible to hold justified beliefs that go beyond the evidence. I will then lay out arguments given by William James and William Clifford as to when it is permissible to hold beliefs not based on evidence. From this, I will situate Peirce in relation to these two positions so as to identify the point of disagreement between he and Maddy. I will then show that Peirce holds a belief in realism to be beyond the evidence for such and yet indispensable. Because of this indispensability claim, I will consider whether Maddy's rejection of Quinean indispensability arguments is a challenge to Peircean realism. I will conclude this chapter by laying out more fully Peirce's account of truth and show that it is in need of further development.

4.2 Fallibilism

Peirce's method of science requires the inquirer to seek out any source of doubt. The desire to avoid error leads to the assumption that there is a right answer to be had. This is what allows disagreement to lead to doubt and further inquiry where it would not under the other modes of belief fixation. Thus, the desire to fix belief against error leads to a belief that there is a truth, a single right answer. But this hypothesis of realism must itself be held in a fallible manner. Peirce reminds us that the method of science eschews foundations even with regard to its own commitment to realism: "It still is not standing upon the bedrock of fact. It is walking upon a bog, and can only say, this ground seems to hold for the present; here I will stay till it begins to give way" (5.589). Given the apparent tension between Peirce's realism and his fallibilism, I want to further consider the nature of his fallibilism.

Peirce's fallibilism and its relationship to the method of science can be seen in his account of the first rule of reason: "Upon this first, and in one sense this sole, rule of reason, that in order to learn you must desire to learn, and in so desiring not be satisfied with what you already incline to think, there follows one corollary which itself deserves to be inscribed upon every wall of the city of philosophy: Do not block the way of inquiry" (4.135). The method of science is the only form of inquiry that refuses to be satisfied with what is already believed. Beliefs that are free from doubt are held as satisfactory, the best they can be, but the scientific inquirer never mistakes these beliefs

for bedrock. Any real doubt will spur inquiry and any other attitude would block the road to inquiry. Peirce then expands on this first rule of reason by naming four ways the road to inquiry has been commonly blocked historically.

The first way the road to inquiry has been often blocked is by way of absolute assertion. "That we can be sure of nothing in science is an ancient truth" (4.137). Here Peirce gives the example of the parallel postulate being often taught as a geometric certainty. Peirce doubted the truth of the postulate, but more importantly he saw the presentation of the postulate as an absolute certainty to be vicious. The error lies not in the falsity of the postulate but in presenting it in a manner that precluded it from further investigation; herein lies the sin. Thus, Peirce's realism cannot be held as an absolute certainty, it must be open for further investigation.

While this first common block to inquiry seems to challenge Peirce's claim of realism, avoiding the next two common blocks seems to support a belief in realism. "The second bar which philosophers often set up across the roadway of inquiry lies in maintaining that this, that, and the other never can be known" (4.138). Here Peirce gives the example of Comte claiming we would never know the chemical composition of the stars, a claim quickly shown false. Avoiding this block to inquiry seems to support, pace the anti-constructive naturalist, the claim that we must begin by holding there is a truth to be found out. If we begin by assuming there is not a truth for us to know on a

given subject, we have guaranteed we will never know any such truth there may be; this blocks the road to inquiry.

The third common block to inquiry involves assuming “that this, that, or the other element of science is basic, ultimate, independent of aught else, and utterly inexplicable — not so much from any defect in our knowing as because there is nothing beneath it to know” (4.139). Peirce explains that since we could never have inductive evidence of such, this position could only be held on the grounds of retrodiction (abduction). But, the test of a good abduction is whether it explains the facts at hands, and the assumption that a phenomenon is inexplicable precludes this and thus could never be justified.¹ Again we have the constructive move of believing there is something real beneath the phenomena which can be known; failure to make this assumption would guarantee we never form stable beliefs on the matter.

Despite this constructive motivation for realism, Peirce recognizes that we must not be smug about this realism and its precise nature: “The last philosophical obstacle to

¹ This need not be thought to exclude brute facts. It seems Peirce holds via his phaneroscopy (phenomenology without any consideration of veridicality) that the most basic of experiences are brute. However, it is from these experiences that we receive the input from inquiry. They do not themselves demand explanation or inquiry. These experiences have a certain insistence about them: “For the singular subject is real; and reality is insistency. That is what we mean by “reality.” It is the brute irrational insistency that forces us to acknowledge the reality of what we experience, that gives us our conviction of any singular” (6.340). This admittance of brute facts occurs in Peirce’s treatment of the most basic categories of Firstness, Secondness, and Thirdness. Full consideration of this issue takes us too far afield. Nonetheless, Peirce does admit that “there are numberless other facts about nature which, if my logic is not quite at fault, absolutely and decisively refute the notion that there can be any purely rational explanation” (7.511). Again, these brute facts constitute the input from which we run inquiry and are not themselves the subject of inquiry. Consideration of these facts occurs at the highest of coenosopic levels and is influenced and informed only by mathematics. The subjects of inquiry come at more idioscopic levels and it is at these levels that any claim that a phenomenon is inexplicable blocks the road to inquiry.

the advance of knowledge which I intend to mention is the holding that this or that law or truth has found its last and perfect formulation — and especially that the ordinary and usual course of nature never can be broken through” (4.140). So, even if realism has led us to stable beliefs often, we must not assume our understanding of the real and the nature of truth is immune to revision. Evidence will never deliver certainty, and holding an hypothesis as certain artificially insulates it from further inquiry and descends into one of the other methods of inquiry.

Here we find ourselves largely in the same place we began. If positing realism commits us to the first or last sin against inquiry, we seem to risk falling back into one of the other modes of inquiry and maintaining unstable beliefs. This would expose us to future error. However, if we refuse to accept realism we commit the second and third sin, and Peirce seems to hold that we preclude ourselves from any possible truth there may be. This is to give up inquiry entirely and is inconsistent with the phenomenological nature of belief and doubt. The way to navigate the various sins without blocking the road to inquiry is to hold all of our posits fallible, as provisional. The belief in truth, realism is a result of the coenosopic scientific investigation of inquiry, but “a scientific proposition is merely something you take up provisionally as being the proper hypothesis to try first and endeavor to refute. The only belief you—as a purely scientific man—have about it is that it is adopted in accordance with a method which must lead to the truth in the long run” (6.216). But, because of the direction of

influence from the coenosopic—which delivers Peirce’s realism—to the idiosopic, it does not seem that any observational evidence could possibly refute the belief that there is a truth to be had. But, then how does this not return us to an infallible, absolute assertion that there is a truth to be found out?

The reason Peirce’s realism does not block the road to inquiry is that it is held not as an evidenced belief but as a hope:²

I now proceed to consider what principles should guide us in abduction, or the process of choosing a hypothesis. Underlying all such principles there is a fundamental and primary abduction, a hypothesis which we must embrace at the outset, however destitute of evidentiary support it may be. That hypothesis is that the facts in hand admit of rationalization, and of rationalization by us. We must be animated by that hope concerning the problem we have in hand, whether we extend it to a general postulate covering all facts. . . We are therefore bound to hope that, although the possible explanations of our facts may be strictly innumerable, yet our mind will be able, in some finite number of guesses, to guess the sole true explanation of them. *That* we are bound to assume, independently of any evidence that it is true. Animated by that hope, we are to proceed to the construction of a hypothesis (7.219).

So given that this realism, the belief that there is a truth to be found out, goes beyond all observational evidence, the issue is whether and how we could be justified in holding this realism.³ To understand the role of hope in inquiry, it is useful to consider a

² More properly, realism is at the coenosopic level warranted because an indispensable part of inquiry; at the idiosopic level it is a “mere” hope because it is not justified by evidence. Peirce at times speaks of truth and realism as a hope and others as a necessary, indispensable part of inquiry. These claims are not inconsistent but rather occur from different standpoints.

³ Owen Flanagan has pointed out to me that Peirce’s realism seems atypical in that it is primarily an epistemic, not ontological doctrine. This is true to some extent due to the fact that Peirce thinks it is the concept of truth that explains the concept of the real and not the other way around. There is some weak

discussion of the role of evidence that plays out in William Clifford's "Ethics of Belief" and William James's "Will to Believe."

4.3 The ethics of the will to believe

William Clifford's "The Ethics of Belief" and William James's "Will to Believe" are often presented together as representing a debate over the role of evidence in belief. Specifically, both papers are concerned with when and how we are warranted in holding beliefs that go beyond observational evidence. Clifford offers an evidentialism, which takes a hard line on the matter and greatly limits the cases under which we can be warranted in holding beliefs that go beyond evidence. William James counters with a voluntarism, which more permissibly allows beliefs that go beyond evidence, particularly when a lack of such beliefs would prevent finding out the truth on certain matters. Clifford's treatment takes a decidedly ethical tone and James is especially concerned with whether a belief in God can be warranted despite a lack of evidence for such. While some of these details are beside the point of our current concerns, laying out the two polarized positions will help us locate Peirce's position. Specifically, it will allow us to better understand how Peirce can hold a robust account of truth and realism given his fallibilism. Ultimately, it will be found that Peirce does allow (even requires)

ontological content to Peirce's realism, but it is more ontologically innocent than common treatments of realism. This issue will be treated more fully in chapter 5 below.

scientific inquirers to hold certain beliefs despite a lack of evidence for such. This species of belief involves the pragmatic/conventional hypotheses of Maddy. We find that we are warranted in holding such beliefs despite a lack of justification for the beliefs in terms of evidence.

4.3.1 Clifford's ethics of belief

William Clifford's "The Ethics of Belief" (1879) outlines a conservative evidentialism in which our epistemic commitments ought be limited to only those beliefs for which we have adequate evidence. Clifford begins developing his position by way of a number of intuition pumps that parallel Peirce's methods of belief fixation. The first of these involves a shipowner who has reason to doubt that his ship is seaworthy, puts this doubt out of mind, allows the ship to be used to transport emigrants, and collects "his insurance-money when she went down in mid-ocean and told no tales" (1). Clifford charges that this shipowner is responsible for the deaths of its passengers despite his belief the ship was safe, because "he had no right to believe on such evidence as was before him. He had acquired his belief not by honestly earning it in patient investigation, but by stifling his doubts" (ibid.). Moreover, had the ship survived the voyage, the shipowner would still be guilty because his belief was not based on adequate evidence. Rather, in Peirce's terms, it was maintained by way of the method of tenacity. The shipowner had monetary reasons to believe the ship sound and ignored all evidence to the contrary so as to maintain his comfortable belief. The guilt

Clifford attributes to the shipowner is delivered by an ethical duty to proper inquiry that goes beyond the epistemology of Peirce offered in the previous chapter: “it has been judged wrong to believe on insufficient evidence, or to nourish belief by suppressing doubts and avoiding investigation” (3). While this appears to be a rejection of the tenacious method of inquiry used by the shipowner, considering a second case Clifford gives makes clear that he is concerned with more than just rejecting this first method of inquiry.

Clifford sketches the workings of an island community with a given set of religious beliefs. A group of islanders accuses the authorities of maintaining these beliefs by manipulation of the laws and the indoctrination of children (2). However, the authorities of the island were not guilty of the charges. The accusers made their charges on insufficient evidence and could have easily obtained evidence that their accusations were indeed false. Though the accusers firmly believed their accusations, Clifford holds them guilty because again the evidence upon which they based their beliefs was insufficient. And, based on such evidence, the accusers would be blameworthy even if their accusations were indeed true. Thus, even if the religious beliefs of the islanders were maintained by the most objectionable implementation of the method of authority, the ethical fault—according to Clifford—lies not in the method of inquiry but on a failure to base beliefs on evidence.

At this point we find a certain similarity between Clifford and Peirce in that both reject beliefs, whether true or not, that are acquired accidentally. If the ship had made a successful voyage, the owner's belief such would play out is objectionable because it was true by accident not because adequate inquiry was carried out. If the island's authorities had maintained the religious status quo by way of manipulating laws and kidnapping and force-feeding children their favored beliefs, the charges made against such are objectionable because the accusations were true by accident. For Peirce, the reason to avoid such beliefs is because any belief based on accident will eventually find a reason for its doubt and the point of inquiry is to form true beliefs immune to doubt. But, the case for Clifford is somewhat different.

Peirce grants that since that the goal is to form beliefs immune to doubt, if one could successfully maintain the method of tenacity or authority, no fault can be found with such. The problem is that as a matter of fact such methods cannot be maintained in practice. But, for Clifford even if it were possible, say by way of eternal accident, to maintain a tenacious or authoritarian method of inquiry, there is fault to be found with such. Clifford's basis for this claim is a belief that "no one man's belief is in any case a private matter which concerns himself alone. Our lives are guided by the general conception of the course of things which has been created by society for social purposes" (3). In the two cases given, and indeed in every case, a single person's belief is important to every other person in the global society and posterity. This echoes Peirce's

social instinct that moves the inquiry from tenacity to authority and again to the a priori method. However, for Peirce, if, contrary to practical fact, one could successfully suppress this social instinct that each inquirer's belief is as good as one's own, then the method of tenacity or authority can be maintained without objection because doing so would allow us to realize our basic epistemic goal of maintaining stable beliefs.

For Clifford this ethical requirement is independent of any beliefs held by the inquirer. "[B]ecause even when a man's belief is so fixed that he cannot think otherwise, he still has a choice in regard to the action suggested by it, and so cannot escape the duty of investigating on the ground of the strength of his convictions" (2). This strikes me as an instance of paper doubt for Peirce. If the inquirer cannot think otherwise, then the inquirer has no reason to doubt the belief; since beliefs dispose us to action, there would be no reason to inquire into the grounds of the action in such a case. But Clifford's position requires more:

If a man, holding a belief which he was taught in childhood or persuaded of afterwards, keeps down and pushes away any doubts which arise about it in his mind, purposely avoids the reading of books and the company of men that call in question or discuss it, and regards as impious those questions which cannot easily be asked without disturbing it—the life of that man is one long sin against mankind (5).

For Peirce, being free of all actual doubt is the highest possible virtue of beliefs, but while Clifford agrees that it is never lawful to stifle a doubt, he demands more. For Clifford and contra-Peirce, if it is possible for an inquirer to live free from actual doubt, there are still grounds for objection. For, "it is wrong always, everywhere, and for

anyone, to believe anything upon insufficient evidence" (ibid). This begs the question of what counts as sufficient evidence, and Clifford recognizes this.⁴

In considering what counts as sufficient evidence, Clifford questions the role of testimony. Most of our beliefs are handed down to us and no one can test a significant portion of these beliefs "by immediate experiment or observation" (6). Nonetheless, we can have some confidence in our inherited practical beliefs because belief guides action, "and those very actions supply a test of its truth" (8).⁵ In this, he cites the fruitful effects of the beliefs of Mohammed handed down through Muslim society (7-8). Such beliefs built mighty societies that "have taught civilization to the advancing West" (7), providing their followers with joy and peace. Thus, if the actions are the test of truth, it seems we have reason for holding the doctrines of Mohammed true. However, this success "would not justify me in believing what [Mohammed] said about matters not at present capable of verification by man" (8). The comfort found in these Islamic beliefs is just what Peirce describes as driving the adoption of beliefs in the a priori method. But, just as Peirce notes, such beliefs will eventually be found only accidentally comfortable.

Clifford points this out when he notes that there is more than one prophet with

⁴ It also begs the question of how the inquirer can know when sufficient evidence is had. Peirce's answer is that holding a belief free from all actual doubt is the best that can be wished for. Wanting more violates pragmatism. It seems Clifford is committed to something of a two-level view where we can have a higher-level, god's-eye view that sufficient evidence is had; thus he violates the fundamental naturalistic impulse and is not a naturalist on Maddy's view.

⁵ Here it should be noted that this measure of truth is essentially that of James's pragmatism. However, Clifford goes on to reject this measure, and while James's willingness to accept beliefs not based on evidence largely turns on this point, I will show below that Peirce's similar acceptance of such beliefs is not based on this "crass pragmatism."

successful and comfortable doctrines (9). The Buddha delivered doctrines with similar useful effects, and the doctrines of the two prophets conflict. The benefits had by the doctrines of each prophet speaks to their goodness, but neither the comfort of the beliefs nor the goodness of the perpetrator of such beliefs justifies the acceptance of the beliefs. The benefit of the doctrines posited by the prophets could not have been known to the prophets and were thus accidental. So, despite the comforting guide to action provided by these beliefs, “there can be no grounds for supposing that a man knows that which we, without ceasing to be men, could not be supposed to verify” (10).

Clifford does not demand that every inquirer verify each belief held. Some beliefs must be taken on authority, but the inquirer is justified in such beliefs only if there is reason to believe that such beliefs could be verified, have actually been so verified, and have been reported honestly. This is how we come to hold no blameworthy beliefs from history and from experts. In the case of the chemist who reports on facts open to chemical investigation, “I have quite reason enough to justify me in believing that the verification [of such facts] is within the reach of human appliances and powers, and in particular that it has been actually performed by my informant” (10). Still, we must be wary of those beliefs held only because they have always been held and have failed to be found false. Such beliefs, even if true, could have their origin in fault. And so while Clifford does not require the ethical inquirer to hold evidence of the truth of the belief, the inquirer must hold evidence that the perpetrator

of the belief had such evidence. And here still we must worry about deception and error on the part of the perpetrator (12). This paints a dire picture for any belief based on testimony, but the case is worse still.

When we ask whether we are ever justified in holding a belief that goes beyond our own experience, we find that “every belief, even the simplest and most fundamental, goes beyond experience” (14). Here Clifford takes a Humean turn in pointing out that even the child afraid of fire because of a past burn assumes the present is like the past and this cannot be verified. Thus, even if the child’s belief that fire produced a burn in the past is based on experience, the belief that fire now threatens to burn is not so based. But, worse still, the child’s belief that fire produced a burn in the past is not even based on direct observational evidence but rather a memory which goes beyond the remembered experience. With this noted, Clifford grants that the question is not whether we can believe anything that goes beyond experience, but how far beyond experience we may go in justifying our beliefs (14). Here Clifford (in a rather inexplicable turn) allows that we grant the child her fear as justified based on the assumption of a uniformity of nature (15). Clifford’s justification of this assumption seems to be that beliefs based on it have led to a “great saving of time, trouble, and money” (15). And thus, “in forming beliefs which go beyond experience, we may make the assumption that nature is practically uniform so far as we are concerned” (16). This

allows us to use experience to verify our belief, and beyond this “only those hypotheses which serve for the more accurate asking of questions” may be justified (ibid.).

From these considerations, Clifford draws three conclusions:

We may believe what goes beyond our experience, only when it is inferred from that experience by the assumption that what we do not know is like what we know. We may believe the statement of another person, when there is reasonable ground for supposing that he knows the matter of which he speaks, and that he is speaking the truth so far as he knows it. It is wrong in all cases to believe on insufficient evidence; and where it is presumption to doubt and to investigate, there it is worse than presumption to believe (ibid.).

It seems that from this standpoint Peirce’s realism is ruled out; certainly Clifford would not allow a belief to be justified on grounds of hope.

4.3.2 James’s will to believe

In stark contrast to the evidentialism of Clifford, William James calls his “Will to Believe” (1897, 1979) a “sermon on justification by faith” (13). While James formulates his position as concerning belief based on faith, he is centrally concerned with the same question as Clifford: how and when can we go beyond experience in forming beliefs.

James begins his treatment of this issue by laying out specific definitions of certain central terms.

James defines ‘hypothesis’ as “anything that may be proposed to our belief” (14). He then notes that a hypothesis can be either *live*, “which appeals as a real possibility to . . . whom it is proposed” (ibid.) or *dead*, which make no such appeal. In relation to Peirce and Clifford, a live hypothesis is capable of leading to a living doubt, whereas doubt

proposed in relation to a dead hypothesis would be mere paper doubt. For Maddy, all two-level views and their skeptical demand for a higher-than-science account of truth are dead hypotheses (or a collection thereof).

James continues by claiming an *option* is a choice between two hypotheses. Like the hypotheses themselves, such choices can be *living*—in which both hypotheses of choice are live—or else *dead* (ibid.). They may also be *forced* or *avoidable* and *momentous* or *trivial* (ibid.). A forced option is one in which the hypotheses exhaust the options of belief, for which there are no other possible hypotheses and for which agnosticism is not an option (15). Any non-forced option is avoidable. A momentous option is one that is unique, significant, and irreversible (ibid.). A trivial option is one that lacks one of these features. James calls an option *genuine* “when it is forced, living, and momentous” (14). It is options of this genuine sort that most concern James and our current inquiry. Though I would like to note that more than the consideration of whether an option is forced or momentous the consideration of whether a choice is living is less a feature of the relevant hypotheses themselves and more a feature of the background beliefs of the potential believer.⁶

⁶ This will become important below when we see that prior to the stage of Methodetic, choice between Peircean realism and its negation may be a live option, but after this stage it is seen that commitment to the goals of inquiry deadens the rejection of realism. Peircean realism will be seen indispensable to inquiry and thus the choice of whether or not to believe there is a single right answer to be found out is momentous, forced, but not living for the committed inquirer. Similarly, the two-level account of truth is dead to Maddy’s Second Philosopher because of her innate beliefs, because of her blindness to the Kantian challenge.

With these terms laid out, James goes on to reject Pascal's wager, which tries to force a Christian belief in God on grounds of potential infinite benefit (16). James notes that for most, given they have some prior religious commitment, this is not a living option. Further, for those without such commitment the option seems unforced, because agnosticism is a live hypothesis.

James goes on to argue, contra Clifford, that psychological factors beyond pure reason drive the majority of our beliefs. "It is only our already dead hypotheses that our willing nature is unable to bring to life again" (18). Hypotheses are made dead by commitment to a conflicting belief, and this occurs by both reason and other psychological causes. James takes belief in some of the greatest matters to be matters of faith, not reason. He holds this to be the case with a belief in truth: "Our belief in truth itself, for instance, that there is a truth, and that our minds and it are made for each other, what is it but a passionate affirmation of desire, in which our social system backs us up?" (19). And with this passional belief in truth comes a similar faith that we can progress to such: "We want to have a truth; we want to believe that our experiments and studies and discussions must put us in a continually better and better position towards it; and on this line we agree to fight out our thinking lives" (ibid.). Further still, James holds that if we believers in truth are challenged by the pyrrhonic skeptic we can give no reasoned response. It is simply that we prefer truth and the skeptic does not. Here we might build the case as similar to Clifford's treatment of the Muslim and the

Buddhist; each have adopted a belief that is comfortable to them, but the cause is accidental.

Having made the descriptive case that psychological factors beyond reason play a role in belief acceptance, James goes on to make the prescriptive case that not only do we at times will to believe but there are times that we ought and indeed must will to believe:

Our passional nature not only lawfully may, but must, decide an option between propositions, whenever it is a genuine option that cannot by its nature be decided on intellectual grounds; for to say, under such circumstances, 'Do not decide, but leave the question open,' is itself a passional decision,—just like deciding yes or no,—and is attended with the same risk of losing truth (20).

It should be noticed here that this prescriptive hypothesis is presented as not a part of a living option once one accepts truth, i.e., once the rejection of truth is dead, so too is the purely rational, evidentialist epistemology. James notes this and simply “parts company” with the skeptic (ibid.).

At this point, James joins Clifford in noting that if the measure of justified belief is objective evidence, which leaves no possibility of doubt, then no belief can be justified (22). The only certain truth is “that the present phenomenon of consciousness exists” (ibid.). Beyond this, objective evidence “is a mere aspiration or *Grenzbegriff* marking the infinitely remote ideal of our thinking life” (23). To believe one has objective evidence is itself a passional belief, but recognition of this is not to “thereby give up the quest or hope of truth itself” (ibid.). Rather, such inquirers act on a faith in truth and “believe

that we gain an ever better position towards [truth] by systematically continuing to roll up experiences and think" (24). At this point James has completely departed ranks with Clifford's ethics of belief: "It matters not to an empiricist from what quarter an hypothesis may come to him; he may have acquired it by fair means or by foul; passion may have whispered or accident suggested it; but if the total drift of thinking continues to confirm it, that is what he means by its being true" (24).⁷

James goes on to claim that the inquirer has two main concerns: attaining truth and avoiding error (24). He sees the (genuine) choice of prioritizing one of these concerns over the other as making a significant difference to the course of inquiry. "We may regard the chase for truth as paramount, and the avoidance of error as secondary; or we may, on the other hand, treat avoidance of error as more imperative, and let truth take its chance" (24). James claims that by restricting justified beliefs to only those for which we have sufficient evidence we prioritize avoiding error over the pursuit of truth. While James grants that this position is no more passionate than the alternative, he states that he also has "a horror of being duped; but [he] can believe that worse things than being duped may happen to a man in this world" (25). He goes on to point out that since error is unavoidable, an exaggerated fear of such is unhealthy.

⁷ Here it seems that James has equivocated between two meanings of truth. The first is the *Grenzbegriff* of a final truth that we hope to be moving toward; the second is the daily-assertible undefeated belief. We will find that Peirce see the difference between these two understandings of truth and notes that while we have evidence for the latter and not the former, both are needed for successful inquiry.

James allows that there are cases that do not present momentous options and are not forced. In such cases, he recommends withholding opinion so as to avoid at little cost potentially more costly false opinion. In such cases, he suggests the inquirer remain skeptical and continue to collect evidence until there is basis for a reasoned belief (26). But, carrying this skeptical attitude too far is what delivers a verificationist, evidentialist account of justification and truth (27). And, James holds that there are questions the answers to which demand we go beyond this skeptical attitude because of their momentous import.

James holds that moral questions are more pressing than those of everyday science, and they demand we take a stand with or without adequate evidence (ibid.). Here he separates science and ethics. Science studies existence, ethics studies value.⁸ “Science herself consults her heart when she lays it down that the infinite ascertainment of fact and correction of false belief are the supreme goods for man” (ibid.). Any challenge to this value system can be met only by restating the passion underwriting it or pointing out that it has produced other things of value. And yet, James seems to hold that science must maintain this value system in order to have any chance at truth.⁹

⁸ This should be recognized as a clear departure from the Peircean architectonic laid out above. For Peirce the study of values, esthetics, and ethics, is a division of coenosopic science, which in turn informs scientific methodology. Further, the only thing other than mathematics that informs esthetics and ethics is the phenomenology with which James claims all inquiry begins. Peirce believes, as shown above, that from the phenomenal nature of belief and doubt we can extract a value system to underwrite inquiry.

⁹ Again we have a departure of James from Peirce. Peirce agrees science must hold there to be a truth because without such a belief truth could never be attained, i.e., denying truth with the mysterian and anti-constructivist blocks the road to inquiry. But James seems to hold, in the spirit of his base variety of

James then turns to his ultimate conclusion that eternal salvation by way of religious belief presents a genuine option (30). For those to whom the belief is alive, the promise of eternal reward over eternal suffering is momentous, and the option is forced in that sustained agnosticism is practical atheism in precluding the reward of salvation. Thus, we have passional grounds for adopting the religious hypothesis despite an inability to base such on evidenced reason.

4.3.3 Peirce's hope for truth

Now, consider Peirce's claim that the belief in truth is based on a hope in light of the previous discussion. As seen above, inquiry must begin with propositions free from all actual doubt, for a proposition cannot be more satisfactory than being free of all actual doubt. Any challenge to such a satisfactory belief would be a mere paper doubt for Peirce. In James's terms such a challenge would fail to be a live hypothesis. In the absence of such live doubt, we can maintain our position on the thus-far firm boggy ground. In this Peirce agrees with James in opposition to Clifford.

Clifford is unwilling to allow a merely undefeated belief free from actual doubt. He demands each and every belief be based on observational evidence. But as pointed

pragmatism, that believing there is a truth to be found out will somehow help bring about the truth. In this, he makes analogy to the suitor whose belief that a woman must love him helps him exhibit the very characteristics that she comes to love (28). "And where faith in a fact can help create the fact, that would be an insane logic which should say that faith running ahead of scientific evidence is the 'lowest kind of immorality' into which a thinking being can fall" (29). James fails to note it is not a belief in truth that helps produce truth except to the extent that its rejection necessary blocks truth.

out in the above discussion of fallibilism, there is no such evidence in support of the hypothesis of realism.¹⁰ For Clifford it is an ethical matter that all beliefs should rest on evidence. But it is unclear where this ethical duty comes from. Is it itself based on evidence? For Peirce, ethics does indeed inform the logic of inquiry but this ethics concerns what is right and wrong in light of the values established via esthetics. But the lessons passed to the methodetic and critic from these more coenosopic science are circumscribed to the coenosopic or philosophical divisions of science; these are separate and above the practical sciences. For Peirce esthetics teaches us that the value to be had for inquiry is fixing beliefs against doubt. It strikes me that Clifford's ethical concern is practical in nature. Peirce and his architectonic separates practical ethical concerns from the ethical concerns driving inquiry: "it is perfectly true that the belief which I shall do well to embrace in my practical affairs, such as my religion, may not accord with the presupposition which a sound scientific method requires me provisionally to adopt at this stage of my investigation" (6.216). It seems at bottom Clifford's ethical concern is based on what James identifies as a preference for avoiding error over attaining truth.

Peirce joins James in privileging the pursuit of truth over the avoidance of error.

While it is true Peirce sees inquiry as aiming to make us immune to error, this is only because error leads to doubt and this spurs further inquiry. And, the object of the

¹⁰ It is a further consideration whether Clifford would accept Peirce's realism once it is fully laid out. Consideration of this takes us too far afield to consider currently

method of science is the settlement of opinion by way of reason (as opposed to one of the other methods which only feign reason) and the sole goal of reason is to find out from what we do know, i.e., from those beliefs we hold that are free from actual doubt, things we do not know. We aim for truth and we desire to avoid error only because error is a sign we lack truth. If we were indeed to remain agnostic when absent adequate evidence as Clifford would wish, we would block the road of inquiry.

Thus, Peirce joins James in rejecting Clifford's evidentialism. Just as James sees a need for certain beliefs to be based on faith, Peirce sees a need for realism based on a hope for truth. This hope cannot be supported by evidence and thus is not a theoretical/empirical hypothesis in Maddy's terms, but is necessary because the road of inquiry is blocked without such a belief. However, Peirce does not accept James's claim that the belief in truth is only one more passional belief. Rather, without such a belief in truth, inquiry can never be successfully carried out (and thus Peirce can respond to the pyrrhonic skeptic in a way James and Maddy cannot). Thus, a commitment to realism is an indispensable part of inquiry; in Maddy's terms it is a pragmatic/conventional hypothesis. Given that a belief in truth is indispensable to the very pursuit of inquiry, internal to inquiry there could be no stronger argument for realism. Because the grounds for holding hypotheses of Maddy's two sorts are categorically different in kind, in what follows I will use 'warranted' to refer to those hypotheses allowed or required by inquiry which go beyond evidence and I will use 'justified' to refer to those

hypotheses based on evidential support. Thus, we are warranted but not justified in holding a belief in truth and this warrant is stronger than any justification we could have for it.

As seen in chapter 2 above, Maddy similarly rejects evidentialism as seen in her treatment of Bas van Fraassen's constructive empiricism. His empiricism refuses to extend belief to anything beyond the observable, but Maddy points out that this is not a naturalistically respectable opinion and is based instead on an a priori commitment to empiricism. Maddy is willing to extend belief beyond the observable and this is the grounds for her admitting pragmatic/conventional hypotheses. However, Maddy does not take a commitment to realism to be among these acceptable pragmatic/conventional hypotheses. Moreover, Maddy rejects Quine's arguments for the indispensability of mathematical entities to science. This rejection presents a potential argument against Peirce's claim that we are warranted in holding a belief in truth because it is indispensable to inquiry; thus, I will consider her arguments against Quine and whether they address themselves similarly to Peirce's indispensability claims.

4.4 Indispensability

Maddy argues against Quine's claim that because mathematical posits are indispensable to science these entities are confirmed along with the scientific theories that utilize them via confirmational holism. She claims Quine's confirmational holism is descriptively false in that scientists do not extend the same ontological status to all

parts of their scientific theories. Sometimes scientists make use of mathematical entities as mere instrumental posits that are not confirmed along with other parts of successful theory. In these cases the mathematics are adopted on pragmatic/conventional grounds and are not open to evidential confirmation. Maddy does not object to the use of mathematics in science or even the indispensability of such; she denies only that this delivers any claim to mathematical realism.

The previous section suggests that Peirce's commitment to realism is not made on theoretical/empirical grounds but on the same pragmatic/conventional grounds that Maddy sees mathematical posits often made on. Peirce admits the hope for truth cannot be met with evidential support. It seems from this that Maddy should be willing to accept Peirce's realism as a pragmatic/conventional hypothesis. But, this turns on two issues. First, we must address the issue of whether realism truly is indispensable to inquiry. Maddy does not believe mathematical inquiry requires a commitment to truth, and she even claims that a commitment to mathematical realism is often motivated by a misguided attempt to avoid bans on various mathematical methods. Maddy sees a need to avoid blocking the road to inquiry, but she doesn't see a commitment to realism as following from this. This leads to the second issue that remains to be worked out: more needs to be said about the nature of Peirce's realism and what it entails. It may be, as I will show in the next chapter, that Peirce's realism is more ontologically innocent than is the realism denied by Maddy.

In the next chapter I consider Peirce's realism in more detail. In so doing, I show that he has a two-level conception of truth: an empirical level and a theoretical level. The empirical level is the work-a-day conception of truth as undefeated assertability, i.e., beliefs free from all actual doubt, while the theoretical level is the indispensable hope for truth considered above. Further, I consider various concepts connected to this realism such as its social nature and the ability for the method of science to self-correct. Ultimately, I show Peirce's realism to commit us to a conception of truth akin to James's *Grenzbegriff*. In Kantian terms this realism is a regulative ideal that is necessary for the guidance of scientific inquiry. I then claim that this regulative realism is not only consistent with Maddy's treatment of naturalistic inquiry but is required by such. But, before moving on to the next chapter, a quick word on what this chapter has delivered naturalism beyond what was given by Maddy.

4.5 Conclusion

While Maddy suggests that the naturalist has appeal to both theoretical/empirical hypotheses open to evidential confirmation and pragmatic/conventional hypotheses necessary for inquiry but not open to evidential confirmation, she says little in the way of determining when hypotheses of this latter sort are allowed. In the above, it was shown that Peirce gives more guidance on this issue. Any hypothesis the rejection of which would block the road to inquiry and which is free from actual doubt must be accepted despite a lack of evidential support. This

does not justify a belief in such hypotheses but it delivers a warrant stronger than can be had by any evidence. Among these warranted hypotheses is a belief in truth, a commitment to realism.

5. Peircean realism

In the previous chapters it was pointed out that Peirce sees the inquiry method of science as committed to realism. With Peirce's treatment of science now laid out in its various components we can consider in detail the nature of his realism. To do this, I will consider two questions, the answers to which will help illuminate this realism. First, how does Peirce's commitment to realism sit with his fallibilism? Second, how should Peirce's realism be viewed in light of Maddy's denial that naturalism is committed to realism? To answer these questions, I will lay out Peirce's understanding of truth, the self-corrective methods of science, and the role played by the community of inquirers. In the course of doing so, I will claim that Peirce has a two level view of truth, which presents a realism consistent with both his fallibilism and Maddy's naturalism.

5.1 Fallibilism and truth

As Konstantin Kolenda (1977) points out, "to take fallibilism seriously is to create problems for the notion of truth. How is truth to be understood if all empirical statements are fallible?" (85). If the best we can do is know that a given belief holds for the time being but must also be willing at any point to give up this belief, what does it mean to claim the belief to be true? If the most that can be said for a given belief is that it is currently undefeated and held by the community of inquirers, it seems there is an opening for relativism. It is not clear how such a conception of truth would differ from those conceptions of truth that accompany the modes of inquiry Peirce rejects. Each of

these modes of inquiry produces beliefs by way of accident and is thus rejected. But, if the beliefs held true by the community of inquirers are due to a current, contingent state of evidence, then a different community of inquirers could be equally committed to a set of beliefs inconsistent to those held by the first.

Indeed, Peirce speaks at times as if undefeated belief is the most that can be expected: "If you absolutely cannot doubt a proposition — cannot bring yourself, upon deliberation, to entertain the least suspicion of the truth of it, it is plain that there is no room to desire anything more" (6.498). Because the goal of inquiry is to form beliefs immune to doubt, via the pragmatist doctrine of meaning, a belief currently free of doubt is the best that can be had. That is, there is at the moment that a belief is free from doubt no practical difference between a true belief and a merely undefeated belief. This seems consistent with the doctrine of fallibilism, but it seems to be less than is needed for a claim that science is committed to realism.

However, this concern over relativism need not trouble those committed to the method of science. Progressing to the method of scientific inquiry from the other methods of inquiry involved giving due weight to the social impulse that raises doubt when faced with disagreement in the course of inquiry. While a community of inquirers under the method of authority may maintain their treasured beliefs despite disagreement from another community, those involved in scientific inquiry take any

disagreement seriously. Doing this leads to doubt and further inquiry. Thus, while the community is entitled to hold their currently well-investigated beliefs true, there is a greater drive to knowing the truth, to forming stable beliefs based on a desire for something more than *currently* stable beliefs.

Peirce often speaks of the higher desire for permanently stable beliefs when describing the goals of science:

Science is to mean for us a mode of life whose single animating purpose is to find out the real truth, which pursues this purpose by a well-considered method, founded on thorough acquaintance with such scientific results already ascertained by others as may be available, and which seeks cooperation in the hope that the truth may be found, if not by any of the actual inquirers, yet ultimately by those who come after them and who shall make use of their results (7.54).

Here Peirce seems to speak of truth as if it were more than merely undefeated belief. The pursuit of this higher truth is tied to application of the proper method of inquiry and cooperation among inquirers. This community of inquirers is not limited to those in a given community; it is not even limited to those alive at a given time. The beliefs that are sought are those that are immune to doubt not just given the current state of affairs but in the long run.

However, Peirce readily admits that we cannot know when we have reached the truth, as opposed to merely hold an undefeated belief, i.e., one currently free of doubt (e.g., 7.77). Thus it seems strange when Peirce seems to talk of real truth that goes beyond a belief that is currently free from doubt. This particular strangeness decreases

if we conceive of those truly stable beliefs sought in the long run as beliefs that accord with reality. This accordance with reality is what moves the concept of truth beyond being merely dependent on the current state of inquiry, and it is by way of reality that Peirce defines the goal of inquiry:

The final settled opinion is not any particular cognition, in such and such a mind, at such and such a time, although an individual opinion may chance to coincide with it. If an opinion coincides with the final settled opinion, it is because the general current of investigation will not affect it. . . The perversity or ignorance of mankind may make this thing or that to be held for true, for any number of generations, but it cannot affect what would be the result of sufficient experience and reasoning. And this it is which is meant by the final settled opinion. This therefore is no particular opinion but is entirely independent of what you, I, or any number of men may think about it; and therefore it directly satisfies the definition of reality (7.336 ftnt 11).

Here again we see the pragmaticistic doctrine of meaning come in to play: the concept of reality could not mean anything beyond what is believed by the community once belief has become permanently immune to doubt.

This gives us a realism to which Peirce sees inquiry, and thus science, and thus naturalism to be committed. However, there is still a perverseness in this commitment to a concept of truth as accordance to reality, if at any given point we cannot know we have reached this end of inquiry and thus can be justified in nothing more than holding our current beliefs to be undefeated given the current state of inquiry. The key to removing this tension between fallibilism and realism is not to be had in showing how we could ever move from merely stable beliefs to real truth but rather to recognize that for Peirce there are two different conceptions of truth at play here.

5.2 Two levels of truth

Others have noted that Peirce's account of scientific inquiry includes two levels or two types of truth. Kevin Hoover (1994) points out that Peirce believed "the life of science—and the life of philosophy as well, for he hoped for a scientific philosophy—was the life of inquiry... For him the workaday sense of 'truth' is indeed the coherence of our beliefs. If coherence were all there was to it, the door would be open to relativism. . ." (292). But, when inquirers find their beliefs differ from those of others they are confronted with doubt and "truth then must have another sense: ultimately fixed belief, belief that resolves all doubts and resolves all contradictions. No one can know that they possess such a truth; it nonetheless serves as a regulatory ideal for inquiry" (ibid.). Here, Hoover suggests that what can be known at any given point by the fallible scientific inquirer is only that currently held beliefs cohere to one another and to what is believed about reality. This is a sense of truth consistent with fallibilism. However, because inquirers do not collapse into defeat or pessimism when their apparently coherent beliefs are challenged, it seems there is something more that can be had: ultimately, permanently fixed opinion.

Hoover expands on these two conceptions of truth:

On the one hand, truth is thus a matter of correspondence between the proposition and the facts of the world. . . .Peirce rejects metaphysical truth as a source of confusion. And, although he never stops using the term 'truth', he suggests that we could just as well replace it with 'belief unassailable by doubt' and be done

(5.416). Peirce's notion of truth is thus hardly different from Dewey's (1938:7 *passim*) 'warranted assertability' . . . (296).

This is the fallibilistic, workaday sense of truth. "On the other hand, truth also is a regulatory ideal for inquiry. Although he does not often feel the need to make such a distinction, he does not hesitate to speak of Truth . . . truth is what agrees with the ultimate propositions of a community of inquirers in the fullness of time (5.416, 5.565, 5.569, 7.187)" (ibid.).

I will follow Hoover in holding that there are two different conceptions of truth at work in Peirce. The first, call it truth₁, is the workaday sense of truth as warranted assertability. Truths of this sort are merely those beliefs that have been subject to test and are not currently doubted. They can, and indeed must, always be given up when there is reason to doubt them, whether this doubt arises through new empirical evidence, discovery of inconsistency within the currently held set of beliefs, or disagreement from other inquirers. Truth₁ can be achieved by way of the method of science and is clearly consistent with Peirce's fallibilism but also clearly weaker than the realism he sees as a necessary aspect of scientific inquiry. The second conception of truth, call it truth₂, is defined by the beliefs that will, or would, be arrived at once inquiry has ceased. These truths are beliefs that will be fixed forever, are under no threat of being undermined by doubt. These are the truths that science seeks, it is the reason things held as true in the first sense are challenged by doubt. Truths of this

second sort give us a definition of reality and thus deliver us realism. Truth₂ serves as a regulative ideal that guides the everyday working of science and provides a goal that every scientist, regardless of department, seeks. I will say more about truth₂ as a regulative ideal below, but first a few more things should be said about what these two conceptions of truth are and how they relate.

Susan Haack (1977) explains Peirce's conception of truth₂ as

that opinion on which those who use the scientific method will, or, perhaps, would if they persisted in long enough, agree. Since the scientific method is constrained by real things, truth is correspondence with reality. And since the scientific method leads to stability of belief, the truth is satisfactory to believe, in the sense that a true belief will not be thrown, by subsequent experience, into doubt. Although scientists can never be sure that they have reached the truth, nor that, as they replace old hypotheses by new, they are approaching truth, nevertheless, truth is the aim of science (78).

If we read this as a claim about Peirce's truth₂, Haack is noting that we can never have evidence which justifies a belief as having obtained truth₂ and yet this truth is still the aim of science.

The claim that there are multiple conceptions of truth at work in Peirce's account of science should not be mistaken for Peirce's claim that different idioscopic sciences may have different ontologies, different specific methods, and different goals. Peirce does admit that

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; but

all those different conceptions have in common something very marked and clear. We all hope that the different scientific inquiries in which we are severally engaged are going ultimately to lead to some definitely established conclusion, which conclusion we endeavor to anticipate in some measure. Agreement with that ultimate proposition that we look forward to, — agreement with that, whatever it may turn out to be, is scientific truth (7.187).

Here, Peirce allows that the truths of physics may be given in terms of reduction to the physical while truths of the psychological sciences may be given in terms of non-physical mental states. However, this does not mean that within each of these idioscopic sciences the ultimate goal is different. Each of these sciences aim for beliefs that cohere to those beliefs that would be held at the end of inquiry. Similarly, these divergent idioscopic conceptions of truth do not preclude an eventual unified science. For, after all, if the ultimate goal is agreement with reality, i.e., with the ultimately arrived at stable beliefs at the end of inquiry, we should expect eventually the beliefs among these various sciences converge or take forms that are merely restatements of one another.

Konstantin Kolenda (1977) does not see Peirce as committed to two different conceptions of truth:

We should ask ourselves whether the appeal to the ultimate agreement of the community of investigators was meant to give us the *criterion* or the *meaning* of truth. A criterion, to be useful, must be accessible, but that one certainly is not. Consequently, we may conclude that what Peirce is proposing instead is a definition, the meaning of truth. But if so, what is to serve as a criterion of truth? No general answer seems possible here. It all depends on what question one is trying to answer, what problem to solve. To wit, the other gate of reason becomes relevant; we must consider the purpose for which a given inquiry is initiated (99).

Here, I take Kolenda to be pointing out that truth₁ gives us a *criterion* of truth, the conditions under which we are justified in claiming a given belief true: it is currently unchallenged by doubt. For her, Peirce's truth₂ gives us the *meaning* of truth. She seems to hold that such a conception of truth as ultimate agreement within the community at the end of inquiry cannot give us a criterion of when we are justified in claiming a belief true. This much seems correct.

However, I maintain my position, with Hoover, that truth₁ and truth₂ are indeed two different conceptions of truth, each with their own meaning and criteria. Truth₁ consists of any and all those beliefs that are based on evidential justification regardless of whether they are posited in the physics laboratory, psychology laboratory, logic class room, or at the pulpit. The naturalist understands when the criteria are met for claiming a belief to be true in this way. Similarly, the naturalist knows that such claims *mean* that the beliefs are currently free from doubt. Thus, truth₁ has both meaning and criteria for when beliefs should be asserted to have attained such a status. Truth₂ gives us a more robust meaning. It explains what is meant by the ultimate goal of science; it explains realism. Further, while it may seem that such a conception of truth may never give us criteria for when we are justified in asserting a given belief to be true in this way, in being a regulative ideal truth₂ provides us with the criteria of science itself. Truth₂ explains the situations under which a truth₁ should be abandoned and why, why the

community of inquirers is important, and why disagreement matters.¹ Thus, I will maintain that, on pragmatic grounds, there are two different conceptions of truth operant in Peirce's understanding of science.

Having made clear the difference in the two conceptions of truth in Peirce's work, the two questions with which I opened this chapter look a bit different. Truth₁ should be clearly consistent with Peirce's fallibilism. Likewise this conception of truth seems consistent with Maddy's naturalism and too weak to underwrite realism. Thus, these two questions are concerned with truth₂. To evaluate whether truth₂ is consistent with fallibilism and with Maddy's naturalism, further consideration must be given this stronger conception of truth.

5.2.1 Truth₂

Armed with the idea that Peirce operates with two different conceptions of truth, some of Peirce's more confident claims for truth can be understood without seeming to challenge his fallibilism. When speaking about the fact that beliefs attributed truth₁ are

¹ It is also not the case that we can never meet the criteria for positing truth₂. As seen above and discussed again below, the criteria for positing truth₂ are actually much more easily met than are the criteria for positing a belief as true₁. Truths of the first sort are justified only after they are thoroughly checked for error and disagreement. The criterion for positing truth₂ is met by being an indispensable aspect of inquiry. While we may never know that we have reached truth₂, we are required to believe in such a truth. Given that truth₂ is delivered by coenosopic investigation and this is more easily done than and done prior to idiosopic investigation, the meaning and criteria of truth₂ are not only different from those of truth₁ but more easily realized. It seems that blocking this line of argument requires taking a position akin to Clifford's evidentialism.

always open to modification, until truth₂ has been reached, Peirce claims that science will inevitably reach this point:

I will assume, then, that scientific doubt never gets completely set to rest in regard any question until, at last, the very truth about that question becomes established. Taking the phenomenon as a whole, then, without considering how it is brought about, science is foredestined to reach the truth of every problem with as unerring an infallibility as the instincts of animals do their work . . . (7.77).

I take it that this last claim about us being foredestined to reach truth₂ is about the human instincts to avoid doubt which lead from the method of tenacity through the other methods to settle finally in the method of science. Remembering that Peirce's treatment of the methods of inquiry was given in phenomenological terms, it is a part of our basic psychological makeup to seek stable beliefs immune to doubt. This instinct, when met with the proper method will inevitably lead to truth₂.

Peirce is so confident in making this statement that he claims the pursuit of truth₂ is *infallible*. On its face, this seems shocking given Peirce's repeated insistence that all of our beliefs are merely fallible. He goes on to claim that this instinct:

is not (always considering it in its entirety,) of a rational nature, since, being infallible, it is not open to criticism, while 'rational' means essentially self-criticizing, self-controlling and self-controlled, and therefore open to incessant question. But this instinctive infallibility is brought about by the exercise of reason, which is all along subject to blunder and to go wrong (ibid.).

Our instinct to seek stable, fixed beliefs can go wrong because of errors in reasoning about our current beliefs, e.g., failing to recognize a reason to doubt a given belief.

However, the instinct to seek stable beliefs is itself always driving inquiry:

Now that which is necessarily inerrant may in a somewhat indefinite sense be fairly called *infallible*. Thus, a skillful use of fortuitous events will bring infallibly correct replies to an endless series of questions. This kind of infallibility, which may [be], for aught we know, not to say quite probably is, the infallibility of the instinct of animals, is certainly the only kind of infallibility that can be attributed to the results of science, inasmuch as we can so little know when the very truth is reached that even the second law of motion is at this moment under indictment. Moreover, when we come to subject the processes of science to criticism, we shall find it impossible to deny that a conditional form of this kind of infallibility must be attributed to science (ibid.).

It may still seem strange to claim science infallible in any sense if even its most established beliefs (truth₁) can be brought into doubt. However, the process itself, the fact that science will eventuate in truth₂ is infallible in a sense. This sense of infallible is noted by Susan Haack (1977) when she points out Peirce's "habit of using 'infallible' and 'indubitable' to mean 'not really doubted'" (72). It is not really doubted that the method of science will eventuate in truth₂.

However, I think Haack slightly misstates the case here. If Peirce uses infallible to mean not really doubted, then any truth₁ could be claimed to be known infallibly, as it is not currently doubted. Rather, I think the case is that Peirce uses infallible to mean unable to be doubted. This again may seem inconsistent with fallibilism; we have seen above and will consider again below that the inquiry method of science is committed to the idea of truth₂ and inevitable progress toward it. While we could doubt this, we cannot doubt it once we are committed to inquiry. To give up this belief is to give up inquiry all together. While this itself is allowable, once we are committed to the inquiry

method of science, we cannot doubt that such will lead to truth², else we give up inquiry altogether.

This infallibility of the method of science does not mean we need not be concerned with how we conduct inquiry. Peirce notes this in questioning his own claim that inquiry is infallible: What are we to make of

the argument that science is predestined to reach truth, and that it can therefore make no difference whether she observes carefully or carelessly nor what sort of formulae she treats as reasons. The answer to it is that the only kind of predestination of the attainment of truth by science is an eventual predestination, — a predestination *aliquando denique*. Sooner or later it will attain the truth, nothing more (7.78).

Appealing again to the instinct we have to fix beliefs against error, Peirce continues in this paragraph to note that even “the most pigheaded and passionate of men” committed to the method of tenacity will eventually come around. The other three methods of inquiry are after all not stable.

Because of our desire to avoid the shock of error, which Peirce at times comes quite close to giving an evolutionary explanation of, we naturally progress through the methods of inquiry to the method of science. And,

[s]uch, at least, must be our assumption, if we are to adhere to our faith in the infallibility of science. So far as the assumption goes beyond ordinary everyday experience, it rests on the deeper assumption that that which experience has done for generations of men, who a thousand years ago were substantially in that man’s plight, it would do for an individual who were to go through the experiences that those generations have gone through. . . Granting, therefore, that it is of the nature of

experience . . . to make the mind unceasingly agitate doubt until it finally comes to repose in the true belief,—which is only a more developed way of formulating our belief in the infallibility of science, it is entirely uncertain *when* the truth will be reached. It will be reached; but only after the investigator has come, first, to a conception of the nature of truth, and to a worship of it as the purest emanation of That which is creating the universe, and *then*, to an understanding of the right method to absorb it from the universe of experience (ibid.).

Once we have done the coenosopic work of esthetics and logic, we are committed to believing science will lead to truth₂. This truth₂ “will infallibly be reached sooner or later, if favorable conditions continue; but man having a short life, and even mankind not a very long one, the question is urgent. How soon? And the answer is, as soon as a sane logic has had time to control conclusions. Everything thus depends on the rational methods of inquiry” (ibid.). Peirce goes on to claim that continually refining the methods of science expedites the road to truth₂ much as a tow boat expedites the inevitable arrival of a derelict vessel reaching shore. It will happen at some point regardless, but we as inquirers can use the developed methods of inquiry to bring about the end more quickly.

Central to Peirce’s conception of truth are these ideas that the methods of science are self-correcting, that there is an important role played by the community of inquirers, and that the very concept of truth₂ is an indispensable part of the inquiry method of science. Accordingly, to answer the two questions posed at the beginning of this chapter these three concepts need to be considered more fully.

5.3 Self-corrective methods of science

Part of the confidence Peirce has in science and its inevitable arrival at the truth₂ is based on the fact that science employs the correct methods of inquiry and that it modifies these methods over time. To begin with, the method of science was arrived at by finding the other methods of inquiry faulty. If an inquirer (or a community of such) persisted with one of the other methods of inquiry, all that could be assured is that currently held beliefs would be maintained or modified to accord with whatever is already thought. New beliefs would be added only if they were consistent with these beliefs. These methods would constantly be challenged by error and the only way to maintain beliefs free of doubt is to pigheadedly hold to the method of choice. Such a method could not provide any confidence that beliefs could move past truth₁ status.² Further, the inquiry method of science takes all doubt seriously and if there is reason to believe that a given method regularly produces false beliefs, produces beliefs that are quickly met with error, or produces highly controversial beliefs, then we have reason to inquire into other methods that out-perform the method now in doubt. This process is on-going and will over time lead to a set of both general and specific methods that more readily produce stable beliefs. This self-correction process is necessary, given that we cannot attribute truth₂ to the currently held methods, if truth₂ is ever to be reached. As Peirce puts it: "Logic, once informed by Esthetics and Ethics, is concerned with methods

² Or maybe more accurately, any claim that beliefs so produced move past truth₁ will be continually met with doubt.

of sound reasoning and showing such methods to lead eventually to the truth, and these methods provide the only acceptable means of attaining knowledge" (2.200).

Thus, science is primarily about methods not findings: "a scientific proposition is merely something you take up provisionally as being the proper hypothesis to try first and endeavor to refute. The only belief you—as a scientific man—have about it is that it is adopted in accordance with a method which must lead to the truth in the long run" (6.216). Peirce often speaks of faith and hope. The faith and hope of the scientific inquirer is in the method of science and that it will eventually and inevitably produce truth₂.

Further, these methods and their findings need not be held unanimously among the inquirers. Indeed disagreement is central to pointing us in the direction of truth₂ by revealing a belief currently given truth₁ status to be merely undefeated at a given time yet still open to potential doubt.

Disputes undoubtedly occur among those who pursue a proper method of investigation. But these disputes come to an end. At least that is the assumption upon which we go in entering into the discussion at all, for unless investigation is to lead to settled opinion it is of no service to us whatsoever. We do believe then in regard to every question which we try to investigate that the observations though they may be as varied and as unlike in themselves as possible, yet have some power of bringing about in our minds a predetermined state of belief. This reminds us of the species of necessity which is known as fate (7.334).

The method of scientific inquiry has the ability to continually settle any doubts that might be raised until we finally arrive at truth₂.

Part of the confidence that the methods of scientific inquiry will self-correct is based on the role induction plays in such inquiry and the fact that “if it be persisted in long enough, [induction] will assuredly correct any error concerning future experience into which it may temporarily lead us . . . because it is manifestly adequate, with the aid of retroductions [abductions] and of deductions from retroductive suggestions, to discover any *regularity* there may be among experience” (2.769). If the method of scientific inquiry produces a belief held to be true₂ but is only true₁, further application of the method will bring these errors to light.

It should be obvious that what is not included in these claims that the methods of scientific inquiry correct themselves is that they do so easily or quickly. There is no guarantee that a single inquirer would be able to apply these methods so as to regularly discover all errors of belief let alone arrive at a complete conception of the truth₂. But, this need not be the case, because the method of science is a necessarily social undertaking.

5.4 Community of inquirers

The community of inquirers plays an essential role in the method of science. This method is better at establishing stable beliefs because it takes the disagreement of

others seriously. By assuming the instinct to establish stable beliefs so as to avoid error, the scientific inquirer is driven to respect the beliefs of others and respond to disagreement by doubting held beliefs and subjecting such beliefs to further inquiry. However, this community is not limited to only those from a given locale or those undertaking shared enterprises; rather this community is timeless. As seen in the quote from 7.54 above, science builds on beliefs passed down from previous inquirers and seeks cooperation of contemporary inquirers with "the hope that the truth may be found, if not by any of the actual inquirers, yet ultimately by those who come after them and who shall make use of their results." Since the goal of science is not merely temporarily stable belief but ultimately stable belief at the end of inquiry, the community involved in inquiry extends indefinitely into the future.

While it is possible that the community of inquirers ends before truth₂ is established, Peirce holds that the goal of establishing the truth₂ means we are committed to the idea of an ever on-going community of inquirers:

It seems to me that we are driven to this, that logicity inexorably requires that our interests shall *not* be limited. They must not stop at our own fate, but must embrace the whole community. This community, again, must not be limited, but must extend to all races of beings with whom we can come into immediate or mediate intellectual relation (2.654).

He goes on in this section to note that while we can never know the community of inquirers will last until truth₂ has been achieved, "there is nothing in the facts to forbid

our having a *hope*, or calm and cheerful wish, that the community may last beyond any assignable date" (ibid.).

The cooperative effort of this community of inquirers is both what separates it from other methods of inquiry and, in large measure, what ensures the success of inquiry.

[I]f I am asked to what the wonderful success of modern science is due, I shall suggest that to gain the secret of that, it is necessary to consider science as living, and therefore not as knowledge already acquired but as the concrete life of the men devoting the sum of their energies to refuting their present errors, doing away with the present ignorance, and that not so much for themselves as for future generations, and all other requisites for the ascertainment of truth are insured by that one (7.50).

While the methods of scientific inquiry will correct themselves eventually, this correction may take too long to benefit an individual inquirer. However, when these methods are adopted by a group of individuals checking each other's beliefs and the beliefs of those who came before them while laying the groundwork for similar future belief checking, the methods employed will discover and correct error much more quickly.

Nonetheless, the cooperative efforts of a community of inquirers using the correct methods do not ensure we arrive at truth₂ any more quickly. It does ensure any errors in currently held beliefs will be more quickly realized and modified. However, because there are innumerable possible hypotheses to be considered, we cannot know (truth₁) how quickly we approach truth₂, only that we are more quickly finding and

modifying errant beliefs. Nonetheless, we are committed to the hope that the community will last long enough to realize truth₂. This hope is required because of the necessary role played by the community of observers in approaching the truth₂, a belief in which is an indispensable part of proper inquiry.

5.5 Indispensability/paper doubt

While it has been pointed out in previous chapters that Peirce sees a commitment to realism to be an indispensable part of inquiry, it is worth revisiting this claim here briefly. Peirce does not mince words in making this point. He claims that without a belief in truth “reasoning and thought would be without a purpose” (2.135). Once we set on the path of inquiry for a given question, once we decide to seek a stable belief on a matter, we are committed to believing that there is a single right answer that can be found out on the matter. If we did not so believe, there would be no reason to begin the inquiry in the first place. And, the belief here is not that the best we can have is a series of temporarily stable beliefs. Were that the case, there would be no reason to move to the method of science as opposed to tenaciously denying all countervailing evidence. When we begin inquiry with the method of science we give ourselves away as believers in truth₂, as realists. Stronger still, since we are by our nature, instinctually driven to the method of science by our fear of the shock of error, we are all realists; some of us are merely in the closet with regards the matter.

Here it is tempting to roll eyes and throw hands. Surely Peirce cannot believe that everyone is a realist and that due to our psychological nature there is no option but to be a realist. Rubbish! But, understanding the nature of this claim is a crucial point in delivering Peirce's realism. The belief that is required is that there is a single right answer to be found out with regards any inquiry. Tracing this out, the belief is that there is a single correct account of the world that we seek. Only beliefs based on these right answers, only on this correct account will be permanently immune to the shock of error. Since inquiry seeks permanently stable beliefs there must be a single correct account of the world, else the pursuit itself makes no sense. This single correct account is truth₂ and it explains realism. This means Peirce's realism is decidedly different than other versions of realism. It is truth that explains reality not reality the explains truth: "how futile it was to seek a definition of truth in the more remote reality" (482.10). This priority of truth over reality is necessitated by the pragmaticistic doctrine of meaning; what could 'reality' mean beyond that which is represented in the ultimately agreed upon and permanently stable beliefs held at the end of inquiry?

But, if a commitment to realism is necessitated by the very pursuit of inquiry, then why all the debate over realism? Why the nominalists, anti-realists, relativists, and skeptics? The presence of these various debates can be explained by the fact that they are disagreements over highly specific accounts of realism and what they entail. Peirce's realism is robust but innocent. Truth₂ is far more than merely warranted

assertability or undefeated belief but because truth explains reality as opposed to the other way around, it is ontologically innocent. What is indispensable to inquiry is merely the belief that there is a right answer to be had. This is Peircean realism, and anyone and everyone who undertakes inquiry, as opposed to wandering aimlessly through an epistemic wasteland, does believe there is a stable answer to be found. Anyone claiming to pursue inquiry while denying there is a right answer, a realism of this Peircean sort fools themselves or lies.

We might imagine or even know someone who claims not to be a Peircean realist, to be a through and through skeptic, but Peirce dismisses such claims as mere rhetoric uninformed by the coenoscopy of inquiry. "Many and many a philosopher seems to think that taking a piece of paper and writing down "I doubt that" is doubting it, or that it is a thing he can do in a minute as soon as he decides what he wants to doubt. Descartes convinced himself that the safest way was to "begin" by doubting everything, and accordingly he tells us he straightway did so, except only his *je pense*, which he borrowed from St. Augustine. Well I guess not; for genuine doubt does not talk of *beginning* with doubting. . . ." (6.498). Genuine doubt begins with the shock that occurs when we find one of our beliefs to be in error. Anything presented as doubt that does not so begin is mere paper doubt. It is a game played out on paper, in writing, in rhetoric that is divorced from the other activities of those making the claim. Even Hume readily admitted he could not doubt induction while in the billiard hall. Similarly,

whether the question of realism of any sort enters the head of the practicing idioscopist, the researcher's activities would have more to do with the Hatter's tea party than with science if the researcher did not truly believe there was a truth₂ to be discovered and to be discovered by the methods of science.

We now find ourselves in a truly strange position. The only sort of truth we can ever have evidence for, can only be justified in claiming for our beliefs is mere undefeated opinion. We must hold all of these beliefs as fallible and be ready to investigate them further when any doubt sneaks in. However, there is a much stronger variety of truth that we can have no evidence for; we could never be justified in claiming any of our beliefs to have obtained this sort of truth. And yet, the warrant we have for believing in the truth of this second sort is as strong as can be; it is certain, necessary, required. While the justification we have for claiming any belief to have obtained truth of the first sort can always be undermined by further evidence, the fallibilism that attends truth₁ necessitates an infallible (i.e., impossible to doubt) truth₂. While this seems strange indeed, appealing to a distinction in Kant between a constitutive ideal (truth₁ being of this sort) and regulative ideal (truth₂ being of this sort) may provide the final piece required to make Peirce's claims about realism clear.

5.6 Regulative realism

In the quotes above, Kevin Hoover refers to truth₂—“the ultimately fixed belief, belief that resolves all doubts and resolves all contradictions” —as a regulative ideal (292). This concept of a regulative ideal is contrasted to a constitutive ideal and is taken from the work of Immanuel Kant. Considering Kant’s treatment of these two different kinds of ideals in detail should make clear that Peirce’s truth₁ is constitutive and truth₂ regulative.

In the *Critic of Pure Reason*,³ Kant (1781, 1952) states: “I accordingly maintain that transcendental ideas can never be employed as constitutive ideas, that they cannot be conceptions of objects, and that, when thus considered, they assume a fallacious and dialectical character” (193). A bit of explanation is required here to connect this claim to what has been done above. Transcendental ideas are those that go beyond possible experience and constitutive ideas are those that provide conceptions of real objects. Truth₂ goes beyond all possible experience. We can never know a given belief has attained more than truth₁ status. It might be thought that at the end of inquiry the community of inquirers could stand firm in their beliefs as true₂, but it should be remembered that i) we cannot know but only hope that we will eventually reach the end

³ This work by Kant is generally translated as the *Critique of Pure Reason*. I use ‘Critic’ here instead of ‘Critique’ so as to follow Peirce, who is adamant that ‘Critic’ is the correct translation. He claims that it is nonsense to think reason could be critiqued, as critique requires reason. Rather, Peirce holds that what Kant is doing in the work is considering the logic of reasoning at the level of Critic (and to some extent Methodetic).

of inquiry and ii) we can never recognize whether we have at a given point reached the end of inquiry. The question of whether truth₂ provides a conception of a real object is a bit trickier because of Peirce's pragmaticistic definition of real. But, this can be skirted to some extent by recognizing that, in the community of inquirers, at no point can we claim a given conception of an object is true₂. This leads to the second part of the quote from Kant.

The apparent conflict between truth₂ and fallibilism occurs when we take truth₂ in a constitutive manner. The only conception we can have of a given belief *given experience* is that it is true₁. To claim that we have *evidence* for realism, that a given belief is true₂, seems fallacious from the viewpoint of fallibilism. In fact, such a claim must be viewed as fallacious or else we risk blocking the road to further inquiry. However, this does not mean there is no *warrant* for the concept of truth₂, quite the contrary. And, Kant explains why in the sentence that follows the above quote: "But, on the other hand, they are capable of an admirable and indispensably necessary application to objects—as regulative ideas, directing the understanding to a certain aim, the guiding lines towards which all its laws follow, and in which they all meet in one point" (ibid.). Again, some explanation is necessary.

Truth₂ provides a conception of the aim of inquiry and of science specifically. The goal is to find the one single right account of the world. This conception of truth₂,

when held regulatively, directs inquiry to go beyond the mere warranted assertability of currently stable beliefs. It allows the community of inquirers to work together, take disagreement seriously, and understand the ultimate goal of inquiry. It allows them to understand that finding a previously, long standing belief false does not force us into skepticism or undermine inquiry. All the laws and rules of inquiry and of methodology aim for the one point at which they meet: a single, right account of the world, realism.

Kant continues: "This point—though a mere idea (focus imaginarius), that is, not a point from which the conceptions of the understanding do really proceed, for it lies beyond the sphere of possible experience—serves, notwithstanding, to give to these conceptions the greatest possible unity combined with the greatest possible extension" (ibid.). Here Kant takes a pragmaticist turn. While the community of inquirers does not go from the idea of truth₂ to ascriptions of truth₂ to currently stable beliefs, the meaning of 'truth', given the razor's edge of pragmaticism, depends on what possible difference truth could make to experience. The difference truth₂ would make to experience is in granting a permanent immunity to doubt. Thus truth₂ is conceptually different from truth₁. Inquiry proceeds from a conception of and evidence that current stable beliefs are true₁ to the conception of truth₂ as the goal of inquiry.

In being transcendental, truth₂ is in a sense an illusion.⁴ “But this illusion . . . is necessary and unavoidable . . . when, in the present case, we direct the aims of the understanding, beyond every given experience, towards an extension as great as can possibly be attained” (ibid). Here we find again a key point in which Kant and Peirce agree. While there can be no *evidence* that a given belief is true₂, that we have, or can ever know when we have obtained truth₂, the conception of truth₂ is necessary and unavoidable, i.e., indispensable, to the very concept and pursuit of inquiry.⁵ So the idea of truth₁ as constitutive and truth₂ as regulative should illuminate many of the points made above.

I take it that when Kolenda claimed there were not two different concepts of truth at play in Peirce but merely an account of meaning on one hand and an account of criteria on the other, he was caught in the dialectical confusion Kant mentions. Because truth₁ and truth₂ do make a difference to possible experience, they are different concepts.

⁴ It is interesting to note at this point that there is a connection between Peirce’s realism and positive illusions found descriptively common in psychological literature. Such illusions are beliefs that are more positive than is justified about the current state of things, the way the future will go, and how much control is had in a given situation. These illusions are supposed to be exaggerated descriptively but productive towards certain positive ends. If Peirce’s realism is a positive illusion, then there is a tension between this and his claims that by our nature we have an instinct to truth₂ as opposed to something like Jamesian truth.

⁵ I take it that there are different kinds of indispensability. To say that truth₂ is conceptually indispensable to inquiry is to say that the very concept of inquiry cannot be properly or fully formulated without appealing to the concept of truth₂. To say that truth₂ is practically indispensable to inquiry is to say that inquiry cannot succeed without the concept of truth₂. These two kinds of indispensability need not co-occur, but I take it that truth₂ is both conceptually and practically indispensable for the method of science. While some sorts of inquiry (those captured by the three inadequate forms of belief fixation) may be conceptualized with appeal only to truth₁, I take it that the method of science cannot. Further, to say that truth₂ plays a regulative role for inquiry is to say that scientific inquiry could not succeed without an appeal to truth₂ to guide behavior, adjudicate disputes, explain disagreement, and so forth.

However, it seems that truth₁ provides the criteria under which we can ascribe truth to a given belief while truth₂ provides the ultimate meaning of 'truth'. As I have stated above, I think truth₁ and truth₂ both provide meaning and criteria of application but use of 'truth' can be ambiguous and lead to confusion. Whether a given use of 'truth' involves the meaning or criteria associated with truth₁ or truth₂, once the difference is understood, can be known by way of the pragmatics of language, i.e., it is a matter of applying the principle of charity to the statement made in a given context. A claim that our current physical theory is true, given fallibilism, must be understood as a claim about truth₁: this physical theory holds for the time being, we have no reason to doubt it currently. A claim that physics seeks truth, must be understood as a claim about the ultimate goal of science to realize truth₂.

Further, we can connect this regulative/constitutive distinction to the James/Clifford exchange by noting that while we can never have *evidence* of truth₂ and thus cannot be (in the circumscribed use of the term) *justified* in ascribing truth₂ to a given belief, we are *warranted* in the strongest of all possible ways in a belief (or hope) that we can and will obtain truth₂ because such a belief is (doubly) indispensable to inquiry itself. It seems that Clifford is fully correct in what he says if we read his claims as being about truth₁: we would do a disservice to inquiry and to the community undertaking such if we ascribe truth₁ on inadequate evidence (or in Peircean and Jamesian terms when there is a live doubt about the matter). But, at the same time,

James is correct in what he says if we understand him as claiming that because truth₂ is practically indispensable to inquiry, failure to believe in such a variety of truth would preclude us from realizing such truth, if there is such a truth to be had. Thus, we can never have adequate evidence for realism and would do a disservice to the community of inquirers by blocking further inquiry if we claimed at any point to have found the real account of the world, but we are warranted in being realists because without being such we again block the possible success of inquiry.

It should now be considered whether various concepts connected to truth and inquiry for Peirce should be understood in a constitutive or regulative manner. Particularly, should we understand self-correction and the community of inquirers as real conceptions or ideal? The answer is that the claims that the method of science is self-correcting and the nature and role of the community of inquirers each have both a constitutive and regulative understanding. Accordingly, I will follow the subscript convention applied to 'truth' above to both the community of inquirers and self-correction (and their relatives) such that, e.g., the community of inquirers₁ is a constitutive concept, while the community of inquirers₂ is a regulative concept.

The method of science is committed to seeing its methods as able to find and correct its own errors with regards to both theoretical and methodological beliefs. At any given point we have evidence that we have replaced unstable beliefs that have met with error and come under doubt with new beliefs. These new beliefs are stable given

the current state of inquiry. We thus have evidence, holding these new beliefs to be true₁, that our methods have corrected past errant beliefs and replaced them with true ones. However, since based on this evidence, we can only say our current beliefs are true₁ and not true₂, we only have evidence that the claim that the methods are self-correcting is true₁. This is self-correction₁ and holds that, in looking back, we see a history of replacing beliefs found unstable with beliefs that are more stable. We have evidence that the community exchanges research and beliefs and resolves conflict. These are optimistic inductions, but they fall short of delivering us evidential justification for holding the self-correction claim to be true₂.

As Kolenda (1977) puts it:

Truth_[1] as a property of a proposition is relative to the tests which at a given time appear to be called for. Thus does not preclude the possibility that unexpected anomalies may crop up, thus forcing us to revise the belief in question. When such a revision is forced on us, belief₁ is replaced by belief₂. But this does not necessarily mean that belief₁ has changed from being true to being false. We were entitled to attribute truth to belief₁ relative to the corroborating evidence then available. We are entitled to attribute truth to belief₂ in the light of evidence available now. . . .The pragmatic maxim is designed to test not timeless propositions but assertable ones (100).

While I debate the point made in the final sentence, the pragmatic maxim does come in to play when we claim truth for new beliefs. Along with this attribution comes the idea that the new belief will play some role in possible experience the previous belief did not, namely that it is immune to error the other belief was not immune to. Kolenda goes on

to make the point that a conception of self-correction of this sort does not prevent us from having a conception of truth in the long run, truth₂.

Thus, we are committed to the hope that the methods of scientific inquiry lead us to truth₂; we are committed to a hope that the methods are self-correcting₂. This belief is indispensable to the conception of inquiry adopted. Again, because of this we have a *warrant* to believe that, beyond the *evidence* that the methods have removed error and led to agreement, the methods will eventually lead us to truth₂.

Again, self-correction₂ is needed to play a regulative role for inquiry. There needs to be an understanding of what happens when one belief is replaced by another. In the laboratory, it seems that statements about self-correction could be made in both a constitutive and regulative way. When practicing idioscopists find an error in data collected or an inconsistency in a report, they might say they are correcting the matter and mean by this only that they are removing a found error divorced from the stronger claim that they are moving closer to the whole truth and nothing but the truth. However, when this idioscopist switches to justifying the entire research program, it is likely that claims made about self-correction are connected with the idea that the program is moving toward something permanently stable. It seems that this regulative conception follows from the regulative conception of truth₂. If we can arrive at truth₂, and in being inquirers we are committed to such a belief, then if we have any role in bringing this about, i.e., if we arrive at truth₂ by something more than accident and can

know when we arrive at such, it seems our methods must lead us there. A regulative conception of self-correction follows from a regulative conception of truth, which goes beyond the evidence we have that our methods self-correct. Thus the constitutive and not regulative conceptions of self-correction are open to a pessimistic inductive counterargument.⁶

As for the role of the community of inquirers, there is a constitutive understanding of the community as playing a role in finding errant beliefs, suggesting new ones, and adjudicating dispute. There is evidence that this is the case. In taking serious the community we see a progress toward more agreement over time. Further, we have evidence that when one community of idioscopic inquirers encounters another and the two disagree on some point the disagreement can be resolved. This is far short of the belief that at the end of inquiry the community of inquirers, regardless of their idioscopic area, comes to settle on the single right conception of the universe.⁷ Moreover, since the end of inquiry occurs at an unknowable, possibly infinite point in the future, we must extend the beliefs we have about the community and its role indefinitely. This is to make a huge inductive jump from the evidence we have. We can only have weak inductive evidence that what has held true for the community and its

⁶ To challenge the regulative conception of self-correction it seems one must challenge either the regulative conception of truth or the connection between the regulative conception of truth and the regulative conception of self-correction. This is a coenosopic, conceptual, logical issue.

⁷ This does allow of course for the vocabularies of different idioscopic fields to be different. It does not allow however ontological disagreement, thus any differences in vocabulary must be resolvable by way of translation. The senses of these claims may differ, but their referents cannot.

role in inquiry thus far will similarly hold for future generations indefinitely distant and any possible cultures encountered, no matter how alien. This is the community². Again, it goes beyond the evidence we have that the community does play a productive role. The case here is parallel to that of the claim that the methods of scientific inquiry are self-correcting.

We are committed to a regulative understand of the community of inquirers because we are committed to a regulative understanding of truth. If there is a single right answer, a single right account of the universe, and we are to find it, then it must be that when we have the right account everyone agrees.⁸ Thus, again the regulative conception of the community is connected to, is an indispensable part of, the regulative conception of inquiry.

Thus, the method of scientific inquiry has evidence that i) stable beliefs can be found, ii) beliefs that replace defeated beliefs are more stable, and iii) that the community plays a role in all this. These are the constitutive understandings of the method of science for which the inquirers have evidential support. These beliefs are *justified* given the current state of inquiry. They have held stable thus far and the community will take them as holding firm until they do not. This is fallibilism.

⁸ There is a question here of whether everyone would agree. Surely not, because not everyone has beliefs about everything. Nonetheless, disagreement will have permanently ceased and thus all beliefs are stable, completely immune from the threat of doubt. This may be an obviously idealized conception, but this mere ideality does not affect the regulative role the conception can play.

However, the mode of inquiry adopted, given our desire to avoid doubt, requires for its very conception and its success that we believe i) the single right beliefs (truth₂) can be found, ii) as we replace beliefs we move on-the-whole closer to the truth₂, and iii) that at the end the communal exchange has led us to a single accepted understanding of the world that is true₂. These are the regulative understandings of the method of science for which the community has *warrant* to believe because of their indispensable role in the method of inquiry to which they are committed. These beliefs play a regulative role in inquiry. This is realism. And thus, the realism to which Peirce sees naturalism committed by way of its adopting the method of science is a regulative realism.

This regulative realism does not propose to know the form of the final ontology that will be adopted. It could take a form we cannot currently imagine. There may be different but equivalent ontologies posited by various divisions of the idioscopy. The realism is thus not ontologically robust. However, it does posit that there is a single right account to be had. Without taking on this much commitment, the road to inquiry is blocked and thus the road to avoiding error is blocked, and our fundamental psychological/epistemological impulse is frustrated. Thus every inquirer, by their very commitment to the inquiry method of science, must believe there is a single right answer to be had. To the extent that this is realism, inquirers are committed to realism. Albeit a regulative realism for which at no point can they have full evidential justification. Thus,

we have an understanding of realism that is not only consistent with fallibilism but follows from it.

Kolenda recognizes this point when concluding that the apparent tension between fallibilism and realism is merely apparent:

The alleged tension or incoherence in the fallibilist conception of truth dissolves when one acknowledges two different purposes of both inquiry and the communication of the results of inquiry. The interest in the long run, in the frontier areas of inquiry, does not proscribe the ascription of truth to propositions describing routine matters. In making this distinction we are not employing two different conceptions of truth. In both kinds of situations we aim at objective truth, i.e., an account which is independent of what anyone *happens* to think or say . . . We should not demand that what we sometimes legitimately regard as “true for the time being” should be *at the same time* subject to the tests of “the ultimately true” or “true in the long run.” Inconsistency results only because the demand itself is self-contradictory. Either we want determinate, warranted truth, or the whole truth about everything at once (101).

(Notice here that Kolenda uses ‘warranted’ as I use ‘justified’.) “From the fact that knowledge is corrigible it does not follow that we cannot make correct claims about nature” (102). So, Kolenda makes the claim that fallibilism (and the method of science) and realism are consistent. Peirce makes the stronger claim that realism is indispensable to (the method of scientific) inquiry. And, Maddy makes a very different claim. She claims that, contra-Peirce, naturalism (the method of scientific inquiry) is not committed to realism. She does not say naturalism is inconsistent with realism but only that if, as appears in mathematics, adopting a specific ontology blocks the road to inquiry then we should make no such appeal. The question now is exactly what to make of Maddy’s position and whether it is consistent with that of Peirce’s

The key to understanding this is to note that Peirce's realism demands only a belief that there is a single right answer that can and will be found. It does not require we limit ourselves to any specific ontology. I take it that the realism to which Maddy objects to is more ontologically robust than the regulative realism developed above. But, despite her rejection of a naturalistic commitment to realism of an ontologically robust sort, it seems that she would accept the claim that there is a single right answer to be had for any given mathematical pursuit. In fact, I think her account of mathematical inquiry and its desire to avoid road blocking ontology itself turns on the idea that the reason to avoid such is because it would prevent us from finding the single right answer. Thus, naturalistic mathematicians need not be Platonists, but they do need to be Peirceans, at least to the extent that they believe there is a right answer to be had, that inquiry is useful, that there is a regulative role for realism. Thus, much like the merely apparent tension between fallibilism and realism, it seems that the conflict between Maddy and Peirce over whether naturalism is committed to realism is merely apparent. Neither the naturalism as described by Peirce or that described by Maddy are committed to Platonism or any specific ontology, they are however, in undertaking inquiry, committed to a regulative realism which posits a single right account of the world to be possible. Thus, Maddy is one of the above mentioned closet (regulative) realists.

5.7 Indispensability again

Because Peirce's regulative realism and the claim that naturalism is committed to such turns on the claim that such a realism is indispensable to the method of scientific inquiry and thus to naturalism, it is worth considering quickly ways in which this claim could be challenged. It was seen above in Maddy's rejection of Quinean mathematical realism that she challenged his claims about the role of indispensability and conformational holism. She pointed out that scientists do not actually act as conformational holists but rather hold their scientific theories to be made up of various types of theoretical entities (e.g., hypotheses, models, etc.) with varying types and degrees of epistemic commitment. They do not and need not extend experimental confirmation to the mathematical parts of a given theory. In conjunction to this she argued that there are times in which false mathematics are used as a good-enough tool for theories that are in the process of inquiry met with confirmation. This does not make the mathematics used any less false. Thus, if Quine is right that—by way of conformational holism and the indispensability of mathematics to science—the mathematical claims used received confirmation, then both true and false mathematical statement receive confirmation by way of their role in scientific inquiry. This is intolerable and thus something is wrong with the Quinean argument.

However, Maddy's challenge is to Quine's conformational holism not to his claim that mathematics is an indispensable part of science. Maddy does not pretend

science could be successful without using mathematics. In fact she sees mathematics as at least partially concerned with providing useful tools to science. However, these tools should be seen as such, useful. Their being useful does not then allow them to take on any confirmation enjoyed by other parts of scientific theories in which they are included. Maddy rejects Quine's mathematical realism because of doubts she has about his claims of conformational holism; his claims about indispensability are connected to his claims about holism but are not the target of Maddy's concern. Thus, we face the question of how Maddy's stance on Quine may affect Peircean claims of realism via its indispensability to inquiry.

First, it should be noted that since Peirce's realism is regulative and warranted despite not being justified, there is no issue of conformational holism. A theory (say a coenosopic theory about inquiry) that contains claims about truth₁, self-correction₁, or community₁ would be concerned with issues of conformational holism. If such a theory finds success and is thus thought to have found evidential support, then these associated concepts likewise take on confirmation by way of holism, if holism is in fact true. However, none of this applies to the case of truth₂ and its related concepts, because the claim is directly one of warrant because of indispensability to inquiry and not about confirmation of any empirical sort. Further, notice that mathematics is *practically* indispensable to science; science in its current state and formulation could not succeed without an appeal to mathematics. However, it does not seem that science depends on

mathematics for its very conception. On the other hand, the claim is that naturalism and science, in being committed to the inquiry method of science, depend both *practically* and *conceptually* on the idea that there is a single right answer to be had through inquiry and that the inquiring community can play a deliberate role in bringing about such an answer. Thus, the indispensability concerning regulative realism differs from that with which Maddy dealt when dismissing mathematical realism in two ways: i) it is not evidential in nature and thus it is not affected by a rejection of conformational holism, ii) it is not only practical indispensability but also conceptual indispensability at play with the regulative realism.

While the first of these two points seems to separate the current argument for naturalism as committed to realism from Maddy's treatment of Quine, there is still the second point and whether the claim that realism is conceptually and practically indispensable is true. The first of these concerns, whether realism is conceptually indispensable to inquiry, is a matter of logic. While I am confident in the conceptual analysis provided by Peirce's investigation of the types of belief fixation, I am willing to allow that there may be room to argue that as a strict matter of logic there is a possible conceptualization of inquiry that satisfies the assumptions Peirce makes and yet is not committed to there being a single right answer, a regulative conception of self-correction

or of the community of inquirers.⁹ I will momentarily put aside this possibility and consider first the second type of indispensability at play here.

Beyond the claim that realism and its associated concepts follow from the conception of inquiry to which the naturalist is committed, there is the claim that even were this not so there is a practical commitment to these concepts required because the success of inquiry and thus science depends on such. This is an empirical question. If we had two communities of inquirers one of which adopted the full set of constitutive and regulative beliefs about inquiry laid out above and one of which adopted the constitutive beliefs without any of the regulative beliefs, then would the former succeed where the latter fails? Does success of inquiry *really* turn on holding these regulative concepts? Or maybe we find that from the stand point of the constitutive conceptions involved both communities meet with success but the one with the regulative conceptions meets with success more readily, more regularly. This finding would challenge the indispensability claim but not necessarily the realism because the realism could still be delivered as a matter of economy.

⁹ This of course grants Peirce's assumptions, but for the time being I am assuming these assumptions non-controversial to at least naturalists and then preaching to the in-crowd. Whether a concept of inquiry not involving this minimal realism is possible for someone who rejects Peirce's assumptions about, e.g., the phenomenological nature of belief and doubt, is a question I do not currently have time to consider. My concern is what follows for naturalism given Peirce's system, and thus the question is whether Peirce's commitments force realism on the naturalist or whether there is still room for agnosticism or denial.

However, while this is an empirical issue as to whether the realist out-performs the non-realist in the laboratory, it is an extremely difficult one to make a judgment about. Beyond the fact that such an experiment is not practical, the pragmaticistic maxim comes in to play here. We could not merely poll scientists as to whether they held regulative and constitutive beliefs, as the true measure of whether they hold regulative beliefs is whether they act as if they hold such beliefs. Part of the claim at play here is that such beliefs make a practical difference to the behavior of scientists. Thus, while we might get a denial of realism from an idioscopist (e.g., Maddy's Second Philosopher) or a coenoscopist (e.g., Maddy) this could come from a confusion and not from a true belief that there is not a single right answer to be had by inquiry. The questions of interest are whether the inquirers act as if there is a single right answer to be had, whether the methods used correct error so as to lead to this answer, and whether the community of inquirers plays a role in bringing about this answer.

Without running this experiment or considering in detail whether there is logical room to challenge the conceptual indispensability of realism to naturalism, there is still a response open to us. The answer is paper doubt. While we might find someone who claims that realism is not conceptually necessary for inquiry the questions then becomes whether assuming this claim true, does anyone actually doubt the conceptual indispensability of realism to inquiry. The mere logical possibility does not carry the day. Paper doubt will not do to challenge the indispensability claim. This is true at both

the conceptual and practical level. While we might find practicing idioscopists who deny being realists, either because they claim a variety of non-realism or because they fail to have any such coenosopic thoughts at all, the question is whether this denial occurs only in the armchair and disappears in practice. If all idioscopists act as if they are realists when in the lab, then any denial that realism is practically indispensable to inquiry is merely paper doubt.

5.8 Conclusion

In this chapter I was concerned with evaluating whether there is a true tension between fallibilism and realism and thus between the method of science and naturalism on one hand and realism on the other. This question is of concern partially because the claims of Peirce seem to run contrary to those of Maddy. To evaluate this concern I developed Peirce's realism in more detail showing its conception of truth, the self-corrective methods of science, and the community of inquirers to have both constitutive and regulative versions. I explained Peirce's realism as defined by the regulative understandings of these concepts and explained their warrant despite a lack of evidence. I then considered whether Peirce's claim that the naturalist is committed to realism could withstand Maddy's denial of such. I showed that Maddy's rejection of naturalism as committed to realism turns on a conception of realism that is more ontologically robust than the realism at play in Peirce. I then claimed that Maddy not only could but must accept this commitment to a minimal, regulative realism and that such a

commitment withstands the various arguments she gives against more robust varieties of realism. Finally, I finished my investigation of Peirce's regulative realism by considering whether the indispensability claims that deliver the naturalist's commitment to realism could be challenged. I blocked these challenges at least partially by pointing out that they were (likely) based on mere paper doubt.

6. Peircean naturalism

In the first chapter, I pointed out that, because of the seemingly divergent varieties of naturalism, 'naturalism' has no determinate general import. This lack of determinate meaning causes confusion about the nature of naturalism and whether it amounts to anything beyond a hodge-podge of local varieties of disciplines sharing at most a rough family resemblance. I suggested that Peirce's treatment of inquiry and the structure of science promises to offer a rather determinate account of naturalism. To show this I laid out Maddy's account of naturalism, which I take to offer a fairly determinate account of naturalism. I believe an account of naturalism based on Peirce's work can expand on Maddy's account by making more precise a number of her claims. In the current chapter, I recap the previous chapters with the goal of evaluating whether an account of naturalism based on Peirce does actually give us an account that meets the desiderata given in the first chapter.

To do this, I begin by recapping Maddy's account of naturalism, much of which I accept. I summarize the import I see her attributing to naturalism and point out the aspects of her account I see as lacking and the differences I see between Peirce and Maddy, emphasizing the ways in which I see Peirce improving and expanding on Maddy's account. I then evaluate whether an account of naturalism based on Peirce accomplishes what I take necessary for a determinate account of naturalism with a particular eye to Maddy's fundamental naturalistic impulse and whether Peirce violates

this. I conclude the chapter by laying out further work that can be done to develop a still more determinate account of naturalism based on the work of Peirce.

6.1 *Desiderata*

In the first chapter, I laid out what I took to be required of a determinate account of naturalism in general. These requirements are based on the problems caused by a current lack of a widely accepted determinate import assigned to naturalism at the general level. Specifically, I hold that a determinate account of naturalism should be able to clarify three issues that are often found in the naturalism literature. First, it should allow us to judge whether a proposed given local variety of naturalism is consistent with naturalism in general. There are two correlates to this. First, it would in turn allow us to adjudicate disputes over what is and is not consistent with naturalism. Second, it will explain how much freedom there is within naturalism across its local varieties. That is, it will allow us to understand whether two proposed local varieties of naturalism in different domains with decidedly different features each count as consistent with naturalism or not despite their apparent differences or disagreements. The second of our desiderata is that a determinate account of naturalism should allow us to evaluate whether a given inquirer is acting as a naturalist or not. This allows us to get around complications caused by the issue of psychological scope caused by specific, local commitments of a given inquirer. Third, a determinate account of naturalism

should provide some guidance to the development and application of local varieties of naturalism.

When evaluating whether a naturalism based on the work of Peirce delivers a determinate account of naturalism we are concerned with i) whether such an account meets these desiderata to some significant degree and ii) whether such an account meets these desiderata to a greater degree than do extant accounts, particular the account given by Maddy. To give the game away, I take it that the score is positive on both these counts, but could be made stronger by further work in developing a Peircean account in more detail.

6.2 Maddy's account of naturalism

In attempting to apply naturalism to mathematics, Maddy was frustrated by the lack of a widely agreed upon determinate account of naturalism. In order to develop a mathematical naturalism, she first looked to develop a determinate account of naturalism in general. To do this, she sketched the behavior of a natural-born naturalistic inquirer, the Second Philosopher. I take it that Maddy's account of naturalism is fairly determinate; I will argue for this being the case by recapping some of the main features of her account of naturalism and judging her account in relation to the desiderata laid out above.

The most obvious feature of Maddy's naturalism is her claiming that there is a fundamental naturalistic impulse; this impulse is the rejection of all two-level views of

inquiry. Such two-level views hold that there is a level of inquiry at which science operates and a second level of inquiry above science. This second level is higher than and prior to science. It claims to issue prescientific advice to science that is immune to modification on scientific grounds. It also provides a non-scientific standpoint from which to evaluate and critique science. Maddy takes it to be clear from considering the indeterminate import assigned naturalism that a central feature of naturalism is an alignment between philosophy and science that precludes any such two-level views. Thus, naturalism in general and, in turn, in its local varieties is committed to rejecting all varieties of foundational first philosophy. The ontological and epistemological work often occurring in first philosophy is for the naturalist viewed as a broadly scientific undertaking.

This fundamental naturalistic impulse expresses fairly explicitly a number of oft vague dictums associated with naturalism: that science and philosophy are continuous, that naturalism is committed to scientism, and that philosophy shares its methods with the special sciences. This last claim has been championed by Quine among others and is more fully explained by Maddy's fundamental naturalistic impulse. Without a higher level of inquiry to provide an ontology to science, naturalism is first and foremost a methodological doctrine that issues an ontology only through the application of its method. This means that a naturalized ontology is open to revision based on scientific findings in a way that an ontology issuing from a foundational first philosophy is not.

Moreover, because the methods of science are self-correcting the risk of a dogmatic ontology issuing from a fixed and faulty set of scientific methods is not a concern.

In developing her account of naturalism, Maddy sketches the behavior of a Second Philosopher, an inquirer who is born accepting the fundamental naturalistic impulse. This inquirer is claimed to be a naturalist in all her behavior, accepting the best scientific findings available and justifying her inquiry by way of such. In the course of her sketch of such an inquirer, Maddy looks at specific projects of inquiry and thus at actual scientific practice. In the course of doing so, she identifies a number of more specific commitments that form a part of the import she assigns 'naturalism'. These include a rejection of Quine's conformational holism and his mathematical realism, which follows from such.

Maddy claims that if one pays attention to the actual behavior of scientific inquirers, just as a good scientific inquirer/naturalist should, it is found that scientists do not hold all of the parts of their scientific theories to be of a kind, each confirmed to an equal degree when the theory is met with success. Contra-Quine's claims of homogeneity and conformational holism, Maddy claims that scientific theories are a collection of various types of theoretical entities—models, hypotheses, instrumental tools, etc.—each with different degrees of ontological commitment associated with them. While Maddy accepts that mathematics is an indispensable part of scientific theory, breaking with Quine's holism she does not see this as leading to mathematical realism.

Rather, often scientists use the mathematics in their theories as mere instrumental tools, which are often known to be false but useful.

One aspect of this ontological heterogeneity of theoretical entities that Maddy emphasizes is that the naturalist recognizes two different kinds of hypotheses. There are theoretical/empirical hypotheses which are open to the full range of empirical evaluation, and there are also conventional/pragmatic hypotheses which are not open to empirical evaluation. When a scientific inquirer adopts mathematical tools that are known to be false, they are of this latter pragmatic/conventional sort. They cannot be open to empirical evaluation because they are already known to be false. However, they are adopted as a convention, on pragmatic grounds, as tools to allow other parts of theory to be empirically evaluated. Positing these conventional/pragmatic hypotheses does not violate the fundamental naturalistic impulse because of Maddy's view that practicing scientists reject Quine's homogeneity and holism. These hypotheses are not posited from a level above scientific inquiry but rather posited on scientific grounds but not as entities open to confirmation.

Maddy also takes lesson from the wide variation among local varieties of naturalism. We find such variation because the form a given variety of naturalism takes depends on the specific project at hand. A given local variety of naturalism will take whatever form necessitated by the application of scientific methods to a given project of inquiry. Since naturalism in general is characterized primarily by its rejection of two-

level views, even wide variation at the local level need not evidence a lack of shared commitment to naturalism in general. Rather, naturalism avoids constraining methodology and theory. It does not issue general ontological commitments to, e.g., physicalism, or specific methodological commitments to, e.g., reductive explanations. Related to both this refusal of constraints and rejection of holism, Maddy claims that naturalism is not committed to realism, not committed to a specific account of truth. While she rejects certain accounts of truth (namely verificationist, metaphysical correspondence, and deflationary accounts of truth as well as mathematical Platonism) on the grounds that either they violate the fundamental naturalistic impulse or constrain the methods open to the naturalistic inquirer, she allows the naturalistic inquirer to appeal to whatever account of truth is necessary for the task at hand.

These aspects of naturalism as pointed out by Maddy serve to meet the desiderata to some degree. A quick recap of the main attributes to which she sees naturalism in general committed should make clear that her account does provide a way to adjudicate disputes over both whether a given project is consistent with naturalism and whether a given inquirer is acting in a manner consistent with naturalism; it also explains how much variation among local varieties of naturalism we should expect and accept; and it provides some guidance to specific naturalized inquiry projects. She points out the naturalism is *primarily methodological* in nature; that naturalism *rules out all two-level views*; that naturalism is *not committed to realism* or a specific account of truth;

that the details of a *local variety of naturalism depends on the specific projects*; that naturalism conducts inquiry with *self-correcting methods*; that naturalized *epistemology and metaphysics are broadly scientific undertakings*; that naturalists should *avoid constraints* on possible methods unless these constraints develop through application of its methods; that naturalized theories *admit of entities with various ontological statuses*; that naturalism allows *non-empirical hypotheses*. If we take these points to provide an import for naturalism, then we find that we can adjudicate disputes found in naturalism literature, e.g., over realism's relationship to naturalism or claims that naturalism cannot allow non-empirical hypotheses of any sort. This adjudication occurs because certain stances are clearly held as inconsistent with naturalism, e.g., Clifford's evidentialism. Beyond ruling out certain things as inconsistent with naturalism, Maddy's treatment explains that even a great level of variation found at the local level does not mean that naturalism amounts to nothing at the general level or that only one of multiple divergent local naturalisms can count as varieties of naturalism, e.g., we should expect divergent methodologies and ontologies among local varieties of naturalism that have different goals. And maybe most importantly, her account issues some specific advice for the development and application of local varieties of naturalism, e.g., do not make theoretical posits that are not the result of the methodology at hand and do not place constraints on possible methods or theory.

While it is apparent that Maddy's account goes some distance toward giving us a determinate account of naturalism (as judged by the fact that it meets the desiderata laid out), it seems there is plenty of room to demand more. Toward the end of the second chapter, I mentioned a number of points in which I took Maddy's account to be lacking and suggested that Peirce's work could be used to improve on these points. I want to revisit these problems I see in Maddy and make clear how Peirce improves on these points. Particularly, it seems a number of the points she makes could be made more precise by being treated in more detail and in a number of places Peirce can provide the details.

One reason that Maddy's account is lacking is that her character sketch of an inquirer who follows perfectly the tenets of a naturalized inquiry method but cannot formulate such tenets does not allow Maddy to provide any general defense of these tenets. We can extract some tenets by watching the Second Philosopher's behavior but we get no defense of these tenets against various challenges. Peirce's developmental treatment of the methods of inquiry allows us to both understand the motivations for adopting the Second Philosopher's commitments and allows for a general defense of these commitments. This also allows a Peircean naturalist to appreciate the skeptic's challenge to justify the methods of science and thus naturalism; Maddy's naturalist merely shrugs at this challenge. Maddy seems to avoid giving a general defense because she prefers to operate on the ground level of specific inquiry projects and fears a more

general defense returns us to something in the vicinity of first philosophy. Because of this, her claim that the naturalist can allow non-empirical hypotheses seems to be under-supported. Peirce provides significantly more detail over the nature, justification, and role in inquiry played by these non-empirical hypotheses. I believe that on these points Peirce provides more detail than Maddy and thus appears to offer a still more determinate account of naturalism (though this conclusion must be withheld until we evaluate Peirce's account in light of our desiderata).

Beyond these explanations of Maddy's treatment found in Peirce, there are a number of points of apparent conflict in the two accounts. Maddy's treatment is a descriptive sketch while Peirce's treatment is developmental. This allows Peirce to not only posit the fundamental naturalist impulse but to explain its motivation. Further, Maddy favors considering local inquiry projects and moving to more general considerations when forced by the inquiry at hand. Peirce offers detailed argument in terms of his claims about the analytic method, the direction of influence among the sciences, and the economics of research for why we should begin with general considerations of inquiry and only then proceed to consider more specific, local inquiry projects. Maddy rejects a commitment to any specific account of truth and realism; Peirce offers detailed argument about how naturalism is committed to a variety of realism and an understanding of truth, and he does so in terms consistent with Maddy's distinction between pragmatic/conventional and theoretical/empirical hypotheses.

Since I hold Maddy as presenting a more determinate account of naturalism than is often viewed possible, the ways in which Peirce expands on her account and conflicts with it must be handled in different ways. If it is indeed the case that an account of naturalism based on the work of Peirce can expand on Maddy's account by offering more details or better explanations and justifications, then we should find such an account meets our desiderata to a greater degree and thus gives us a more determinate account of naturalism. However, the disagreements between Maddy and Peirce pose something of a problem. If Maddy's account is an account of naturalism, then any conflict between Peirce and Maddy must be justified either internal to Maddy's account or with in-depth argument that seems to match the import commonly attributed naturalism in other accounts. I take it that some of the conflicts between Maddy's account and Peirce's can be handled on grounds internal to Maddy. For example, I take it that Peirce's account of realism should be accepted by Maddy on her own grounds. Other conflicts, e.g., the preference in Peirce for global over local concerns, must be handled on grounds external to Maddy's account. Unless these can find support in other accounts of naturalism, it seems to come down to a choice between Maddy and Peirce. While I take Peirce to give stronger argument for his position than does Maddy, these external conflicts are the most troubling given that Maddy does give a fairly determinate account of naturalism. Before treating these issues in detail, I will recap

Peirce's treatment of inquiry and the structure of science and explain how I see it underwriting an account of naturalism.

6.3 Peirce's account of naturalism

One way I see Peirce as offering an expansion of Maddy's treatment of naturalism is in his account of inquiry. Peirce does not merely sketch what naturalistic inquiry looks like but offers a developmental account of various approaches to inquiry which eventuates in the method of science. By beginning at the most general of scientific levels, Peirce claims that there is a basic phenomenological and motivational difference between the states of doubt and belief. Doubt irritates and motivates inquiry to find stable beliefs. Seeking stable beliefs is a basic human tendency. The various methods of tenacity, authority, and a priority are all tried over the course of personal and historical development. Eventually each of these methods is found to be unstable and to produce beliefs vulnerable to doubt. Only the method of science, which is always ready to give up any belief when challenged and takes all disagreement seriously, promises to produce stable beliefs. This approach offers more detail and better explanation of a number of points made by Maddy; it also goes beyond Maddy's treatment in places.

Peirce explains that the method of science is the only method of inquiry that operates on self-correcting methods. Because it is not based on any sort of foundational beliefs it evaluates its methods by their ability to produce stable beliefs. If a given

specific method is found to regularly lead to unstable beliefs the method itself is brought into doubt. One way in which the method of science modifies its methods is by way of a social exchange that takes serious each inquirer's desire to find stable beliefs. If two different inquirers or groups thereof utilize different methods, this leads to inquiry into the matter until the more stable method is accepted. Here we find some explanation of what it means to say the methods of naturalism are self-correcting. Further we get an account of the social aspects of inquiry which are often attributed to naturalism.

This account of inquiry also offers some explanation of what it means to say philosophy/naturalism shares its methods with the special sciences. All naturalized inquiry shares the most general of methods, i.e., the method of scientific inquiry. Since naturalism in general and in its specific varieties is characterized by sharing in this general method of inquiry, we get a support for the claim that naturalism is primarily a methodological doctrine with its ontological commitments being a result of its method of inquiry. One aspect of this method of inquiry is that it holds all beliefs, theoretical and methodological as fallible, ripe to be replaced in the face of doubt. This fallibilism is a necessary part of seeking stable beliefs. Maddy touches on the relationship between naturalism and fallibilism without motivating it as fully as does Peirce. This fallibilism is connected to the concept of reality for Peirce. The reason we hold all beliefs to be fallible is at least partially because only beliefs that accord with reality could be

permanently stable. Here we find hints that naturalism is committed to realism, but this claim is more fully defended later in Peirce's work as presented in the chapters above.

Maybe the most important way in which Peirce's account of inquiry expands on Maddy's account is by allowing for the skeptical challenge to be respected and answered. When the skeptic challenges Maddy's naturalist to defend her methods, the challenge falls flat. She accepts the methods of science but has no higher-level defense of such. She feels no need to defend her methods. This is partially because Maddy's Second Philosopher is naturally born with an acceptance of these methods. Peirce's naturalist on the other hand has progressed through the various stages of inquiry, tried the other methods of inquiry, and has studied the historical development of the methods of inquiry. This and the social impulse to respect divergent opinion motivates Peirce's naturalist to take serious the skeptic's challenge. Since the skeptic's challenge is an instance of disagreement, the inquirer takes the challenge seriously and feels the weight of defending the method of science over other methods. This can be done by pointing out that only this method serves the natural goal of fixing beliefs against doubt. Peirce's naturalist does not merely claim his methods are different than the skeptic's but claims his methods are better than the skeptic's and that this can be shown on the skeptic's terms. Peirce does not retire to a level above science to mount this defense but rather conducts the defense at the broadest levels of science. This leads us to consider his architectonic of science.

Over the course of a career as a practicing scientist and a logician, Peirce developed an account of the structure of science and the relationship between its various fields. The sciences are ordered in a hierarchical manner with those sciences that concern more general matters occurring at a higher level than those sciences that concern more specific matters. Despite this hierarchy, those higher disciplines are still scientific because they adopt the method of scientific inquiry. This structure of science provides an explanation of what it means to say that epistemology and metaphysics are broadly scientific: they utilize the method of science but occur at a higher level than do the special sciences. For the naturalist, there are not two levels of inquiry, one of which occurs above science and from which science can be evaluated. Rather, there are multiple levels of science, all of which are united in the most general of methods and the higher of which issue guidance to and critique of the lower ones.

This structure also explains the variation we find among the local varieties of naturalism. Because the special sciences are defined by their problems and their methods of observation, they vary in their specific methods and theoretical claims. They adopt whatever is found necessary for their goals, given their methods, within the confines of and with guidance from the more general methods and theories issuing from the higher sciences. This allows room for significant variation among the varieties of naturalism, even among their ontological claims, without this variation representing a departure from naturalism in general. This direction of influence is supported further

by the claims Peirce makes about the analytic method of beginning with more general and abstract concerns and then progressing to more detailed concerns. These more general concerns can be more easily dealt with because they are less complex in their details. This is then still further supported by his economics of research. Because of the less complexity involved with general inquiry in comparison to inquiry into specific, local concerns, such inquiry is less *costly*. This general inquiry is also of greater *value* because (as is seen when we get a distinct between two types of truth) we can be more certain of the truths at this level. And, finally, this higher level inquiry has greater *effect* in that success or failure at this level influences inquiry at the lower level in a way that failure or success of local inquiry does not influence the higher sciences.

To abstract from the details of Peirce's architectonic, I adopted above his distinction between coenoscopy and idioscopy. Coenoscopy involves those sciences that are concerned with matters that affect all the sciences in general, while idioscopy involves the specific sciences as defined by a limited range of concerns and specific modes of observation. This allows us to better understand what is meant by a general account of naturalism as opposed to an account of a local variety of naturalism. In seeking a general account of naturalism, we seek a coenosopic account of naturalism that is concerned with the most general of methodological and theoretic issues that affect all of the specific, idioscopic varieties of naturalism. This coenosopic/idioscopic distinction admits of degrees and is relative such that those sciences that occur higher in

the architectonic are coenosopic in relation to those that occur lower. Any science more coenosopic than a second influences the second more idiosopic science and not the other way around. This again explains the direction of influence among the sciences. It also explains the variation we see among the various idiosopic varieties of naturalism while still explaining why they all count as varieties of naturalism despite this variation: because they are all influenced and limited by the tenets of the higher coenosopic naturalism. Metaphysics and epistemology are broadly scientific undertakings in that they are more coenosopic than are the special sciences. Further, the skeptic's challenge for the naturalist to justify the methods of naturalism can be understood and countered at the coenosopic level without a remove to a level higher than science.

Because I find this coenosopic/idiosopic distinction highly useful in developing an import for naturalism, I will consider a number of features of Peirce's system in terms of this distinction. First consider Quine's claim that one aspect of naturalism is that philosophy is taken to share the methods of the special sciences. Because the idiosopic varieties of naturalism take on the methodological commitments of coenosopic naturalism, they all share the method of science. This general method of inquiry is adopted by all varieties of naturalism while the idiosopic varieties have specific methods of their own. Just so long as these methods are consistent with the general methodological commitments of naturalism, the variation we find among the idiosopic varieties does not undermine their naturalistic status. This does however mean that it is

the special sciences that share the methods of a naturalized philosophy and not that philosophy shares all the methods of the special sciences, but this should be obvious.

Further, the fact that the idioscopic varieties of naturalism are separated from one another by their specific problems and modes of observation, we find methodological and ontological variation at the idioscopic level. Any amount of variation across the idioscopic level is consistent with naturalism just so long as it occurs within the confines of those general methodological and ontological claims established at more coenosopic levels. This allows a great degree of variation at the idioscopic level without challenging the claim that there is a general, coenosopic account of naturalism to be had. This explains the wide variety of idioscopic naturalisms without reducing naturalism to a mere hodge-podge of local varieties.

This distinction also allows us to make sense of any confusion caused by considerations of scope. The commitments of a given variety of naturalism apply only to those varieties of naturalism occurring under this given variety of naturalism at a more idioscopic level. Given naturalists' need to extend their naturalistic commitments to only those idioscopic varieties of naturalism that occur under the level at which they make such commitments, we can understand why we find self-proclaimed naturalists who disagree with one another and lack certain commitments found among other naturalists. Thus, if we find naturalism committed to Darwinism at the level of biology, all those more idioscopic varieties of naturalism (e.g., psychology) are so committed;

there would be no Darwinian commitment at the level of chemistry or logic. We can make sense of different commitments of various self-proclaimed naturalists without being forced to declare one or both of these naturalists wrong in their claim to naturalism.

Further, because the normative level of aesthetics, ethics, and logic are concerned primarily with methodology, we gain here an argument for why naturalism should be seen as primarily a methodological doctrine. And, since the commitment to realism, understood as there being a single right answer to any given inquiry, occurs at this same level, we find that all the idioscopic varieties of naturalism are committed to such an understanding of truth and realism. However, because this variety of realism is primarily epistemic in nature, i.e., claims only there is a single right answer that can and will be found out at the end of inquiry, we can still find ontological differences across the idioscopic varieties of naturalism without such variation undermining the naturalistic status of these varieties.

Finally, the coenosopic/idioscopic distinction allows us to better understand Maddy's two types of hypotheses. Those hypotheses that occur at a highly coenosopic level will appear pragmatic/convention at more idioscopic levels. That is, while hypotheses originating at a given idioscopic level will be open to empirical evaluation at that idioscopic level, hypotheses originating from higher levels will not be open to such evaluation. While Maddy allows these two types of hypotheses, none of the

pragmatic/conventional hypotheses she considers are as robust as Peirce's claim of realism and the accompanying understanding of truth. Since the commitment to truth², the single right answer to be found at the end of inquiry, occurs at a highly coenosopic level, all the more idiosopic varieties of naturalism adopt such an understanding without the ability to evaluate it empirically. Thus, this is a pragmatic/conventional hypothesis when viewed from the viewpoint of an idiosopic naturalism. This is a strong claim and requires further consideration.

Indeed, despite the utility of this coenosopic/idiosopic distinction, we must consider whether the distinction itself is consistent with the import given naturalism. This is of the utmost importance because this distinction underwrites a number of aspects of a naturalism based on Peirce. The claim about the direction of influence from coenosopic to idiosopic levels, the claim that we ought begin with the more general of inquiries, the distinction between the two varieties of hypotheses, and the claim that naturalism is committed to realism and two different understandings of truth all turn on this distinction. If we find that this distinction is not consistent with the import commonly assigned naturalism, it seems there is reason to reject Peirce's system as an account of naturalism at all. Specifically, it might be thought that such a distinction is not consistent with Maddy's fundamental naturalistic impulse in that it masquerades a two-level view as a graduated view of science. I will consider now whether the

coenosopic/idioscopic distinction and the claims based on this distinction commit the sin of epistemology.

6.3.1 The sin of epistemology

As pointed out in chapter two above, Arthur Fine summarizes Maddy's fundamental naturalistic impulse: when an inquirer "sidesteps science and moves into his own courtroom, there to pronounce his judgments of where to believe and where to withhold, he [commits] the sin of epistemology" (Fine 1986, 147). Since Peirce claims that by undertaking inquiry we are committed to a realism as defined by believing there is a truth (truth₂) that can and will be found out at the end of inquiry, if this claim is the result of anything other than science, then Peirce commits the sin of epistemology, violates the fundamental naturalistic impulse, and fails to give us an account of naturalism.

I claimed in chapter four above that Peirce's understanding of realism in terms of truth₂ was merely an instance of Maddy's pragmatic/conventional hypotheses. I motivated this by considering the exchange between William Clifford and William James over when we are allowed to go beyond evidence in our beliefs. I situated Peirce in relation to Clifford and James and claimed that Peirce holds that we can be warranted in holding a belief that is not justified by evidence in those situations in which failure to so believe would block the road to inquiry. Thus, since Peirce holds that a conception of truth in terms of a single right account of the world to be found at the end of inquiry is

indispensable both practically and conceptually to inquiry, we are warranted in believing in such a truth. This account of truth₂ plays a regulative role in inquiry despite the fact that there can never be evidential justification that we have or can have beliefs that are true in this sense. While I claimed in chapter five that Maddy is committed to Peirce's variety of realism, i.e., she herself holds that for any given inquiry there is a single right answer to be had, we should consider more closely whether this realism is delivered by a highly general scientific investigation or whether it is a sinful departure from science.

Maddy does allow, consistent with her fundamental naturalistic impulse, a distinction between theoretical/empirical hypotheses and pragmatic/conventional hypotheses. The hypotheses of this latter sort do not commit the sin of epistemology despite the fact that they are not open to empirical evaluation. If Peirce's realism is truly an hypothesis of the pragmatic/conventional sort, then there is no problem here. However, as seen in Maddy, it is clear that when faced with Bas van Fraassen's skepticism about theoretical entities the naturalist rejects the foot-stomping realist's response that these theoretical entities *really* exist. She claims this is an epistemological claim and not a scientific claim. Such a realist does commit the sin of epistemology. Rather, naturalists do not prejudge the outcome of inquiry by aligning themselves with such robust ontological doctrines. The naturalist rejects both a correspondence and deflationary theory of truth so as to not sin. Further, the mathematical naturalist is not

committed to making ontological claims at all. Maddy rejects this variety of realism and these accounts of truth because she sees no scientific grounds upon which to defend them. Thus, even though there is some reason to view Peirce's treatment of inquiry as characterizing scientific inquiry at even the most general of levels, the fact that he sees it underwriting realism sheds some doubt on whether his method of inquiry is scientific or merely a hidden sin.

However, Peirce's realism is not the ontologically robust realism of the foot-stomping realist. His realism does not hold a claim that theoretical entities exist to be anything more than a claim about what we are justified in believing based on our best scientific evidence. He does allow talk of theoretical entities and a real world that is to be found out through inquiry, a real world that corresponds to our account of that world at the end of inquiry. But, Maddy herself allows for talk of mind-independent things and a correspondence between our claims about the world (understood by way of linguistics and psychology) and the world itself (as understood by physics, chemistry, and biology). These claims are merely that our science gives us evidence of mind independent things and that the claims we make about the world match the evidence provided by our best sciences. This is Peirce's truth₁. Maddy thus accepts "realist" claims, if these claims are merely about what we have scientific evidence for now. It is only when pressed to give a stronger justification of these claims that Maddy is confused and judges any attempt to give such sinful.

However, Peirce's claim that there is a real world that will be found out at the end of inquiry, a truth₂ does not elevate these "realist" claims to something more robust. His realism is not about the empirical claims of idioscopic science at all but rather about the ultimate goals and end of scientific inquiry. This truth₂ allows us to understand what it is we are doing when carrying out inquiry and comparing our beliefs to those of our fellow inquirers. This concept of truth₂ is developed at a highly coenosopic level; the level of logic. It is established by considering what could possibly be meant by truth, what is the goal of inquiry (to fix belief against possible doubt), how this goal can be best realized, and how best to arrive at such a truth. And, this conception of truth₂ is developed scientifically by trying various other conceptions of truth (in terms of what we already believe, what the authorities teach us, what is comfortable) and finding them lacking. The claim is that if our goal is to avoid doubt by establishing stable beliefs, then it must be the case that there is a right answer for any given question. If this is not the case, inquiry will be forever frustrated and does not even make sense. Further, this conception of truth₂ does not prejudge how inquiry will turn out. It does not pretend to know the final ontology; it only claims there is a final ontology that will be found out.

I take it that Maddy is committed to believing that there is a single right answer to be had to any given inquiry. If she did not, she would not be concerned with avoiding constraints on possible methods. She does avoid constraints because she sees such as blocking the road to inquiry, to fully evaluating certain questions. Thus, she is

committed to the realism of Peirce and yet, because this realism is epistemic and not ontological in nature, she can retain her claim that mathematics need make no appeal to ontology. Further, I take it that the level of investigation that delivers Peirce's realism does not constitute an appeal to a second level of inquiry above science because its findings are themselves held fallible, open to revision based on its own methods, and sensitive to social feedback. While any revision made to the claim that there is a single right answer to be had must occur at this very level of coenoscopy and not a lower more idioscopic level, Peirce does not claim that there is no way we could be mistaken in our considerations that such a conception of truth is an indispensable part on inquiry. However, any idioscopic denial of truth₂ will be viewed as an instance of paper doubt, an intellectual dishonesty and a sin of its own.

6.4 Evaluation

With the import for naturalism given by Peirce's account of inquiry and the sciences laid out and with it suggested that it meets the import commonly attributed to naturalism and specifically that import attributed naturalism by Maddy, we can now evaluate whether such an account gives a more determinate import than do other accounts by checking whether it meets our desiderata and does so to a greater degree than does Maddy's account.

As to the first desideratum of providing a means for judging whether a given local variety of inquiry is an instance of naturalism, Peirce provides such to a great

degree. By beginning at the most general levels of inquiry and establishing a direction of influence from these general, coenosopic levels to more local, idiosopic levels, we can evaluate any given idiosopic variety of inquiry according to whether or not it is consistent with the aspects of naturalism established at the more coenosopic levels. Further, since Peirce has more to say about these general levels than does Maddy, his account meets this desideratum to a greater degree than does her account (even assuming she would accept the claim of top-down influence).

Further, an account of naturalism based on Peirce meets the two correlates of this first desideratum: it can adjudicate disputes among local varieties of naturalism and explain how much variation is allowed among these varieties. Because of the ability of such an account of naturalism to judge whether a local variety of inquiry is consistent with naturalism, it can adjudicate disputes among these varieties. In some cases this will occur by ruling out certain positions, e.g., a denial of Peirce's variety of realism; in other cases it will occur by explaining away the dispute as merely apparent. This occurs when the dispute occurs within the framework of the naturalism established at the more coenosopic level, i.e., the variation occurs within the degrees of freedom allowed at the idiosopic level. I take it that Peirce meets this desideratum to a greater degree than does Maddy by saying more about how much variation we should expect or allow at the idiosopic level

The second desiderata of providing a means to evaluate a self-proclaimed naturalist's naturalistic credentials is also met by a Peircean account of naturalism. While the issue of whether or not a given inquirer counts as a good naturalist will depend on whether they posit methods and theories consistent with naturalism at the general and local level, there is also the issue of scope. Again due to the direction of influence from the top down, any inquirer who is committed to the tenets of naturalism at a given level is committed to naturalism at each of the more idioscopic levels. We can also understand when inquirers go beyond these logical requirements by extending their naturalism to an area that is not required. We might find that some local varieties of naturalists are more apt to extend their naturalism to other areas than are naturalists in other areas. Peirce's account of the structure of science and his coenosopic/idioscopic distinction allow us to understand these considerations of scope and do so to a greater degree than does Maddy's account, because her inquirer is a naturalist across all varieties of naturalism. But to find an inquirer who extends their naturalism less widely does not mean we have found an inquirer who fails to act as a good naturalist in a given domain, but only that this inquirer has a limited psychological commitment to naturalism, is not a global (coenosopic) naturalist.

Finally, on the point of our third desideratum to offer specific guidance to local, idioscopic projects in naturalism we again find Peirce successful. Peirce holds with Maddy that naturalism requires we not block the road to inquiry, posit no constraint to

theory and methodology that are not themselves the result on inquiry. Peirce may give us more justification for this requirement, but it is not clear that he goes beyond Maddy on this point. Further, Peirce's account requires an idioscopic project in naturalism adopt all those methodological and ontological commitments of more coenosopic naturalisms. While the exact content of these commitments will depend on what the project at hand is, there is guidance to be had. Finally, if we accept all the details of Peirce's system, including his economics of research as a part of naturalism (as opposed to merely as providing some argument or motivation of aspects of his naturalism) then we have a very precise set of guides about how to formulate and test theories: begin with those that have the best aggregate score on the considerations of cost, effect, and value.

Taking these things into consideration, I take it that Peirce does meet the desiderata laid out in the first chapter and thus provides us with a fairly determinate account of naturalism in general. Further, since he meets these desiderata to a greater degree than does Maddy, an account of naturalism based on Peirce provides a more determinate import than does one based on Maddy. However, it is still the case that we could have an even more determinate account of naturalism. This could be had by further developing aspects of Peirce's philosophy to give us more details about the methodological and ontological commitments that issue from the coenosopic levels. Having found a Peircean account of naturalism a success according to the goals laid out

in the first chapter, I will close with a brief consideration of additional work that could be done to further evaluate whether Peirce does agree with the import commonly assigned naturalism and to strengthen the import he gives naturalism

6.5 Future work

Having shown that an account of naturalism based on Peirce is more determinate than other accounts, there is further work that could be done to make this account still more determinant. For one thing, I have shown above that a Peircean account of naturalism takes a stance on certain debates in the naturalism literature, e.g., by claiming that naturalism entails a certain variety of realism and not the other way around; by explaining how and why naturalism is first and foremost a methodological doctrine. These are two debates commonly found in the naturalism literature, but these debates occur at a rather coenosopic level. Discussion of these debates is often muddled by appeals to idioscopic practices which do not apply to such debates. However, the account of naturalism developed above should be applied to more specific, idioscopic debates found in the literature. For example, this account of naturalism should be able to weigh in on whether and for what varieties Darwinism is a commitment of naturalism. By applying this Peircean naturalism to more specific, detailed debates, we would be forced to trace out more and more idioscopic implications of this coenosopic Peircean naturalism. This would not only provide us with a more detailed account of naturalism in various idioscopic domains, but it would also further lay out the

relationships between various levels of naturalism, e.g., between naturalism in biology and psychology. This would in turn allow the developed naturalism to provide more guidance at the idioscopic level.

Further, there is work that needs to be done evaluating whether other aspects of Peirce's philosophy can be incorporated into this account of naturalism. This would allow us to both determine whether Peirce's philosophy is, in its entirety, naturalized and to potentially add still more determinate import to naturalism. Some areas of his philosophical work that warrant attention are as follows: his semiotic, which claims all thought occurs in signs and his related theory of categories which claims all such thought can be captured through the three categories of Firstness (quality), Secondness (relation), and Thirdness (representation); his Synechism, which posits the actual existence of continuity; and his Tychism, which possible the real existence of chance. These areas of Peirce's philosophy often appear rather abstruse and metaphysical. Because these aspects of his philosophy are difficult to understand without a fairly thorough consideration of his philosophical system, it will take a great deal of work to evaluate whether they are consistent with naturalism. If these Peircean ideas are consistent with naturalism, they could increase the import provided by his account; if they are not, they need not undermine the above developed account but they would show Peirce not to be a naturalist across the entirety of his philosophy.

Another area in which further work could be useful is in empirically evaluating Peirce's claim that his variety of realism is indispensable to inquiry. This would require empirical investigation that goes beyond a mere survey of scientific inquirers and thus would be a complicated undertaking. Further, it would be difficult to carry out such an investigation in a way that did not leave it open to a response that the researchers who claim to deny realism are either operating on a method of inquiry other than that of science or are merely expressing a paper doubt. It seems that this empirical investigation may not be prudent on economic grounds. It could be challenged on purely logical grounds, but for my part I take Peirce's claims as clinching.

Finally, Peirce has a well-developed theory of mathematics and holds that this discipline is the most coenosopic of the sciences. It could be valuable to lay out his treatment of mathematics and compare it to the well-developed treatment of mathematical naturalism given by Maddy. If we accept the above developed Peircean account of naturalism, any conflict between Maddy's treatment of mathematics and Peirce's could force revision to Maddy's mathematical naturalism. However, because Peirce's mathematics occurs at a level coenosopically higher than the levels of phenomenology and normative science (esthetics, ethics, logic) that deliver us much of his naturalism, it is unclear whether his mathematical theory is subject to the constraints of naturalism. Such a finding would require significant analysis to establish whether

this mean Peirce is wrong in locating Mathematics at the most coenosopic of levels or whether this means he is not a naturalist across the entirety of his philosophy.

6.6 Conclusion

I take that it has been shown in the preceding chapters, that if we accept Peirce's treatment of inquiry and the structure of science to deliver a determinate account of naturalism, then this naturalism can help adjudicate disputes found in the naturalism literature, explain how much variation is acceptable across the local varieties of naturalism, and provide specific guidance to local projects in naturalism. Moreover, I take it that an account of naturalism based on Peirce is more determinate than other accounts because it can meet these ends to a greater degree than other accounts. If we do not accept an account of naturalism based on Peirce, then it seems that the argument must be made that it misses some significant amount of the import claimed for naturalism in general or cannot account for some import claimed for specific varieties of naturalism. I doubt this argument could be made out.

In accepting an account of naturalism based on Peirce, we reap a number of benefits. Among these is an argument that despite the great degree of variation found among the varieties of naturalism, naturalism does amount to a general disciplined approach to inquiry. This in turn allows us to explain how we find so much variation at the level of local varieties of naturalism. We also gain arguments in favor of certain claims made at times for naturalism in the literature; among these are the claims that

naturalism is primarily a methodological doctrine. We also gain the ability to better understand and adjudicate certain disputes found in the naturalism literature; among these we find support for the claim that naturalism is committed to realism, just so long as realism is understood epistemically and as ontologically neutral. Finally, accepting this account allows us to better understand certain claims made about naturalism; among these are the claims that naturalism rejects first philosophy and other two level views and that naturalized philosophy shares its methods with the special sciences.

Ultimately, I believe an account of naturalism based on the above laid out work of C. S. Peirce offers a fairly determinate account of naturalism in general that is nearer to the import commonly attributed to naturalism at the general and local levels than any other general account of naturalism. This Peircean account of naturalism, complete with its regulative realism, provides naturalism with a common understanding that allows the social business of naturalism to prosper and advance. A 21st century naturalism can thrive as a philosophical and (thus) scientific field by taking guidance from the 19th century work of Charles Sanders Peirce. QED, Peircean Naturalism.

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Biography

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