# Peirce on Habit, Practice, and Theory:
## The Priority of Practice and the Autonomy of Theory

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# Abstract

Charles Peirce's thought on the relationship between theory and practice has two seemingly inconsistent thrusts. On one hand, Peirce draws theory and practice together. He understands theory as a particular form of practical interaction with the world. On the other hand, he pulls them apart. He seems to insist that theoretical inquiry is not to affect, or be affected by, our other practices. This thesis uses Peirce's habit-based account of human activity to show that the two sides of his thought are not inconsistent. Rather, Peirce's apparent division of theory from practice is a consequence of his understanding of theory as a practice.

Peirce often appeals to a habit-based account of human activity. However, this account is not developed in detail in any one text. The first task of this thesis is to gather together Peirce's remarks on habit and human activity into a single coherent picture. According to this picture, we are made up of a body of habits which is constantly developing as we interact with the world. This body of habits is only partially subject to self-control, but we use this small window to direct ourselves towards our purposes. That in our body of habits which is subject to control is called the 'foreground' and that which is not is called the 'background'. Agents are said to be 'in harmony' with their environment when their habits allow them to achieve their purposes. In the course of articulating this picture points of critical contact with recent philosophy of action are noted.

The second task of this thesis is to show that Peirce understands theoretical inquiry on this model. Theoretical inquiry is the practice directed to the discovery of truth, where truth is understood as ultimate harmony between beliefs (a kind of habit) and the world. It depends on a background of mostly-instinctive habits, including a collection of indubitable common-sense beliefs, and an attunement with the world that enables us to generate explanatory hypotheses.

The third task is to show that Peirce's division of theory from our other practices is a consequence of his understanding of the special character of truth. According to Peirce the discovery of truth is a 'long-run' goal, which demands very different treatment from the 'short-run' goals of our other practices. To allow the needs of other practices to interfere in theoretical inquiry would be to take us off the path of truth. On the other hand, to allow theoretical results and reasoning to directly control our other practices would be to substitute reliable instinct for highly fallible reason. In sum, Peirce insists on the autonomy of theory and practice from one another.

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# Contents

# Introduction

This thesis concerns Charles Peirce's account of the relationship between theory and practice. Its primary challenge is to harmonise two seemingly-inconsistent aspects of Peirce's thought. On one hand, he calls himself a 'pragmatist', and so claims that 'what we think must be interpreted in terms of what we are prepared to do' (EP2, p. 142).[1] In this and other contexts he *prioritises* practice to theory. On the other hand, Peirce claims that theory and practice must be held apart. According to Peirce, theoretical results should not be directly applied in practice, and practical concerns are not to motivate theoretical inquiry. He '[condemns] with the whole strength of conviction the Hellenic tendency to mingle Philosophy and Practice' (EP2, p. 29). This has been taken by some commentators to imply a 'fundamental dualism' (Stuhr, 'Rendering...', p. 9), or a 'rigid distinction' (Ayim, 'Theory, Practice...', p. 51) between theory and practice. This thesis will argue that Peirce is, instead, acknowledging the *autonomy* of both theory and our other practices.

In order to show that these two aspects of Peirce's thought are consistent, I attempt a 'ground up' articulation of his account of the relationship between theory and practice. I begin with Peirce's most basic characterisation of the interaction between a creature and its environment: his account of habits and their development. Habits are, on this account, irreducibly general ways of behaving which develop in response to experience. When these habits allow the creature to flourish in their environment, the creature is said to be 'in harmony' with their environment.

[1] A full list of the abbreviations used in my citations can be found on page 107.

These materials are used to create an account of human practice according to which we are made up of a body of habits. The vast majority of these habits are outside of our control. They form a 'background' which we rely on in our deliberate, controlled, activity. Moreover, our deliberate activity is itself a form of habit development. Through it we attempt to shape our habits in order to achieve our purposes. According to Peirce, theoretical inquiry is no exception. It is the practice in which we attempt to attain ultimate harmony between our beliefs, which are a form of habit, and the world. This is the sense in which Peirce prioritises practice to theory.

Given that Peirce understands theory as a kind of practice, his suggestion that they should not 'mingle' is initially puzzling. If his suggestion implies a rigid dualism between theory and practice, then the two thoughts seem to be inconsistent. I argue that, rather than being inconsistent, Peirce's apparent division between theory and practice is a consequence of his prioritisation of practice. More specifically, it is a consequence of the special character of truth as the purpose of theoretical inquiry. Truth is a 'long-run' purpose, and, as such, requires very different treatment from the 'short-run' purposes of our everyday life. So, while theoretical inquiry is a practice, its particular purpose means that it must be carried out on its own terms; it requires autonomy from the demands of our other practices. Likewise, the purpose of theoretical inquiry means that its results are not directly applicable to our other practices; they require autonomy from the results of theoretical inquiry.

## Theory and Practice as a Philosophical Topic

The key terms in the claims that I am defending in this thesis: 'practice', 'theory', 'prioritise', and 'autonomy' are, by themselves, vague. But, as Peirce often says, vagueness can be useful.[2] The primary value of vague claims about the re-

[2]Peirce suggests that vagueness can be useful in a few contexts. For instance, he says that the vagueness of vernacular terms is part of their function (CP, 6.494). He also suggests that our common-sense beliefs, for instance, that there is some regularity in the universe, only maintain

lationship between theory and practice is to point to broad similarities between philosophies and to general philosophical strategies. This point is best made by considering some examples.

The relationship between, and relative value of, theory and practice was an important issue to the ancient Greeks. Aristotle illustrates the distinction by saying that the theorist is like one who goes to a festival at Olympus simply to watch, whereas the practical man is either like the athlete who competes for glory or the merchant who attends for material gain (in Nightingale, *Spectacles of Truth*, p. 18).[3] This example suggests that theory is contemplative, passive, and disinterested; and practice is active, engaged, and directed towards instrumental ends. This agrees with the present use of the distinction in folk-wisdom. In theory we step back and think, in practice we *do*.

The general strategy of prioritising practice to theory is on display, in disparate ways, in the work of many philosophers. The later Wittgenstein's famous insistence that we go 'back to the rough ground' is an appeal to practice (*Philosophical Investigations*, p. 46; pt.1 par.107). One might also cite philosophers like Husserl and Merleau-Ponty, who in their distinct ways explore the '*lebenswelt*', the world of our everyday life (Beyer, 'Edmund Husserl', §7; Merleau-Ponty, *Phenomenology of Perception* vii-viii). This general strategy has been called 'fundamental pragmatism' by Robert Brandom (*Perspectives of Pragmatism*, pp. 9–11), and it is indeed hard to see how a philosopher could deserve the title 'pragmatist' without carrying it out in some sense.

On the other hand, many philosophers have attempted the opposite strategy; putting theory before practice. Descartes' famous declaration that he is essentially a thing that thinks reflects this strategy (Descartes, 'Meditations on First

their truth because of their vagueness (CP, 5.522).

[3] Nightingale notes that this image appears earlier in the work of Heraclides of Pontus (Nightingale, *Spectacles of Truth*, p. 18). She also notes the interesting reasons why Heraclides attributed it to Pythagoras, namely, that the Fourth Century figures who introduced the idea of theoretical contemplation aloof from practical engagement wanted to project this image back onto the thinkers of the past (Nightingale, *Spectacles of Truth*, pp. 24–5). That is, theoretical inquiry had only just appeared as a self-conscious and distinct form of human activity, and needed to defend itself by creating a history for itself.

Philosophy', p. 19; AT28). Descartes attempts to reason from this position to secure knowledge of an external world. That is, he attempts to deploy his powers of theoretical reflection to secure his relationship with the external world in which he acts; theory comes before practice. On some interpretations Kant prioritises theory to practice by accounting for the structure of the world in terms of the concepts which we must use in order to think about it at all.[4] This general strategy can be called 'intellectualism'.

While the examples I have just introduced are all historical, both strategies are pursued today. For example, intellectualist strategies are prominent in contemporary analytic philosophy of action,[5] and in recent arguments, due to Stanley and Williamson, that 'knowledge-how' is a variety of 'knowledge-that'.[6] In the former actions are defined in terms of consciously apprehended beliefs and desires. In the latter knowledge *that* propositions are true is given priority over our knowing *how* to perform tasks. Both of these examples will be returned to, in passing, as the thesis proceeds.

Two ways of denying the autonomy of theory from practice are, first, the claim that theory should be carried out for the purpose of political or social change, and second, the claim that it should be directed to narrowly utilitarian, or instrumental, outcomes. An example of the former is the idea, stressed by some Marx-inspired philosophers, that the success of a theoretical development is to be measured by its ability to ameliorate perceived social ills.[7] An example of the

[4]This is true, for example, of Merleau-Ponty's interpretation of Kant in his *Phenomenology of Perception* (x-xi).

[5]More specifically, the family of views in the philosophy of action called 'the standard story of action' by Michael Smith ('The Structure of Orthonomy', p. 165) and Jennifer Hornsby ('Agency and Actions', p. 1).

[6]Their joint article is 'Knowing How'. The arguments are further developed in Stanley's 'Knowing (How)' and *Know How*. Note that the word 'intellectualism' is used in a more strict way in the discussion that these articles engendered. Following Ryle, Stanley and Williamson use 'intellectualism' to refer to the claim that knowledge-how is a variety of knowledge-that (c.f. Ryle, *The Concept of Mind*, pp. 27–30).

[7]I do not know whether this view is fairly attributable to Marx. However, examples can be cited of self-avowedly Marxist philosophers taking such a position. One dramatic example is the division of the Sydney University Philosophy Department over this issue in the 60s (Franklin, pp. 281–312). It is possible to see how this view of the relationship between theory and practice could be derived from Critical Theory, with its emphasis on the potential of theory for 'human emancipation' (Bohman, 'Critical Theory', Introduction).

latter is the subordination of theoretical research to technological progress.[8] On the other hand, the autonomy of practice from theory can be denied by radically reforming our practices on the basis of theoretical inquiry. Dunne provides an interesting example of the attempt to reform education through the 'behavioural objectives model', which promised to replace the 'wooly-mindedness and muddle' of traditional teaching practices with a framework based on strictly-defined learning objectives (Dunne, *Back to the Rough Ground*, pp. 1–8).

## Chapter Summary

Chapter 1 begins the 'ground up' articulation of Peirce account of theory and practice by introducing his account of habits and their development. Peirce did not put forward this account in any one text, so in Section 1.2 I gather together Peirce's various characterisations of habit into a single coherent picture. In Section 1.3 I turn to habit development. I introduce a 'cycle of habit development', according to which habits are subject to development when they 'clash' with experience. I conclude by considering Peirce's account of self-control as a form of habit development. I emphasise his view that our most advanced forms of self-control develop from, and depend on, more basic forms of habit development.

In Chapter 2 I articulate Peirce's conception of practice in terms of his account of habits and their development. The organising idea of this chapter is the distinction between the 'background' and the 'foreground' of our practices. In Section 2.2 I introduce the former. I argue that the background represents an 'attunement' with the world, which we rely on in order to act deliberately.[9] I also emphasise the role of instinct. Section 2.3 deals with the foreground. It introduces Peirce's conception of our deliberate activity as purpose-directed habit

[8] This tendency is commonly on display in arguments over the public funding of scientific research. For example, one can imagine someone attempting to defend the funding of pure mathematics purely by invoking examples of its eventual and unexpected practical uses, some of which are interestingly adduced by Rowlett ('The Unplanned Impact of Mathematics').

[9] The language used in this chapter is heavily indebted to Vincent Colapietro, especially his 'Habit, Competence, and Purpose'.

development.

In Chapter 3 I show that Peirce understands theory as a form of practical interaction with the world. That is, that he prioritises practice to theory. Section 3.2 takes up Peirce's account of theoretical inquiry as the search for truth without ulterior motive, of beliefs as a form of habit, and of experimentation. In Section 3.3 I consider the dependence of the experimental method on the inquirers background attunement with the world. I pay particular attention to a set of indubitable 'common sense' beliefs and to our instinctive ability to generate explanatory hypotheses.

Chapter 4 considers Peirce's distinction between theory and practice. It begins, in Section 4.2, by introducing Peirce's most extreme statement of the distinction and its reception in the work of some recent commentators. I emphasise two claims: the 'no-instinct thesis', and the 'no-belief thesis'. The former suggests that there is no role for instinct in theoretical inquiry, and the latter that theoretical inquiry has nothing to do with beliefs. Section 4.3 is devoted to showing that both theses, when Peirce's underlying arguments are considered, are only superficially in tension with Peirce's prioritisation of practice. I then, in Section 4.4, reformulate Peirce's distinction between theory and practice using the terminology developed in the previous chapters. I show that the special character of truth means that theoretical inquiry is a practice with a unique relationship to time, instinct, and doubt. Further, I show why, given this distinction, theory and our other practices must maintain their autonomy from one another. I conclude, in Section 4.5, by reflecting on the Peirce's overall conception of the relationship between theory and practice and suggest some questions for further research regarding its 'long-run' development.

# Chapter 1

# Habits and Their Development

## 1.1 Introduction

This chapter introduces Peirce's conception of the most basic form of interaction between things: his account of habits and their development. It pays particular attention to the interaction between human agents and their environment. According to Peirce, habits are ways of acting that cannot be reduced to any particular collection of acts. They are enduring behavioural regularities that can be possessed by a vast range of entities. Habits are subject to development when they cause their possessor to clash with their environment. Most forms of habit development happen below the level of consciousness and control. But in the human case we can take some control over the development of our habits. This account provides the basic materials for the chapters that follow. It is the 'ground' from which the 'ground-up' account of the relationship between theory and practice begins.

In Section 1.2 I introduce Peirce's notion of habit. I begin, in Section 1.2.1, by gathering together Peirce's various characterisations of habit into a single definition. I emphasise the irreducibility of habits to particular acts, their role in determining those acts, and the wide applicability of Peirce's account. Section 1.2.2 heads off some tempting misinterpretations of habit. In particular, 'habit' often carries negative connotations that do not apply to Peirce's notion. It can sug-

gest, for instance, addictions or other compulsive behaviours. On Peirce's account these *are* examples of habits, but they do not exhaust its meaning and they are not his central examples.

In Section 1.3 I introduce Peirce's account of habit development. Firstly, in Section 1.3.1, in its most general form, showing how habits develop in a continual cycle of interaction between the possessor of the habit and their environment. Then, in Section 1.3.2, I consider the special case of human habit development, which is characterised by a high levels of self-control. I introduce Peirce's account of self-control, and show that it makes self-control a form of habit development. I emphasise Peirce's claim that the most advanced forms of human self-control develop in degrees from more basic forms.

## 1.2 Habit

### 1.2.1 Characterising Habit

What Peirce means by 'habit' can be characterised as follows:

> A habit is anything that determines its possessor to respond in generally specifiable ways to generally specifiable situations.[1]

Note that this is not an analytic definition. It does not define 'habit' in terms that do not themselves involve habit. On Peirce's view, for there to be generally specifiable ways of responding and generally specifiable kinds of circumstance there must be some regularity in our environment and responses. This regularity will itself satisfy the characterisation of habit. In other words, Peirce thinks of habits as *irreducible* features of reality. One might protest that habits can be defined in

[1] This gathers together the key features of Peirce's various descriptions of habit. The importance of generally specifiable actions and circumstances is made clear at CP 2.148; 5.480; 5.538; and EP2, pp. 401–2; p. 413. The importance of the habit *determining* the kind of action is made clear at CP 8.361; EP1, p. 198; p. 202; and EP2, p. 269; pp. 401–2. I have used the word 'respond' rather than 'act' to avoid confusion about the various kinds of habit that Peirce recognises. These include: habits of action (CP 5.538), habits of expectation (CP 2.148; 5.539), and habits of feeling (EP2, pp. 377–8).

terms of some collection of particular responses, or some particular arrangement of matter. This is not Peirce's approach.[2]

Some features of the above characterisation of habit require further clarification. In particular Peirce's emphasis on generality, and the varieties of response which the characterisation invokes. Moreover, there are some features of Peirce's use of 'habit' that are not completely in line with the everyday meaning of the term.[3] Most importantly, Peirce's willingness to ascribe habits to a wide range of entities.

The irreducibility of habit is a manifestation of Peirce's realist account of generality.[4] Peirce holds, against nominalism, that a general is something over and above the collection of its particular instances (CP, 4.172).[5] On this view, the generally specifiable situations in which the habit is in effect and the generally specifiable responses that the habit determines are not exhausted by any collection of particular situations or responses. Consequently habits can not be completely captured by collecting up the particular occurrences which are their issue (EP2, pp. 401–2); they are irreducibly general.

One important consequence of the irreducible generality of habits is that they always refer to the future. The past is a collection of actual occurances, so, since

[2]This feature of Peirce's account of habit is captured at a more abstract level in his system of universal categories. In this system the category of Thirdness, of which habit is a paradigmatic example, is not reducible to Firstness and Secondness, of which feelings and acts are, respectively, examples. For Peirce's discussion of the categories see, for example, 'On a New List Of Categories' (EP1, pp. 1–10), or the second and third of his 1903 Harvard Pragmatism Lectures (EP2, pp. 145–178). The categories have been widely discussed in the secondary literature (e.g. Hookway, *Peirce*, pp. 80-117; Short, *Peirce's Theory of Signs*, pp. 65–86; Krausser, 'The Three Fundamental Structural Categories of Charles S. Peirce').

[3]Peirce acknowledges that he is expanding the term in a few places. For instance, in his comments on Royce's use of the idea of purpose (EP2, pp. 430–431).

[4]Peirce describes his position on the reality of generals as a kind of scholastic realism (EP1, p. 53; EP2, p. 339). Peirce's affinities with scholastic realism have been explored by Boler (*Charles Peirce and Scholastic Realism*) and Mayorga (*From Realism to "Realicism"*).

[5]Peirce took nominalism to have very wide-ranging and troublesome consequences. He says, for instance, that '[t]he question whether the *genus homo* has any existence except as individuals, is the question whether there is anything of any more dignity, worth, and importance than individual happiness, individual aspirations, and individual life' (CP, 8.38). It is clear from his other writings that Peirce thought both that nominalism requires a negative answer to this question, and that a negative answer has terrible consequences for human life (e.g. EP1, pp. 352–8). For a recent work exploring Peirce philosophy from this perspective see Paul Forster's *Peirce and the Threat of Nominalism*.

a habit is more than any collection of actual occurrences, it is not exhausted by the past. On the other hand, the future is potential. So Peirce holds that the habit must always refer to the future; its 'mode of being' is '*esse in futuro*' (CP, 2.148). This kind of generality is also called, by Peirce, 'conditional generality' (CP, 1.427).[6] So to ascribe a habit to something is to make claims about its potentials for future behaviour and to have a habit is to be such that you will act in certain ways if put into certain situations.[7] If I have the habit of drinking whisky before bed then predictions can be made about my behaviour in possible future situations, and in various counterfactual situations. Given that there is a whisky bottle in my cupboard now it can be predicted that I will have a glass of whisky when I get home tonight. It could also be predicted that, if I were out of whisky, had sufficient money in my bank account, and was aware of these facts, then I would stop at the bottle store on my way home.

It worth emphasising that Peirce's realism about generals implies that habits are active powers.[8] As the characterisation of habit offered above says, habits really determine the behaviour of their possessors. The habit is not simply a convenient way of noting correlations between certain kinds of situation and certain

[6]This 'conditional generality' of habit can also be understood in terms of Peirce's contrast between 'positive' and 'negative' generality (CP, 1.427). Positive generality is the same thing as conditional generality. A thing has positive generality if the fact that it applies to multiple cases is part of its nature. Habits have positive generality because it is part of their nature that they apply to an inexhaustable range of potential circumstances. On the other hand, a thing has negative generality if it can be instantiated multiple times in experience, but does not in itself refer to anything outside of itself. A particular shade of a colour has negative generality; it can be instantiated in experience multiple times, but in itself it is a particular quality and does not refer to anything outside of itself. This distinction is discussed by Short (*Peirce's Theory of Signs*, pp. 78–80).

[7]Peirce's thought on potentialities, and particularly, about when it is appropriate to ascribe potentialities to things, developed over his career. In his famous early paper 'How to Make Our Ideas Clear', he claimed that there was no fact of the matter about whether or not we should say an unscratched diamond is hard (EP1, pp. 132–3). Later on he revised this view, holding that it was too nominalistic (EP2, pp. 354–7). In his later writings he endorses the view that I have just sketched (e.g. EP2, pp. 456–7). See Potter, *Charles S. Peirce on Norms and Ideals*, pp. 52–67 for a discussion of this progression in the wider context of the development of Peirce's formulations of the pragmatic maxim.

[8]Peirce holds that 'a habit is a rule active in us' (CP, 2.643). In other contexts Peirce uses the word 'determine' to characterise how habits relate to the particular actions which they result in (eg: EP2, p. 269; p. 347). Peirce's understanding of habits as active is also emphasised in Shapiro's study of his theory of habit ('Peirce's Theory of Habit', p. 23).

kinds of action.[9] This is an essential aspect of the reality of habits. If habits did not have the potential to really determine events then, on Peircean principles, they would not be truly real. In other words, the habit does not simply mark the connection, it makes the connection.

In the characterisation of habit I introduced above I used the term 'respond' rather than 'act'. This is because habits of action, while of central importance, are not the only kind of habit. Peirce also mentions, amongst others, habits of feeling and habits of expectation.[10] Habits of feeling are important in part because of their role in the affective dimension of our experience. For instance, on the Peircean model the affective responses that accompany our experience of various objects is largely constituted by habits of feeling. It can be predicted that when reading a news story about a serious crime the reader will, depending on the particular habits of feeling they have, feel nauseous, depressed, or exhilarated. This is, according to the characterisation of habit given above, enough to say that there is a habit involved. In this case the responses are feelings, so we can call the habit a habit of feeling.

These various kinds of response highlight another important aspect of this account of habit. That is, that the habit must always have something other than itself to control.[11] One aspect of this is that control implies the being of something to be controlled. In the case of habits of action, it is, obviously, actions that are being controlled. The thing to be controlled is always in some sense *compulsive*. For instance, the existence of some particular feeling, or occurrence of some particular action. Now this is not only important as a requirement for the being of a habit, it is also important for the development of habits. In the next section I

[9] Of course, such correlations will be important when we attempt to learn what habits a certain thing possesses.

[10] Peirce uses habits of feeling in his later account of the normative sciences. Esthetics is, in his later *Monist* papers, the science of habits of feeling (EP2, pp. 377–8). This point is emphasised and placed in the context of Peirce's developing accounts of the normative sciences in Potter, *Charles S. Peirce on Norms and Ideals*, pp. 50–51. Peirce sometimes uses habits of expectation to account for the meanings of our scientific beliefs (see e.g. CP 5.539–41).

[11] Peirce makes the point in the language of his universal categories when he says that Thirdness cannot be 'prescinded' from Secondness and Firstness (CP, 1.353; EP2, p. 177; EP2, p. 270).

introduce the idea that the growth of our habits requires external compulsion.

The final point that needs to be made explicitly is that habits can be possessed by a wide range of entities. Human beings are the primary example, but Peirce shows that an analysis of our habit-governed activity can have wider application.[12] The analysis is easily extended to non-human animals. It also applies to everyday objects.[13] Even nature itself can take habits; Peirce characterises the laws of nature as habits of nature (CP, 1.409). That the agent's environment has habits is a central part of Peirce's account of habit development.

### 1.2.2 Misinterpreting Habit

The word 'habit' has some unfortunate connotations, which, if not noted, might encourage misinterpretations of Peirce's account. Peirce acknowledges that his use of the word diverges from common usage (e.g. CP, 5.538). In common speech habits are often associated with compulsive and unwanted behaviour. For instance, drug addictions, regular overeating, or obsessions. These are compulsions that can prevent us from behaving in the way that most attracts us on reflection. They are, it seems, largely outside of our control. Often they are also highly stereotyped, or mechanical. For example, one might have an unshakable compulsion to have a cigarette every morning. Perhaps these negative connotations are behind the tendency of analytic philosophy of action to ignore habitual behaviour.[14] One of the organising questions of that discipline is the question of

[12] Peirce explicitly starts one of his late accounts of pragmatism with examples of human habit (EP2, pp. 411–2), and then lets his analysis apply more widely (EP2, p. 418). Shapiro emphasises the fact that this is the direction that Peirce's analysis moves in. He suggests that this is an application by Peirce of his anthropomorphism Shapiro, 'Peirce's Theory of Habit', pp. 47–9.

[13] I take this to be the meaning of Peirce's claim that all objects are 'quasi-selves' (EP2, p. 268). That is, according to Peirce habits are necessary for thing-hood. Without habits matter would be 'utter nothingness' (CP, 1.218). For example, I carry around a reusable rubber coffee cup. My coffee cup is such that, if I squeeze it in the middle the lid will pop off, and such that if I turn it upside down when it has coffee in it, then it will make a mess. More basically, it has the habit of enduring in the same form from one moment to the next. Without habits of this sort it would not have any integrity as an object. These regularities are, on Peirce's creatively-extended account, habits. Since Peirce takes human habits to be the central examples of habit, anything that has enduring habits can be described as a 'quasi-self'. My coffee cup is a 'quasi-self'.

[14] This diagnosis of the place of habit in recent philosophy of action is defended by Pollard ('Habitual Action'). It is worth noting some exceptions. For example, Peter Railton's work on 'fluent agency' ('Practical Competence and Fluent Agency'), where he focusses attention on the well-

what counts as action, and what is merely behaviour (Stout, *Action*, pp. 3–4). Or in other words, the question of what events are manifestations of agency. Since the behavioural compulsions described above are not clearly controllable, they seem closer to 'mere behaviour' than to action.

It is important to note that these examples *do* count as habits on Peirce's definition. For instance, to be a heavy smoker implies that you smoke with a high degree of regularity. This behavioural regularity is, by definition, a habit. But these examples are not typical examples of habit in Peirce's sense. Peirce spends more time considering habits of 'deliberate conduct'. That is, a habits which come into effect when we are 'acting deliberately' (c.f. EP2, p. 12). We will soon see that Peirce's conception of habit encompasses creative and flexible behavioural dispositions. He attempts to capture the skill of, for instance, the great musician, athlete, or scientist, within the habitual dimension.

On Peirce's conception habits are not merely, as Ryle suggests, 'one track dispositions' (Ryle, *The Concept of Mind*, pp. 42–5). That is, habits need not be mechanical relationships between a tightly circumscribed antecedent condition and a highly stereotyped response. There are many examples of such behaviour in the animal kingdom. Daniel Dennett often invokes the behaviour of *Sphex* wasps (e.g. *Elbow Room*, pp. 10-14; *Freedom Evolves*, p. 198). After successfully hunting, these wasps return to their nest with their prey. However, before bringing their prey into the nest they enter solo to determine if everything is in order. If their prey is moved a small distance while they are inspecting their nest, then when the *Sphex* wasp emerges it will collect its prey, place it at the entrance of the nest, and reenter the nest solo to check it again. If one then moves the prey again the entire cycle can be repeated. One investigator repeated this loop fourty times![15] On the definition given above this kind of behaviour is a form of habit, but not all habits are like this. In the case of the *Sphex* the response, and the situation which

developed abilities of agents, noting, for instance, that much of it occurs without any need for conscious prompting. Stout's focus on real dispositions and potentialities is also suggestive of Peirce's conception of habit (e.g. Stout, *Action*, pp. 94–5).

[15] Woolridge, cited at Dennett, *Elbow Room*, p. 11.

elicits it, are tightly circumscribed.

Peirce's definition of habit does not require us to specify every detail of the kind of response and the kind of situation that elicits it, it allows for general 'ways of responding', to highly general kinds of circumstance. According to Peirce, human habits are not, for the most part, a matter of mere 'slothful repetition' (NM4, p. 143). We can describe them as *automatic*, rather than mechanical (c.f. Railton, 'Practical Competence…', pp. 104–6; Brett, 'Human Habits', p. 357). They do not require conscious prompting, but they allow for intelligent and creative responses to experience. Imagine, for instance, a proficient cyclist rushing to the library to return some books before they incur a fee. The cyclist can avoid potholes, stray children, and car doors, without any conscious prompting or mental recitation of how to avoid the coming obstacles. Rather, they can rely on their developed habits. Moreover, their responses to these situations will not be stereotyped. For instance, the cyclist does not necessarily swerve whenever a child crosses their path. They might break, turn, shout at the child, or ring a bell. The cyclists response will be highly sensitive to their particular circumstance. That all this can happen automatically is one of the *advantages* of habitual behaviour.

One might still worry that habits are, even if not mechanical, not subject to our control. If we do not control them, then it would be strange to say that they are reflective of *our* agency. However, this is not Peirce's conception, he holds that '[e]ach habit of an individual is a law; but these laws are modified so easily by the operation of self-control' (CP, 1.348). Peirce's account of self-controlled habit development is the topic of Section 1.3.2.

## 1.3 Habit Development

In this section I introduce the main features of Peirce's account of habit development. I will do this in two stages. The first introduces habit development in its most general form. On Peirce's account an entity's habits develop in the direction of greater 'harmony' between the entity and its environment. This account

applies to anything that can take habits, which we saw above is a very wide class. I then turn to characteristically human forms of habit development. Here we must account for the high degree of self-control that we can exhibit. In particular, we take an active interest in the cultivation of our habits, and attempt to control and criticise even the norms by which we evaluate our habits. On the Peircean account this is a special case of the more general form of habit development since, as we will see, it also depends on environmental constraint. In other words, Peirce understands each further degree of self-control as opening us up to a wider environment, which includes ideas and ideals as well as physical objects.

Before putting forward Peirce's account of habit development I need to account for the way I am drawing together Peirce's work on this topic. The first important issue is to introduce the various terms that Peirce uses when discussing how our habits change over time. Peirce uses the terms habit 'acquisition' (EP2, pp. 412–3), 'habit-change' (CP, 5.477), and habit 'development' (CP, 8.318; EP2, p. 435). Because Peirce's thought on habit was worked out in many different philosophical contexts over a long period of time we should not expect uniformity in his language. For instance, sometimes by 'habit' Peirce means those dispositions which we have acquired (EP2, p. 413), and sometimes he means dispositions in general (CP, 5.533). In this thesis I will use the term 'development'. The kind of habit development which is of most interest in this thesis is that which tends towards to greater and greater success, so the term 'development' is better than the more neutral 'change'.[16] However, in putting forward what I take to be Peirce's mature view on habit development I will cite passages which use the terms 'change' and 'acquisition' amongst others.[17]

[16]This is not to say that habit development cannot go wrong. I introduce an example of this in Section 2.3 of Chapter 2 where I discuss the habit change brought about in someone as a result of their being electrocuted.

[17]One might complain that the acquisition of a new habit is very different from the development of an older one. However, as far as I can see there is no clear division between these cases. This seems to be analogous to the problem of deciding when a new concept has been introduced to a field or an old concept has been developed. Sometimes there are no clear criteria for determining which has happened. In this connection it is also worth pointing out that Peirce does not support any kind of blank slate account of human nature (e.g. EP2, pp. 153–4). According to Peirce we are born with instincts and dispositions, so the idea that all of our habits might be

Finally, Peirce sometimes offers a physiological account of habit development.[18] This is not the kind of account which is of interest for this thesis. When dealing with the philosophical issues that we are here concerned with, Peirce does not think any appeal to the results of the natural sciences is appropriate. For example, he holds that the account of habit that underlies his pragmatism is not a result of 'scientific psychology' (EP2, p. 412). Peirce makes the more general claim about the relationship between the 'special sciences' and philosophy in many places, mostly in connection with his hierarchy of the sciences (e.g. EP2, p. 146; pp. 258–9; pp. 458–9).[19]

### 1.3.1 The General Form of Habit Development

Peirce's most general account of the dynamics of habit development has a few ingredients: the habit under development, the possessor of the habit,[20] the environment in which the agent acts, and the habits of that environment. The habits of the agent, when well developed, are in harmony with the habits of their environment. This development occurs as a result of interaction between the agent and its environment.

This general account of habit development can be introduced by means of an example. Peirce dedicated much of his philosophical work to describing the development of our beliefs by means of scientific inquiry. On Peirce's account beliefs are a kind of habit, and his account of experimentation is a special case of his account of habit development.[21] The development of our beliefs follows a 'belief – surprise – doubt – inquiry – belief' cycle (Misak, 'Charles Sanders Peirce (1839–1914)', p. 11). Our theoretical beliefs are, Peirce says, primarily habits of

acquired from scratch is not available within the Peircean framework.

[18] For instance, his account of the acquisition of habits in terms of 'nervous discharge' (EP1, pp. 200–201).

[19] Shapiro has also emphasised that this is important for our understanding of Peirce's account of habit (Shapiro, 'Peirce's Theory of Habit', pp. 36–8).

[20] For ease of reading I will use the term 'agent' rather than 'possessor of the habit' for the rest of this section. This extends the meaning of the term somewhat, since, on the Peircean account, such a wide class of things can possess habits.

[21] Both of these claims are taken up in Chapter 3. The former in Section 2.2, the latter in Section 2.3.

expectation (CP, 5.539). We expect that certain things will happen when certain conditions are met. For instance, my beliefs about the moon are responsible for my expectation that, given the chart I read in the newspaper this morning, the moon will rise at a certain time tonight. However, our expectations are frequently unfulfilled. In the Peircean framework this is the element of surprise. I am surprised that the moon is already high in the sky when I expected it to be on the horizon. This surprise causes doubt, which Peirce understands to be an *uneasy* state (CP, 5.510). I now doubt the beliefs that have resulted in my expectation about the moon's position. The uneasiness of doubt causes us to attempt to correct our, clearly inadequate, beliefs. This is the activity of inquiry (EP2, p. 336).[22] In inquiry we experiment, by various methods, to resolve our doubts. In this case I test various hypotheses about the moon's current position, perhaps the moon has drastically shifted position, but this seems highly unlikely. Alternatively, perhaps I read the wrong newspaper this morning. It turns out that this hypothesis is validated when I return home and see that I have last week's newspaper on my desk. This brings my doubt to an end, and corrects the flaw in my beliefs, namely, my belief in the appropriateness of the chart I read in the newspaper this morning.

I want to note three further features of this process before generalising it to all habits. Firstly, inquiry of the sort I have just sketched depends on there being some kind of regularity governing the subject matter in question. Peirce holds that the belief that there is some real regularity in the universe is an indubitable common-sense belief, and further, that it is a presupposition of science (CP, 5.522). Peirce argues that a complete absence of regularity would be a complete absence of things (EP2, p. 324). These regularities, given the wide definition given in the section above, are habits.

Secondly, if our inquiry has been successful our beliefs will produce expectations which are less likely to result in surprises. Our beliefs, as habits of expect-

[22] Doubt is not, for Peirce, simply an attitude to a proposition, it is a motive for inquiry (TRP, p. 251).

ation, are in this sense in greater harmony with the habits of the external world. That is, our habits of expectation in some sense match the habits which govern whatever the subject of our expectations is. Returning to our example, I will have, having realised my mistake, developed habits of expectation that are in greater harmony with the behaviour of the moon. For instance, I will not be surprised by the moon's position in any video footage from last week that I might come across in the future.

Thirdly, the interaction with our environment necessary for the development of our beliefs occurs at two phases of the cycle: first, when we are surprised; second, when we are engaged in inquiry. Surprise, in Peirce's sense, always involves struggle between the 'ego' and the 'non-ego' (EP2, pp. 154–5); we cannot surprise ourselves by an act of will (EP2, p. 348). We form expectations and the world responds. Similarly, when engaged in inquiry we test hypotheses against the world, trying to make it constrain our beliefs in an appropriate way. This involves activity on our part and responses from the world to that activity. These responses are, we hope, sufficiently determined by some habit for us to come to a reliable conclusion.

The example of belief development can be extended to cover the more general form of habit development. This more general cycle of habit development can be described, mimicking Misak's description of the cycle of inquiry, as a 'habit – surprise – disruption – experiment – habit' cycle. The agent's habits, along with some motive or desire, cause activity. In my example of belief development the activity was of a quite passive sort, merely having an expectation. The formation of expectations is so automatic that the motivational element is almost invisible. For instance, it is hard to point to a particular desire that leads me to form expectations about the position of the moon. The deployment of habits of action tends to involve more obvious motives. My desire for a coffee is a motive that sets off a collection of habits, for instance of filling the jug if the water is below a certain level, or cleaning out the coffee press if it has been used

recently. These habit-governed activities can be more or less successful. If they are not successful the agent is, in Peirce's sense, surprised and put into a state of unease. This unease will motivate experimentation. If my attempts to fill the jug from a particular tap are frustrated I will, circumstances depending, either try to determine why the tap no longer works or to find another source of water in my environment. If successful my coffee making habits will be improved.

As above, interaction is vital. It is the constraint imposed by the agent's environment that allows for habit development. The agent acts, the world responds, the agent responds with further action, and so on. When the agent's habits are such that they tend to the satisfaction of the agent's desires then they are, in the sense introduced above, in harmony with the habits of their environment.[23]

Biological evolution can be worked into this model and provides a good example of a kind of habit development quite different from the usual examples from human life. We can describe a species as having a particular set of habits.[24] These will be dispositions to forage in certain areas, or to grow a certain kind of leaves at a given time etc. These dispositions have a motive built in, namely, reproductive success.[25] Now, these habits can be more or less successful and sometimes previously successful habits no longer function in a new environment. When the habits of the species are no longer working, new forms of behaviour are necessary. On this model of habit development this is the surprise and disruption phase. This serves to emphasise that 'surprise' and 'disruption' are being used in slightly peculiar ways. Surprise is simply the moment at which the habitual response has ceased to function properly. Disruption is a state in which new forms of response are needed. In any case, in Darwinian evolution

[23]The notion of harmony between agent and environment I am using here is thus relative to the agent's desires. This kind of harmony need not imply a richly ethical or sustainable relationship between agent and environment. Or at least, it need not for our purposes. As Potter makes clear, Peirce extends this account of habit development into an account of aesthetics and ethics (Potter, *Charles S. Peirce on Norms and Ideals*, pp. 45-51). This might result in a more demanding account of harmony with the world. However, Peirce's account of the normative sciences is outside the scope of this thesis.

[24]Here I am interested in the habits shared by each individual member of a given species rather than some habit attributable to the group but not to the particular individuals that make it up.

[25]On Peirce's model a motive need not be a psychological state.

the required novel forms of response are introduced by genetic mutations. Some of these novelties will be describable as adjustments to the former habits. If the adjustment puts the creature in greater harmony with its environment then the possessors the new habit will have more reproductive success, and the new habit will propagate throughout the species in question.

To summarise, Peirce general account of habit development holds that habits develop in a process of interaction between the agent and their environment. This interaction follows a 'habit – surprise – disruption – experiment – habit' cycle The agent's habits are maximally developed when they are in harmony with the habits of the agent's environment. This harmony is demonstrated by our effectively achieving our purposes. I now turn to the further specifications required in order for us to capture characteristically human levels of self-control within this story.

### 1.3.2 Human Habit Development and Self-Control

The examples used to illustrate Peirce's account of habit development above all involved a fairly clear sense in which the agent was interacting with the world. But this is not obviously true of many examples of human habit cultivation. In particular, we humans have the ability to control our habits in terms of ideas and ideals. For instance, we can cultivate habits of action whose main goal is the expression of ideas. Such habits are involved in, for example, particular forms of dance or ritual behaviour. We also criticise our habits of action in terms of moral ideals, and endeavour through self-control to live up to our ideals. This kind of habit development might seem to take us away from the kind of interactive cycle described above. But this is not the case on Peirce's account. The key point in applying the general account to characteristically human forms of habit development is that each additional level of self-control introduces a new kind of constraint. We are never completely free from constraint.[26] In fact, on this model

[26]This notion would, Peirce thinks, introduce an infinite regress. Assuming that each exercise of self-control is a distinct effort the claim that we could control everything about our action would

you can describe our high level of self-control as opening us up to wider environments with which to interact. Certainly, Peirce thinks of ideas as things which can have compulsive power over us and which can be embodied in habits (EP2, pp. 122–3).

It is worth working through these ideas in more concrete detail. Some of the degrees of self-control are set out clearly by Peirce in a draft towards his series of articles on pragmatism for *The Monist* (1905–1907).[27] If the kind of habit development unlocked by our high degrees self-control can't be captured by this general account of habit development, then Peirce's analysis of habit cannot be used as the central principle of an account of human practice. Our cultivated practices are, if they are anything, achievements of these high degrees of self-control.

Peirce sketches a few grades of self-control, from 'inhibitions and coordinations that entirely escape consciousness', to the control exhibited by the person who can 'exercise control over his control of control' (CP, 5.533). Peirce cites three grades of self-control before any imaginative experimentation is introduced. These grades of self control are: inhibitions that escape conscious awareness, instinctive self-control, and then control by means of external training. The last of these grades introduces the idea of a rule; a form of behaviour, i.e. a habit, that the trainee is being conditioned to accurately reproduce. The self-control exhibited by a dog that is being trained to sit might be an example of this grade of self-control.[28] The trainer can be thought of as altering the habits of the trainee's environment so that the trainee will develop the desired habit. This exploits the tendencies and desires that the trainee already has – often, in the case of domestic animals, the desire for treats. These desires, and the influence of the trainer on the trainee's environment constrain the development of the trainee's

result in the claim that an infinite number of distinct efforts could be performed in a finite time. This, says Peirce, would be impossible (CP, 5.157).

[27] Neither Peirce's list, nor the subset of it that I am introducing, are supposed to be a complete enumeration of the degrees of self control. This passage is also discussed at Potter, *Charles S. Peirce on Norms and Ideals*, p. 125.

[28] I would not be comfortable attributing this exact view to Peirce. He seems to hold that the mental life of animals, and in particular dogs, is more complex on this score (EP2, pp. 467–8).

habits. These degrees of self-control can be unproblematically understood in terms of the general account of habit development.

The next grade of self-control requires the agent to have a more sophisticated mental life.[29] It requires us to be able to perform experimentation in our imagination. This grade of self-control allows the possessor of the habit to become 'his own training-master' (CP, 5.533). This means, amongst other things, that we can start to develop our habits by practicing in our imagination. At this stage the rule is still given to us and received uncritically. But once the rule is understood, we can imagine the actions required by it and drill them in our imagination.[30] At this grade of self-control we require the ability to imagine situations sufficiently like those that we will actually encounter, it also requires that we can at least partially determine whether our imagined actions would really satisfy the rule if carried out. The ultimate measure of our success will be our actual deployment of the developed habit. So at this stage of self-control habit development is constrained by the rule, by our imaginative abilities, and by the eventual deployment of our habits in our interaction with our environment.

Peirce introduces two further grades of self-control. First, we might decide to criticise the rule which we are training ourselves by. If we are training ourselves we must have some 'moral rule' in mind (CP, 5.533). That is, from the previous stages, the rule, or habit, which we are attempting to gain. For example, imagine a bassoonist attempting to learn a particular arpeggio. Understanding, through the influence of a teacher, the particular fingerings required, she can now practice the actions in her imagination. Her bassoon practice is an attempt to develop a habit, and in this case the rule is the habit which she is attempting to attain. This is, of course, a much extended notion of a 'moral rule'.[31] This will in-

[29] This is the first grade of self-control which we can describe as 'deliberate'. This will become very important in Chapter 2. I will return to it then.

[30] As an example of the effectiveness of imaginary practice, Peirce offers a childhood story about his younger brother Herbert, who, purely by imagined practice, prepared himself to act promptly when a lady's dress caught on fire at a dinner party (EP2, p. 413fn; CP, 5.538).

[31] In this passage Peirce says that whenever we train ourselves we *must* have some moral rule 'in view'. I cannot see what other 'rule' could be appropriate to this example. Normally in these contexts Peirce uses the term 'ethical' rather than 'moral', which is perhaps better suited to this

volve, says Peirce, some kind of 'moral principle', which is used to judge whether the habit she is working towards is in fact a good one. 'Moral principles' that she might use to criticise her bassoon arpeggios include considerations of ergonomics, or tone. For instance, if she were to adjust some fingering she would be more comfortable, or if she were to manage her breathing in a different way the tone would be more satisfactory to her or her audience. These principles are again, constraints; they are features of our environment. This extended environment can surprise us, generate unease, and motivate experimentation just as much as the environments considered in the previous section.

Finally these moral principles can themselves be criticised, Peirce says, by means of an esthetic ideal, a conception of 'what is fine' (CP, 5.533).[32] In other words, this is to control our 'control over [our] control of control' (CP, 5.533). This is the highest degree of self-control that Peirce considers in the passage we are discussing. This final grade is instructive because it involves highly complex experimentation in the imagination. In order to control ourselves in this way we must be able to imagine at least the following: a wide array of possible situations, possible ways of responding to them, possible ways of evaluating those responses, what the consequences of various ways of responding would be, and what our evaluation of those consequences would be.

However, even this demanding variety of self-control still follows the general model of habit development articulated above. To continue the example of the bassoonist, imagine that she is attempting to criticise and control her 'moral principles'. In this case, the principles she use to evaluate the tone of her playing. Firstly, this moral principle is itself a habit, a habit of feeling positively or negatively in response to the tonal features of her performances.[33] This is the habit which develops in this process of self-controlled criticism. The environment with which she is interacting when this habit is in effect consists of her affective re-

extended meaning (e.g. EP2, p. 377).

[32]For Peirce's discussion of esthetic ideals see: EP2, p. 201; p. 377.

[33]Peirce uses an analogous example when discussing the evaluation of our conversational habits (EP2, pp. 246–8).

sponses to her playing, and of the environment, physical and cultural, in which she is playing. So, for instance, over time it might become clear to her that there is some problem with the tone of her playing in general. This realisation is the surprise. At this stage we may have a more or less clear hypothesis in mind about what has caused the surprise and how to prevent it in future. Perhaps, for instance, she is not introducing enough tonal contrast between sections. Inquiry will follow, different ways of playing will be experimented with in imagination and in concrete practice. Perhaps she will also inquire by asking around for advice. Eventually she will, we hope, determine how her tonal habits can be adjusted to more closely satisfy her esthetic ideals.

In all of the varieties of habit development mentioned above, we are constrained. At the most basic level, when our biological drives come into contact with the external world, all the way to the highest level, when we engage in our most conscious and articulate reasoning about how we should live. In fact, Peirce's distinction between the 'outer world' of physical action and the 'inner world' of imagination is purely a matter of the constraint involved in each. The former responds far less to our acts of will than the latter. In the outer world we have partial control over our limbs, in the inner world we have much more liberty to change things. In both cases there is constraint, but in the outer world it is of a far more robust variety (EP2, p. 151).[34] I can freely imagine, for instance, that there is a hot cross bun on my desk, but I cannot make one actually appear by force of will. But the imagination is not completely free, I cannot, for instance, imagine a round square. Peirce claims that this distinction is merely one of degree (PM, 109-110). It is primarily through the 'inner world' that we are influenced by ideas, and through the 'outer world' that we are influenced by things. But in both cases we are interacting with our environment, and the same 'habit – surprise – disruption – experiment – habit' cycle of habit development applies.

[34]The analogy between inner and outer world compulsion is drawn out instructively by Misak (e.g. 'A Peircean Account of Moral Judgements', pp. 44–5; 'C. S. Peirce on Vital Matters', pp. 154–8).

# Chapter 2

# Peirce's Conception of Practice

## 2.1 Introduction

This chapter continues the task of constructing a Peircean account of theory and practice from the ground up. The previous chapter laid the groundwork for this task by detailing Peirce's most basic conception of an entity's interaction with its environment: his theory of habits and their development. We now turn to the task of articulating a Peircean conception of human practice. This conception prepares the ground for the defence of the two main claims of this thesis:

1. that Peirce prioritises practice to theory, and

2. that Peirce maintains the autonomy of both theory and our other practices.

These two tasks will determine the organisation of this chapter. It divides into two sections, which deal in turn with the relevant aspects of Peirce's conception of practice for the defense of each claim. We will see that the defense of the first depends on the Peirce's thesis that we can not transcend what he variously calls the 'instinctive mind' (EP2, p. 241), or our 'occult nature' (EP2, p. 347). This dimension of our practical lives, part of what I will call the 'background' of our practices, will be the topic of Section 2.2. The defence of the second claim depends on the thesis that our practices are directed to deliberately adopted purposes. This is a thesis about what I will call the 'foreground' of our practices,

which will be the topic of Section 2.3.[1] Before turning to the details of the two sides of human practice I will provide a brief summary of Peirce's overall conception of human practice. This will give us an overall view within which the distinction between foreground and background can be understood.

Peirce conceives of the human agent as a bundle of integrated habits embedded in an environment which itself has a vast body of habits.[2] The habits which constitute the agent have taken their current form as a result of many ongoing processes of habit development. In large part their form is determined by the history of our species, that is, by biological evolution. The form that these largely-instinctive habits take is also greatly affected by our own history of interactions with both our physical and cultural environment. Yet even the bulk of these interactions are not to be understood as deliberately controlled by us. Rather, they are pre-deliberate and in many cases below the level of consciousness. Such interactive processes include childhood conditioning and the development of our instinctive physical and social capacities. Borrowing one of Peirce's phrases from a slightly different context, we can describe those aspects of our body of habits that we can control as the 'mere blossom of a vast complexus' (EP2, p. 241).[3] It is through the comparatively small domain in which our deliberate self-control functions that we direct ourselves towards our deliberately adopted purposes.[4] But for all this, it is important to emphasise that, on this view, even though we are highly constrained by our complement of habits and by our environment, it

[1] This way of using the terms 'background' and 'foreground' is due to Vincent Colapietro (HCP, p. 351).

[2] It might be better to describe the agent as *largely* consisting in such a bundle (c.f. CP, 6.228). It is, at any rate, clear that Peirce thinks of things in general as consisting of bundles of habits (CP, 1.218; 4.157; 5.431). For interpretation and commentary on Peirce's account of the self see: Colapietro, *Peirce's Approach to the Self*; Midtgarden, 'Peirce on the Notion of Self and Personal Identity'; Short, 'Hypostatic Abstraction in Self-Consciousness'.

[3] Peirce is here describing those aspects of our thought that we can control, and the primary example of that which we cannot control that he is considering is our perceptual judgements. However, his comments can be easily extended to the wider context considered in this chapter. We simply have to recall that, according to Peirce's pragmatism, 'logical self-control is a perfect mirror of ethical self-control' (EP2, p. 337). Throughout this chapter I will move from Peirce's discussion of features of logical self-control to features of ethical self-control. If the move is a straightforward one I will not explicitly note it.

[4] This idea is brought out well in Potter, *Charles S. Peirce on Norms and Ideals*, pp. 126–7. See also: EP2, pp. 40–41.

is this constraint that enables our deliberate action.[5] In sum, on this view we are constituted by a vast body of habits which shifts in response to experience and, in small measure, in response to our deliberate self-control. That which we can control can be thought of as the foreground of our practical interaction with the world, which appears against the vast background made up of that which we cannot control.[6]

It is worth considering how this conception of practice makes sense of a concrete case. Imagine another bassoonist, this time one in the first stages of taking up the instrument. They will come to this task in possession of a vast body of habits, including basic physical competencies and, hopefully, some inchoate musical abilities. These habits will be in effect when the novice first picks up the bassoon and blows into the reed. They will determine, amongst many other things, how the novice manages their breathing, how they position their hands, and their expectations about the tone that the instrument should be producing. Many of these habits will need to be developed if the novice is to become an expert, and if all goes well they will develop with experience. We can imagine that the novice bassoonist, or more likely their teacher, has noticed some particular problem with the novice's playing.[7] Let's say that by failing to completely cover one of the finger holes they are making an undesirable high-pitched shriek when attempting to play a certain note. The novice then focuses on deliberately controlling where they are positioning their finger. After much practice they will be able to play the note reliably; they will have developed a more satisfactory habit. Now, according to the conception of practice that I am attributing to Peirce, the substance of this deliberately developed habit is in large part outside of the con-

[5] This point was introduced in our discussion of self-control in the previous chapter and will be considered in more detail in sections 2.2.1 and 2.3.

[6] Other metaphors are possible here and Peirce offers a few. We have already see that he calls that which we have controlled a 'mere blossom'. He also refers to what I am calling the foreground as the 'surface' and the background as the 'the soul's deeper parts' (EP2, pp. 40–1), or the 'depths of our nature' (EP2, pp. 347–8). This last metaphor has the important proviso that we are not to think of the surface as a 'separate tissue' overlying the 'deeper parts'. The difference is one of degree rather than kind (EP2, p. 347).

[7] Of course, in almost all respects the novice will be deficient but these problems can only be deliberately dealt with singly or in small groups.

trol of the bassoonist. The novice bassoonist consciously desires that their finger reliably cover the hole, but the specific set of habitual mechanisms by which this situation comes about are largely outside of the conscious awareness, and thus control, of the bassoonist. That the bassoonist now reliably covers the finger hole is a result of their deliberate self-control, but the vast bulk of the details on which this achievement depends are a matter of the background.[8] Finally, it is important to note that while the bassoonist deliberately cultivates their fingering of a particular note all of the habits associated with this will be being put into effect and thus into the kind of interaction with the environment which allows for habit development. Thus while our bassoonist has deliberately mastered this particular fingering they have likely also attained better breath control, more stamina, and, of course, manual dexterity which can be applied to other fingerings.[9] We will return to this example throughout the chapter.

As already mentioned, this chapter will consider the background and the foreground of our practices in turn. We begin, in Section 2.2, with the background of our practices. This section has three tasks. The first is to put forward the way in which I am distinguishing the background and foreground from one another (Section 2.2.1). This discussion considers a few different ways in which the distinction could be drawn and notes the emphasis that Peirce places on self-control rather than self-consciousness. The next two sections are primarily devoted to articulating the role of instinct in the background of our practices. Together they defend the claim that our instincts are the main source of our pre-deliberate attunement with the world.[10] On this view our instincts are the result of innate tendencies to develop in certain ways in response to experience. Consequently,

[8] In this connection Peirce suggests that deliberate control is often a matter of our giving some feature of our behaviour whose general form we have determined a 'stamp of rational approval' (CP, 2.183). In many cases the unconscious and uncontrolled operation of our habits is like a lawyer producing a contract, and, says Peirce, 'what books [the lawyer] looked into in choosing his verbiage is no concern of the person who signs, provided he knows what the paper binds him to doing' (CP, 2.183).

[9] This is how the Peircean account of practice captures the familiar observation that practice of a specific skill often results in global improvements.

[10] This use of the word 'attunement' is also derived from Colapietro (HCP, pp. 351; 359; 364). It is also used in a similar way by Railton ('Practical Competence…', p. 106).

we can approach them from two angles. The first (taken up in 2.2.2), is to characterise the habits which arise in the course of normal human experience as a result of these innate tendencies. The second (taken up in 2.2.3), is to consider the non-deliberate processes of habit development by which these instincts find their form in the course of the experience of a particular agent. Finally, Section 2.2.3 also takes up the other processes by which the background changes over time.

The second half of this chapter (Section 2.3) concerns the foreground of our practices and the importance of deliberately adopted purposes within it. Whereas Section 2.2 was largely concerned with characterising *what* the background consists of, Section 2.3 is concerned with the *activity* associated with the foreground, namely, the deliberate control of our actions. It divides into three sections.[11] The first (Section 2.3.1) offers Peircean arguments for the claim that the deliberate control of our activity is best understood as forms of habit development. This is, in part, a decision to privilege a different set of examples than that privileged by much recent work in the philosophy of action. It is also a thesis about what it is that we can control. The second (Section 2.3.2) answers why Peirce thinks that our deliberate control of our activity requires us to have a purpose in view. Finally, in Section 2.3.3, we widen our subject to a more general consideration of the role of purpose in our practices. In particular, we consider how our purposes change over time, how we might be mistaken about our purposes, and how the background can be understood as embodying purposes.

[11] I note in passing that the three-way divisions in this chapter are a coincidence rather than a reflection of Peirce's propensity for trichotomies. Peirce's three-way divisions are grounded in his three categories, the divisions in this chapter have nothing to do with the categories.

## 2.2 The Background of our Practices

### 2.2.1 Distinguishing the Background from the Foreground

We will begin our consideration of the background by articulating the distinction between the background and foreground. This is particularly important as there are a few appropriate ways that the distinction might be drawn, and we need to avoid sliding between them. One way to take up this task is to consider the kinds of example that initially motivate the distinction.[12]

We have already seen one such example in this chapter, namely, the novice bassoonist. Other examples that could be articulated in a similar way include learning how to drive a car, the activities of a master chef, the ability to read and respond to the feelings and thoughts of others. Some of these examples focus attention on the familiar observation that mastering a skill often allows us to deploy it without conscious attention. So our bassoonist need not focus attention on the position of his fingers once he has mastered the note that was causing him trouble. A more familiar example of the same principle is that one who has sufficiently developed their driving abilities can devote almost all of their attention to carrying out a complex conversation with their passenger rather than to their driving. The same examples can often be turned around to suggest that attention to these mastered skills, especially mentally consulting relevant rules, can be crippling.[13] These examples suggest that to master a skill is, in some sense, to put it into the background. Other examples focus on what we bring along with us whenever we approach a new situation. In the example of the bassoonist I emphasised the instincts and physical abilities that the novice applies from the moment that they first pick up the instrument, and that I suggested were required in order to begin learning. Descriptions of normal human social interactions sug-

[12] This has the added advantage of suggesting some ways that Peirce's account of practice is different from similar philosophical projects.

[13] Hubert Dreyfus discusses the example of the baseball player Chuck Knoblauch to make this point. Knoblauch was a star pitcher who suddenly lost his pitching ability. According to Knoblauch's descriptions, his problem was that he started thinking about the task at hand, and ceased to be able to perform it (Dreyfus, 'The Return of the Myth of the Mental', p. 354).

gest a similar conclusion. We need not, normally anyway, expend energy divining the motives and feelings of our fellow humans by logical argument, rather, our instinctive abilities allow us to do this automatically. These examples suggest that there is a 'background' of usually unattended to abilities that allows us to get by in the world.[14]

Considering examples like those introduced above, one might be tempted to latch on to the distinction between that in our practices which is consciously apprehended and that which is not. However, Peirce focuses on what can and cannot be deliberately controlled; he is interested in self-control rather than self-consciousness. That said, it is certainly the case that much of the background of our practices is unconscious and on Peirce's view the relationship between self-control and consciousness is not accidental. According to Peirce any process of deliberate self-control will be a conscious process (EP2, p. 348). He also holds that it is very likely a machine with the power of self-control would be conscious (EP2, p. 387). But this relationship does not go both ways, that is, we can be conscious of things that we cannot control. For instance, Peirce claims that we are unable to doubt, and thus unable to control, the belief that there is some regularity in the world.[15] But since he is drawing our attention to it we can certainly be conscious of it (CP, 5.542).[16]

[14]Examples like the ones mentioned in this paragraph are considered in the work of many philosophers. For instance, Peter Railton analyses the example of learning to drive a car. He refers to an agent that has developed skills to the point where they need not be consciously attended to as possessing 'fluent agency' (Railton, 'Practical Competence…'). Other philosophers who analyse examples like this include: Dreyfus ('Overcoming the Myth of the Mental'), Ryle (*The Concept of Mind*, pp. 25–61), Pollard ('Habitual Action'), and Noë ('Against Intellectualism'). Merleau-Ponty approaches similar topics by, instead, considering how *dis*abilities reveal this background (e.g. Merleau-Ponty, *Phenomenology of Perception*, pp. 93–5).

However, for all that this thought has been ignored in much philosophy of action. Much of contemporary philosophy of action is committed to the idea that 'actions are bodily movements that are caused and rationalized by an agent's desire for an end and a belief that moving her body in the relevant way will bring that end about' (Hornsby, 'Agency and Actions', p. 2). These beliefs and desires are often conceived of as psychological states. This set of general working assumptions is clearly set out by Michael Smith, who calls it the 'standard story of action' (Smith, 'The Structure of Orthonomy'). For contemporary criticism of this and related views for ignoring the habitual dimension is provided by Bill Pollard (Pollard, 'Habitual Action'; Pollard, 'Explaining Actions with Habits').

[15]The claim that we cannot control beliefs that we cannot doubt will be considered in detail in Section 3.1 of Chapter 3.

[16]Vincent Potter explains Peirce's position on the relationship between consciousness and con-

But having concluded that we should draw the distinction between background and foreground in terms of self-control, our choice is still not completely constrained. One might define the foreground as those aspects of our body of habits which have been controlled, as those which can be controlled, or as those which will be controllable at some point. Alternatively, one might conceive of the foreground as a collection of habits which have been in some measure controlled, or can be controlled, or will be controllable at some point. Each of these ways of distinguishing the foreground from the background might have some philosophical value. However, the distinction that I am interested in can be stated as follows:

> The *background of our practices* consists of those aspects of our body of habits that we cannot subject to deliberate self-control. The *foreground of our practices* consists of those aspects of our body of habits which we can subject to deliberate self-control.

In other words, the foreground is that in our practices which we can control and the background consists of that in our practices which we cannot control.[17]

In order to understand this distinction it is necessary to understand what Peirce means by 'deliberate self-control'. This can be made clear by recalling our discussion of the degrees of self-control in Chapter 1 (Section 1.3.2). There we considered Peirce's list of 'degrees of self-control', which led from less to more advanced forms of self-control. The first three degrees of this list ('[i]nhibitions and coördinations that entirely escape consciousness', instinctive self-control, and 'control by means of external training'), are not forms of deliberate self-control. These forms of self-control, which could even be referred to as *proto*-self-control, are characteristic of the background.[18] It is the more advanced forms of self-

trol slightly differently, but comes to the same conclusion about their relationship to one another (Potter, *Charles S. Peirce on Norms and Ideals*, pp. 129–30).

[17] It should by now be clear to the reader that I am using the words 'background' and 'foreground' as shorthand for 'background of our practices' and 'foreground of our practices'.

[18] This is supported by the fact that in most of Peirce's discussions of self-control he uses the term 'self-control' to refer simply to deliberate self-control (e.g. CP, 2.182; EP2, pp. 190–191; p. 387).

control, of which the rest of the entries on Peirce's list are examples, that are at issue here. The first degree of deliberate self-control on the list is when the agent becomes '[its] own training-master'. For example, I am engaging in deliberate self-control of this rather unimpressive sort if I uncritically take some advice from a friend and put it into action. Perhaps he says to me that I should not walk under ladders, or suggests some other small superstitious habit and I set myself to developing it. This is deliberate because by making a conscious effort to develop this habit in myself I am taking responsibility for my future behaviour. As the degrees of self-control increase in complexity we take ownership of the criteria by which we evaluate certain habits, and even of our highest ideals. These are all decisions about our future behaviour in a way that having training imposed on us from outside is not. So the defining characteristic of deliberate self-control is that we choose some form of future action, feeling, or thought for ourselves.

We are now in a position to briefly pause over one of the reasons why Peirce holds that there *is* such a background. Aside from the kind of motivating examples which introduced this section, Peirce holds that there must be such a background because of his account of deliberate self-control. When we considered Peirce's account of self-control in the previous chapter one of the central claims was that all forms of self-control depend on some constraint; something not itself controlled. Now only some of the constraints that we considered in the previous chapter are relevant in our current context. Some of the constraints we considered are constraints on the background as much as they are constraints on the foreground. For instance, the constraint imposed by our environment. But these were not the only constraints. One of the degrees we considered, control of a moral rule by means of a moral principle, depended on some possibly vague and inchoate moral principle. This principle, provided it has not been subject to some other process of self-control, is part of the background. But we can only carry out a finite number of self-criticisms of this sort, so at some point, thinks Peirce, we will bottom out at something uncontrolled (c.f. EP2, p. 169; CP, 5.157).

### 2.2.2 Instinctive Habits

We now turn to the task of characterising the aspects of our body of habits that make up the background. In particular, we will be considering Peirce's account of human instincts. According to Peirce we have innate tendencies to develop certain capacities in response to experience. These tendencies, and the processes by which they are expressed in our habits, are not the result of deliberate self-control. This suggests two complementary sides from which Peirce's thought in instinct can be considered. The first, a general characterisation of those capacities which the normal course of experience produces in a human being, that is, their instincts. The second, a consideration of the non-deliberate processes of habit development by which those instincts take their form in the life of a particular individual. This section is dedicated to the first of those tasks, in Section 2.2.3 we will turn to the second.

Peirce offers a few definitions of 'instinct' (e.g. CP, 1.118; 7.738). One of his clearest is in his late (1913) essay drafts entitled 'An Essay toward Improving Our Reasoning in Security and Uberty' (EP2, pp. 463–78). There he suggests that an instinct is:

> '*a way of voluntary acting prevalent almost universally among otherwise normal individuals of at least one sex or other unmistakable natural part of a race (at some stage, or during recurring periods of their lives), which action conduces to the probable perpetuation of that race* ...' (EP2, pp. 464–5).[19]

Instinct is thus a biological notion and our instincts are a biological inheritance.[20] By adding the word 'voluntary' here, Peirce is distinguishing instinctive forms of behaviour from other kinds of biologically determined behaviour. So, for instance, on this definition my heart's continued beating, or the secretion of insulin

[19] We need not follow Peirce in thinking that there are any major instinctive differences between the genders or between ethnic groups. It will be suggested in Chapter 4 that, in fact, Peirce's conception of theory and practice provides a strong argument against the Social Darwinism that was popular in his day.

[20] Peirce describes them as inherited habits (CP, 2.170).

by my pancreas, are not instincts.

However, in concrete cases it is probably impossible to find a pure expression of instinct. In an adult human our instincts will be mixed up with those aspects of our behaviour that we have controlled, and with our particular cultural circumstances. For instance, my tendency to have takeaways for dinner on Thursdays is *in part* the expression of my instinct to eat with a certain degree of regularity, but it also tied up in my particular cultural environment, and my history of deliberate self-control. I could certainly decide to *never* buy takeaways on Thursdays, and I would still possess instincts connected with eating. The same point applies when we consider our novice bassoonist, their instinctive capacities to handle solid objects are in play, along with instinctive social capacities required by their relationship with their teacher, and perhaps some natural musical instincts. These will each be hard to disentangle from the contribution of the novice's deliberate self-control and their cultural context.

One can then ask how we gain a conception of these instincts. The problem can be put forcefully when we consider that all we have experiential access to is the actual behaviour of ourselves and our fellows in which culture, experience, and instinct are all intermixed.[21] Peirce's answer is that our conception of our instincts is an abstraction from the behaviour of ourselves and our fellow humans (EP2, p. 473).[22] Our claims about instincts are able to be tested against our observations of humans in general.[23] It is important to stress that Peirce holds

[21]This is not the question of whether there *are* instincts. I take it as given that we have instincts of some form. The question is how we gain a conception of what those instincts are.

[22]This is an example of the class of abstractions that Peirce calls 'hypostatic'. A hypostatic abstraction takes some feature of a thing and turns that feature into an object for study in its own right. Truth claims about abstract objects (of whatever sort) are evaluated by considering the behaviour of the things initially abstracted from. A simple example of the way this works is Peirce's suggestion that mathematical lines should be understood as abstracted from the path of particles. Here claims about the abstract object–the line–are referred back to claims about the behaviour of the particle that defines that line (PM, pp. 73–5). There is a significant secondary literature on Peirce's account of abstraction (e.g. Shin, 'Peirce's Two Ways of Abstraction'; Short, *Peirce's Theory of Signs*, pp. 263–74; ).

[23]Peirce offers an example of how we approach the question of whether some specific candidate for an instinct is really an instinct: he considers the claim that the prohibition against suicide is an example of an instinctive moral belief, and concludes that it is not sufficiently widely shared to be instinctive (EP2, p. 350).

to a strong realism about abstractions. In Peirce's system something's being an abstraction is no bar to its being real (CP, 2.428).

The result of our abstracting instincts away from the concrete behaviour of individuals will be a conception of instincts as vague and highly general habits. They will be general in so far as they will have to comprehend a wide variety of cases. For instance, if I were to claim that humans have an instinct to avoid snakes, this would be a suggestion that humans will in some highly general class of circumstances where there might be snakes, try to get away from them, or will feel great terror. The conception will also be vague in so far as it involves clauses that start with phrases like 'in some sense'.[24] So, to continue the example of the instinct to avoid snakes, we might decide that a more vague conception is better, and say that there is an instinct to respond negatively to snakes 'in some sense', which might take various cultural forms. This would allow the behaviour of, for instance, the snake-handling churches of Appalachia to be, in part, a manifestation of the instinct to avoid snakes, since it is the instinctive fear of snakes which motivates the practice of handling them as a sign of devotion to God. This practice would not work if the participants did not have to overcome some negative disposition towards snakes.

These vague and general conceptions of human instinct aim to capture those aspects of our developed habits which are the result of the development of innate tendencies in response to experience. This contribution of instinct to our body of habits will often manifest itself in habits that are subject to our deliberate self-control (as in the examples considered above), but the input of instinct to those deliberately cultivated habits is not the result of deliberate self-control. So the vague and general habits which make up our conception of human instincts are an aspect of the background of our practices.

We are now in a position to hazard a Peircean characterisation of the main

[24] According to Peirce's definition a sign is vague if it reserves further determination for some other sign, generally a further sign from the utterer (EP2, p. 351). 'In some sense' clauses are a straight forward example.

forms of human instinct. Peirce often divides out instincts into two main classes: those connected with the need for nutrition, and those connected with reproduction (CP, 1.118; 6.500; 7.378; EP2, p. 51). The first is primarily a matter of an implicit understanding of physical forces, that is, a set of physical capacities; the second is primarily a matter of social capacities. I will consider each in turn, before arguing that these two classes of instinct are quite highly interrelated, so that this division is by no means a clean one.

Peirce describes the instincts associated with the need for nutrition as 'virtual knowledge of space and of force' (EP2, p. 51). All living things need to solve the problem of how to find sustenance. Under this head, for humans, we can include the capacity to, in some sense, handle and consume various common kinds of food. This presumably includes habits of action that allow us to chew food and drink fluids without breathing them in, and perhaps also the integrated habits of action and feeling which make us avoid rotting meat. But Peirce's formulation, that these habits are associated with space and forces, and make us 'applied physicists' (EP2, p. 51), suggests a wider set of habits. These include a capacity to handle physical objects in general, and presumably for piloting our way around physical environments as would be required in the early history of mankind to both track prey and find plant-based food sources.

These general instincts connected with our physical environment, what we might call an 'attunement' with the physical world, manifest themselves throughout our body of habits. For instance, the instincts which the novice bassoonist brings to his attempts to learn the instrument, and develop in response to his increasing experience.[25] Colapietro refers to this portion of our instincts as a set of 'basic physical competencies', and cites the same kind of example: those basic dispositions which allow us to act in the world including the physical competencies underlying our consumption of food and our handling of solid objects (HCP, p. 352).

[25]This claim about the role of instincts in our development of physical competencies will be taken up again in Section 2.2.3.

If the instincts associated with feeding go to make us 'applied physicists', the instincts associated with the need to reproduce make us 'applied psychists' (EP2, p. 51).[26] That is, if the former give us capacities to interact with our physical environment, the later give us an ability to interact with our social environment. All living things must solve the problem of how to reproduce themselves. This problem is, in the human case, tightly linked with the navigation of various kinds of pair bonds, and the understanding of the feelings of others. Presumably what Peirce is getting at here is our ability to treat others as fellow beings. It also suggests that we have some instinctive capacities associated with the rearing and training of children. More generally, this division includes the instincts which underlie our interactions with our social environment in general. These will prominently include dispositions to have appropriate feelings in response to various social situations: that is, to feel empathy for people in pain, or anger at people who you see as cheating. Peirce holds that these habits of feeling will embody fairly thick evaluative dispositions, for instance, he frequently claims that the moral prohibition against incest is grounded in this kind of instinct (EP2, pp. 32; 349–50).

It is important to stress that this way of dividing up our instincts is not a rigid division and many examples can be adduced in order to blur it. For instance, even in primitive circumstances the task of finding sustenance will require complex social capacities. Both hunting and foraging require a great deal of social coordination; not to mention the need for social competencies after the arrival of agriculture. On the other hand, a great many physical capacities are required in order to rear a child. This is true even of the task of keeping track of the child. Consequently we should expect the various instincts characterised above to be closely integrated.

This discussion of our instincts can be summarised by the saying that we have innate tendencies to develop an instinctive attunement with our physical

[26] Peirce uses the word 'psychics' to refer to the sciences of the mind and of human society. See his classification of the sciences at CP, 1.180–9.

and social environment which can be characterised by a collection of vague and general habits which we call instincts. This is sensibly called an 'attunement' because it allows us to act deliberately in a world made up of physical objects and fellow agents. It prepares us with the basic capacities required for action, which could not be expected to be derived from scratch by any process of deliberate self-control. This claim will be defended in Chapter 3, where it forms a large part of the rationale for claiming that practice is prior to theory.

### 2.2.3 The Dynamics of the Background

This section characterises the ways that the background changes over time. On Peirce's account our background habits develop in response to experience. One mode of this development has already been alluded to, namely, the development of instinct in the life of an individual agent. According to Peirce, we have an instinctive ability to respond appropriately to the course of our experience. After articulating this idea I turn to examples of background development that are not exclusively instinctive. In particular, I consider how a part of the background can become a part of the foreground. In some cases the force of experience can shake a previously uncontrollable habit or belief, and require some deliberate response. Examples of this sort serve to show that the distinction between foreground and background is blurry at the edges.

Peirce characterises experience as the 'enforced element in the history of our lives' (EP2, p. 47), and the 'forcible modification of our ways of thinking' (EP2, p. 370).[27] The main feature of the characterisations is their emphasis on compulsive force; experience forces changes in our body of habits. It is through experience that the instinctive behaviour considered in the previous section develops, and it is through experience that it continues to develop. Peirce expresses this claim by saying that 'just as reasoning springs from experience, so the development of sentiment[28] arises from the soul's inward and outward experiences.

[27] Moreover, he describes these ways of thinking as a 'garment of . . . habituation' (EP2, p. 370).

[28] Here 'instinct' can be substituted for 'sentiment'. In this text Peirce uses them interchange-

Not only is it of the same nature as the development of cognition; but it chiefly takes place through the instrumentality of cognition. The soul's deeper parts can only be reached through its surface' (EP2, pp. 40–1).

The interaction between agent and environment that this characterisation of experience picks out is active from the moment the agent comes into the world.[29] But it is important to to note that, while experience enforces changes, it does not determine exactly what those changes will be. Within the cycle of habit development experience produces the element of surprise or disruption.[30] What the response to this disruption will be depends on the experimental phase.

Earlier I described our instincts as the result of innate tendencies to respond to experience in certain ways. According to Peirce these tendencies are active in the experimental phase of the cycle of habit development. Peirce, speaking somewhat figuratively, speaks of these tendencies as the power to generate appropriate hypotheses. For example, Peirce suggests that a chicken need not 'rummage through all possible theories until it lights upon the good idea of picking up something and eating it' (CP, 5.591).[31] That is, the chicken's instincts manifest themselves in an ability to appropriately respond to the compulsive force of experience; they are confronted with a problem which they cannot ignore (the need for nutrition), and have an innate ability to respond to this problem appropriately (by 'picking up something and eating it'). The human case is similar. Understood from this side our instincts manifest themselves in our ability to respond appropriately to the problems forced on us by experience. Over the course of our early life this process results in the development of instinctive habits suited to the physical and cultural environment that we find ourselves in. For instance,

ably (c.f. EP2, p. 32)

[29] Perhaps it would be best to be more careful with the title 'agent' here. The cycles of habit development that we are considering could then be said to be part of the process by which an infant, understood as an unruly bundle of habits, develops into an agent. However, given how loose I have been with the term in the previous chapter I will not follow this path.

[30] Peirce frequently links experience and surprise in his writings. This is most prominent in the 1903 Harvard Lectures, where Peirce explicitly analyses experience in terms of surprise (EP2, p. 154).

[31] This example is also discussed at CP, 6.416.

the master musician will have, over the course of their experience, developed a great many instinctive physical capabilities.[32] This suggests a further way in which our instincts can be described as a form of 'attunement'; they allow us act appropriately within our environment.

This conception of human instinct is compatible with that offered in Section 2.2.2. In this section we have been discussing the development of instinct in an individual agent, as a result of their particular history of interaction with the world. These histories will be distinct for each agent, but they will be broadly similar enough that we can describe the resulting instinctive habits in the highly vague and general ways that we did in the previous chapter. The conceptions of our instincts considered in Section 2.2.2 are abstracted away from the behaviour of agents who have undergone the processes of habit development considered in this section.

As I have mentioned above, although our instincts are the most important feature of the background for the purposes of this essay, they do not make up the whole background. For the rest of this section I will be discussing ways in which the background as a whole can change over time.

We have already seen how our instincts develop in response to experience. This is true of the background as a whole. Even a single experience, if sufficiently traumatic, can cause a radical change to the background. Consider someone who receives a strong electric shock. This kind of trauma could cause all kinds of habit change that is not deliberately endorsed. After receiving the shock the victim's whole relationship with their environment might change. For instance, they could suffer a major change to their orientation to the world: they might go from being confident to extremely tentative. Alternatively, and probably more likely, the background will be changed at a smaller scale. Perhaps the victim will develop an aversion to electrical appliances. In both cases the change is not de-

[32] According to Peirce's conception of the innate, something can be innate which only manifests itself in response to a long history of experience (PM, p. 111). That is, the innate can be understood as *potential* habits (CP, 5.504).

liberately endorsed, and is unlikely to be deliberately controllable.

One of the main ways in which the background changes over time is that what cannot be controlled at one point might be controllable at a later time. In the context of belief revision he says 'logical criticism is limited to what we can control. In the future we may be able to control more but we must consider what we can now control' (EP2, p. 240). Thus something can go from being uncontrollable to controllable; something can go from the heart of the background to the foreground. This will likely be the result of some surprising experience that breaks the course of our usual habitual activity, but unlike the example just considered it will allow for some deliberate response. For example, consider a man with deeply homophobic beliefs. Perhaps he thinks that homosexuals are out to destroy the moral fabric of the nation. These beliefs are, lets say, at this point unable to be shaken; they are part of the background of his activity. Now imagine that his son comes out to him as a homosexual. Often, of course, this kind of situation goes very badly. But we can imagine that, in this case, the man is surprised and thrown into doubt. He knows that his son is not out to destroy the moral fabric of the nation, in fact, his son seems to be an exemplary person. This line of thinking might set into process a line of inquiry that results in a whole new set of beliefs. The man could not help his homophobic beliefs before, but this experience has allowed him to deliberately cultivate and adopt new ones.[33]

The fact that parts of our body of habits can go from the background into the foreground and vice versa suggests that the demarcation between the two will be blurry. Peirce agrees, holding that 'anti-synechistic thinkers wind themselves up in a factitious snarl by falsifying the phenomena in representing consciousness to be, as it were, a skin, a separate tissue, overlying an unconscious region of the occult nature, mind, soul, or physiological basis' (EP2, p. 347).[34]

[33]Presumably this can go the other way as well. Perhaps there is a certain window in which major changes to our orientation to the world are possible, after which our habits ossify. This seems to be implicit in the way many of us treat uncomfortable views in, say, older relatives. Granddad's expressing racist or sexist views is often treated very differently that the expression of those views in a younger person.

[34]Now, here Peirce is explicitly talking about consciousness, but his overall topic in the sur-

On Peirce's view the background is not cleanly demarcated from the foreground. There are other reasons to expect this given the account of self-control that we considered in Chapter 1. There Peirce claimed that self-control comes in degrees and that even our most advanced forms of deliberate self-control are continuous with what we might call our animal interaction with the world. This should lead us to suspect that the division between deliberate self-control and other forms of habit-development is one of degrees.

One important consequence of the tight integration between background and foreground is that when we deliberately cultivate some habit we allow the background to develop as well. Any deliberate act will put both foreground and background aspects of our body of habits into effect. Consequently, deliberate activity will provide affordance for the non-deliberate development of the background. Recall the example that introduced this chapter. When the novice bassoonist is attempting to correct their fingering of a certain note they are putting into practice all sorts of habits, including their tendencies to breathe at certain times, to hold the instrument in certain ways, to evaluate their tone etc. All of these will be subject to non-deliberate forms of habit-development at the same time that the novice is focusing their deliberate attention on the position of one finger. One of the most important of these non-deliberate processes will be the development of instincts, of the form that we considered above, connected with the playing and handling of the instrument. One might expect and even more global adjustment to the player's attunement with the world. For instance, in some cases learning a new skill imbues people with a general sense of confidence which might carry over to all of their actions in the physical and social environment. This is certainly not the result of deliberate habit-development. It is a response of a whole suite of habits to some course of experience.[35]

rounding text is self-control. The issue here is consciousness in so far as it is related to self-control, that is, consciousness as the site of deliberate self-control. So his point is applies directly to our question as well.

[35]As an aside: this opens up the possibility for a form of control of the background that is not *deliberate* as such. You might have some phobia that you have tried to deal with directly, say, a phobia to insects. This may have been immune to processes of deliberate control–no amount

## 2.3 The Foreground of our Practices and the Role of Purpose

The foreground of our practices consists, as claimed above, in 'those aspects of our body of habits which we can subject to deliberate self-control'. In this section we are primarily concerned with the activity of deliberate control, rather than with determining what makes up the foreground itself. That is, we are concerned with the activity that takes place in the foreground rather than with the contents of the foreground. The first issue that needs to be considered is why one should think of all of our deliberate activity as the development of habits. This discussion is largely carried out by applying material developed in Chapter 1. It requires us to consider what we should take to be paradigm instances of human activity when we take up the task of philosophising about it. It also makes use of Peirce's account of what it is that we actually have control over. The second issue to consider is why we should think of our deliberate activity as being carried out 'in order to achieve purposes'. This, again, has to do with Peirce's particular account of what it means to have deliberate control of something. It also involves a discussion of Peirce's analysis of what it is to have a purpose, which, it turns out, directly implies that deliberate self-control is purpose-directed. Finally I consider some more general issues about the purposes of our practices (Section 2.3.3). For instance, purposes, like the background of our practices, are dynamic. We must consider the ways in which our purposes can develop over time, and the extent to which we can be sure of our own purposes.

### 2.3.1 Foreground Activity as Habit Development

When Peirce discusses deliberate human activity, whether in the context of ethical evaluation, the control of our activity, practical rationality, or for merely de-

of consideration of reasons, or of imagining situations could shake it. One might then try a kind of exposure therapy, whereby you deliberately expose yourself to situations with various insects in the hope that, while deliberate control has failed, your instinctive habits, that might develop. This kind of case is not, as far as I am aware, considered by Peirce.

scriptive purposes, he turns to a discussion of habits and their development (e.g. EP2, p. 337; pp. 347–8; pp. 412–3). This is because he conceives of deliberate human activity as directed to the development of habits.[36] This orientation might seem strange if you share some assumptions with much of modern philosophy of action. Within the philosophy of action it is common for philosophers to consider actions, understood as particular events, and to ask what distinguishes those events from events which are 'mere behaviours'.[37] So, to take an example from a random introductory philosophy of action text, we are to imagine someone sitting in their office, thinking that the room is too stuffy, and then opening the window to let some fresh air in (e.g. Mele, 'Introduction', p. 13). We might then be asked what it is about this event that makes it an action, at which point different understandings of the psychological antecedents of the event are considered as possible criteria.[38] Rather than focusing on particular events and their psychological antecedents, Peirce looks to habits and their history. It is worth spending some time to understand the reasons Peirce takes this approach. The first that I will consider concerns what we take as a paradigm of human activity. Peirce is concerned with the activity of theoretical inquiry and other complex social practices, where the focus is on cultivating and developing certain forms of action and thought, rather than singular actions like a person's opening a window. Secondly, it is connected with a thesis about what we can deliberately control–namely, the future form of our behaviour. So our agency, on Peirce's view, is best understood in terms of our control over future forms of our actions, i.e. habits.

[36]This interpretation of the role of habit in Peirce account of human activity is, broadly speaking, shared by Kilpinen ('Pragmatism as a Philosophy of Action'), Potter (*Charles S. Peirce on Norms and Ideals*), and Shapiro ('Peirce's Theory of Habit'). Kilpinen suggests that this orientation is shared between Peirce and the other pragmatists, and that it represents an 'Copernican revolution' in the philosophical understanding of action (Kilpinen, 'Pragmatism as a Philosophy of Action', p. 9).

[37]This distinction is that between those events which we are responsible for and those which are simply things like reflexes; you might say it is the distinction between those events that are reflective of our agency and those that are simply things that your body has done (c.f. Stout, *Action*, pp. 2–4).

[38]Including the popular view that what is required is a desire for the room to be less stuffy in addition to a belief that opening the window will make the room less stuffy. This would be the analysis offered by the 'Standard Story of Action', referred to in Smith, 'The Structure of Orthonomy' and Hornsby, 'Agency and Actions'.

Peirce, as I have just mentioned, does not take particular actions to be the central concept for the understanding of human activity. Rather, Peirce looks to the cultivation of general ways of acting, that is, to the deliberate, self-controlled, development of habits. This is largely a result of his account of rationality and self-control, which we will look to in a moment, but the point can also be made out by considering what kind of activity we want to be the central examples from which our philosophical work will begin. We have already seen one example of the kind of activity that is often considered paradigmatic of human activity: a person opening a window. On the other hand, Peirce's most frequently returned to example of successful human agency is the activity of investigation in the theoretical sciences. Peirce's primary interest in human activity is in our gradual development of general forms of action in response to experience. This orientation seems to me to capture what is most significant about human practices: that they are carried out across time and directed to the development of certain abilities. So, aside from the development of beliefs and methods in science, the development of virtues attempted by ethical and religious traditions,[39] the development of technique in manual tasks, the development of technologies, and the cultivation of artistic traditions are all central examples of human activity.

The second reason that Peirce understands human activity as habit development is his account of rationality and self-control. Peirce holds that 'future conduct is the only conduct that is subject to self-control' (EP2, p. 340).[40] At some points he says that we are not in control of the 'very instant the operation of self-control is commenced' (CP, 8.320), and at others he holds out the possibility that we have some minor control over present action (EP2, p. 245).[41] The relevant consequence of this for us is that future conduct is potential, rather than actual, and that means that it can only be controlled in terms of general conceptions of the

[39]This is not a question of the success of failure of those traditions. Rather, it is a claim about what they are directed to.

[40]Peirce makes a similar point at: (CP, 5.461; 8.320; EP2, pp. 245; 337).

[41]This raises questions about Peirce's account of human freedom. These are beyond the scope of this thesis.

behaviour that we desire. Consequently, the only actions we can determine to be our responses to some foreseen general situation are themselves general. That is, self-control works by the development of dispositions to behave in generally describable ways in generally describable circumstances: habits.

This same point can be approached from a slightly different angle. Peirce links rationality tightly with self-control, so that, according to Peirce, the ability to control one's future thoughts and action is the distinguishing characteristic of a rational being (EP2, p. 337). This has the consequence that all rational deliberation about action, even if it is being carried out in order to overcome a particular problem situation, will be tied up in general habits of acting. To solve some particular problem is to endorse similar activity in similar circumstances. On Peirce's framework then, whenever we reason about future action we are dealing with habits rather than single actions.[42]

In his 1903 Lowell Lectures Peirce suggests an example that illustrates these points well (EP2, pp. 247–8). We are to imagine that Peirce has to speak to a man later that day, and that his purposes will be best served by speaking to that man in a certain way.[43] Peirce divides the deliberate preparation for this conversation into two parts. The first is the formation of a resolution, which he describes as somewhat like a diagram, or general mental formula. This is the general conception of the way that the conversation should go. We might imagine (although Peirce does not say), that a certain deference is required, or some other general characteristic. The next part is what Peirce calls 'determination', it is the process by which this resolution becomes efficient. Peirce does not think that we understand this process very well, and the language he uses to describe it is figurative. He says for instance, that it is 'hidden in the depths of our nature' (EP2, p. 246),

[42] It is a further question how general the habits in question are. It might be that they only apply to a very narrowly circumscribed set of cases.

[43] Given the extent to which Peirce relied on benefactors for his well-being at this point it is likely that he had to be very careful about the way he spoke to people. This is not to mention the many debt collectors he had to avoid throughout his life as well, who would also require a certain degree of careful conversational handling. For more details on Peirce's biography the standard text is Brent, *Charles Sanders Peirce: A Life*.

and that it is the process by which an action is given a '[stamp] of approval' by the soul (CP, 5.538).[44] So the preparation for his conversation consists in making a general form of action into 'a really efficient agency' (EP2, p. 246), in other words, to make it such that he *will* act in certain generally describable ways on generally describable occasions. The preparation for this singular act consists in the formation of a habit, albeit a small scale one. Peirce then describes the aftermath of the conversation. He suggests that, if the resolution and determination were successful, there will be a feeling of satisfaction accompanying our judgement that it was satisfactory. He then sets this judgement up as a platform from which deeper and more general criticism of conduct can occur (EP2, p. 248). That is, this individual act is used as a impetus for more general habit cultivation. The agent can ask themselves whether such actions accord with their 'ideals of conduct', or whether these ideals should be changed.[45]

At his most general, he describes the purpose of human activity as 'to embody general ideas in art-creations, in utilities, and above all in theoretical cognition' (EP2, p. 443; c.f. CP, 2.763); and that we are 'putting our shoulders to the wheel for an end that none of us can catch more than a glimpse at — that which the generations are working out. But we can see that the development of embodied ideas is what it will consist in' (CP, 5.402n2). Note that to embody an idea is to make a general take effect in the world, that is, again, to develop a habit. This thesis about the highest purpose of human activity can be seen as a poetic redescription of the claim that deliberate human activity is to be understood as habit development. It is to Peirce's thought on the purposes of human activities that we now turn.

[44] Peirce refers to this 'stamping with approval' as 'resolve'. However, From the context it is clear that he is talking about what he refers to as 'determination' a year later at (EP2, p. 246).

[45] This example has the further virtue of showing that Peirce's habit-based approach to action can accommodate the kind of examples that usual philosophy of action is motivated by. We could say that for Peirce, these individual actions, and reasoning about individual actions, is a somewhat degenerate case of habit development. On the other hand philosophers of action, if they discuss habits at all tend to derive them as consisting of a collection of particular actions. This is what Kilpinen is getting at by calling the habit-based understanding of agency a 'Copernican Revolution'. In it 'basic concept and residue change place', that is habits and actions swap explanatory roles (Kilpinen, 'Pragmatism as a Philosophy of Action', p. 9).

### 2.3.2 Foreground Activity as Purpose Directed

The next issue to consider is why Peirce thinks deliberate human activity is best understood as directed towards purposes. There are, as far as I can see, two clear ways to make this out. The first is to return, yet again, to Peirce's account of deliberate self-control. This time we will have to add details about the role of ideals in self-control. The second way is to consider Peirce's account of what it is to have adopted a purpose. This account, unsurprisingly, relates the possession of a purpose to the possession of a particular kind of habit.

Peirce holds that for control to be deliberate it must be control with a view to making your action conform with a purpose, ideal, or standard (EP2, pp. 376–7). In a similar vein he says that 'approval cannot be deliberate unless it is based upon the comparison of the thing approved with some idea of how such a thing ought to be' (CP, 2.186). This is consonant with the discussion of self-control in Chapter 1. We can see that, at each level of deliberate self-control the agent has some purpose in view. Consider the first degree of deliberate self-control: when the agent becomes their own training master. In that case the agent is attempting to develop and habit of which they have a more or less conscious conception. They set themselves to developing this habit, and for this reason will know when they have achieved it. They have a conception of the way their behaviour 'ought to be', or what they want their behaviour to 'conform with'. To achieve this is the purpose that they have set for themselves. The same is true of the higher degrees of deliberate self-control. In these higher degrees our purposes simply become more general and more deep lying. For instance: to control our beliefs so as to maximise expectation and minimise surprise.[46]

Peirce also offers an interesting account of what it is to have a consciously apprehended purpose.[47] In one of his final accounts of pragmatism (c. 1907) he says that for an agent to have a purpose is for them to have a conception of a

[46]This is one of Peirce's most general descriptions of the goal of the theoretical sciences. It is quoted in (Hookway, *Peirce*, p. 67).

[47]This example is discussed, from a slightly different angle, in HCP, pp. 365–7.

particular habit (in particular, to understand the general kind of behaviour it will lead to and what the results of that behaviour will be) and to have deliberately adopted the habit. In slightly different words which come to the same thing, he describes having a purpose as having an 'idea of a possible general regarded as desirable together with a sense of being determined in one's habitual nature . . . to actualize it' (EP2, pp. 383–4).[48] This account has the strength of connecting the having of a purpose with some real tendency for the agent that has the purpose to act towards that purpose in certain ways on certain occasions. If there is no conceivable situation such that the agent would act in a way that they expected would attain their purpose then it seems strange to say that they have that purpose. Now to be deliberately developing a habit is, by definition, to have a conception of that habit, including a conception of the what kind of behaviour the habit will tend to produce. It is also to deliberately adopt that habit. So, simply by Peirce's definition of what it is to have a purpose, we can see that deliberate habit-development is directed to purposes.

### 2.3.3 Purpose and Human Practice

Since the character of a practice largely depends on the purpose it is directed towards, it is worth examining the characteristics of purposes on Peirce's account. In particular, in the following chapter we will need a general idea of the way purposes function in human practice when we consider the theoretical sciences as the practice dedicated to a very peculiar purpose: truth. The first task for this section will be to deal with some terminological confusions, in particular, in dealing with Peirce's distinct use of the terms 'purpose' and 'final cause'. We then consider the ways in which the purposes of our practices are dynamic. First, Peirce holds that our purposes, and the means by which we work towards those purposes, can develop over time. Second, I consider some of the ways in which we might be mistaken about what our purposes really are. Finally, I consider in what

[48] Another characterisation in this vein is that a purpose is an 'operative desire' (EP2, p. 118).

sense we might be able to attribute purposes to sets of background habits. That is, I suggest that there a sense in which we can have purposes without being consciously aware of, or deliberately choosing, those purposes.

Peirce usually reserves the word 'purpose' for the consciously apprehended purposes of an agent. He also speaks of 'final causes'. According to Peirce 'we must understand by final causation that mode of bringing facts about according to which a general description of result is made to come about, quite irrespective of any compulsion for it to come about in this or that particular way' (EP2, p. 120). Peirce suggests, in the same text, that a purpose is simply the most familiar example of a final cause for us, and that we should not equate the two notions (EP2, p. 120). A purpose is a final cause that is consciously adopted.

T. L. Short argues against this way of dividing up the terminology, and I will follow his usage for the rest of this section. He suggests that this privileges Descartes-inspired philosophical language rather than everyday usage. The philosophical baggage that inspires the usage is given up by Peirce, so Short holds that we should return to to what he thinks is the ordinary usage of the terms (Short, *Peirce's Theory of Signs*, pp. 110–11). I will follow Short by using the word 'purpose' to refer to final cause in general, and, when I need to refer to those purposes that are consciously apprehended by an agent I will note it. This will allow the points made in the remainder of this section to be expressed more easily.

Purposes are dynamic in a few ways. It is an important feature of Peirce's account of practice that our purposes and our conception of those purposes develop over time. The most prominent instance of this is that experience can induce us to alter our purposes. Peirce offers a perspicuous example (EP2, p. 431).[49] We are to imagine a man setting out to decorate his house. He first consciously takes on the purpose with some conception of the general plan he will follow in order to carry out the task, and this general plan is efficient, that is, it has some real habit backing it up. This might be put into effect in various ways. Peirce sug-

[49] This example is also discussed by Colapietro (HCP, p. 366).

gests that the man 'actually made decorations in his inner world' (EP2, p. 431). That is, he imagined possible furnishings for the room. But we can also imagine that this is done in the room itself, say by trying various configurations of the furniture or something of that sort. In any case, these actions are a form of experimentation. After each attempted action, Peirce suggests that the man will evaluate the results of these actions (this could be, as Peirce suggests, simply by following the feelings he has on the completion of each attempted action), and then repeat the kind of action that he has evaluated positively and stop performing the actions he has evaluated negatively. By these experiments 'a habit was produced', that is, like all experimental processes this is an example of habit development. Peirce holds that in processes of habit development our purposes themselves are developed. In this case, the most obvious way in which the purpose has been developed is to make it more specific, the man now has a far more precise conception of how he wants the room to look, that is, his purpose has changed by being precided.[50]

There are other ways that a purpose might develop along similar lines. You might have a definite conception of some particular task that you have set for yourself. Perhaps some smell in your kitchen is offensive and so you set yourself to the purpose of cleaning your kitchen on a given morning. It turns out that the smell is a dead rat in the wall, which in turn is a sign of some wider problem: your house is infested with rats. Thus, one's purpose is expanded. In attempting to achieve the purpose of making the kitchen cease to smell bad you have developed a wider purpose: ridding your house of rats. The gap that these examples uncover between our purposes and what our purposes will be after they have been diligently developed and considered will be important in the next chapter, since it is a major part of Peirce's account of our theoretical investigations that the same dynamics apply.

Note, as well, that in this process the means by which we achieve our pur-

[50]The term 'precide' was coined by Peirce and means 'to render precise' (EP2, p. 352).

poses can be adjusted as well. In fact, it is a defining characteristic of purpose-governed behaviour that it is directed to general kinds of result 'quite irrespective of any compulsion for it to come about in this or that particular way' (EP2, p. 120). However, to take something up as a purpose, is, we have seen, to be 'determined in one's habitual nature' (EP2, p. 384); there must be some form of action that we would attempt given the correct circumstances in order to achieve that purpose. We need to have some vague idea of the sort of action that would help us to achieve our purposes, and this can develop as we work towards our purposes. To take a very down-to-earth example: perhaps I desire to eat a banana, and while attempting to peel it from the stem end the stem breaks off and the banana remains unpeeled. Without any particular thought in mind I turn the banana around and attempt to peel it from the other side and discover that it works remarkably well. I then adjust my general method of pealing bananas so that I now peel them from the bottom; the means by which I attain my purpose have been developed. In Chapter 3 we will see that this is also a feature of the activity of theoretical inquiry.

Finally, having adopted Short's usage of the word 'purpose', we can understand features of the background as directed to purposes. Since these are features of the background we need not have a clear conception of these purposes to which they are directed. In fact, this is provides a way in which we might be wrong about our purposes. Our consciously available conception of our purposes might be self-deception covering for some more instinctive purposes that we need not be fully aware of, or that we need not endorse even if we did know about. For instance, the examples of human behaviour that evolutionary psychologists have a tendency to cite can be understood in this way. These are generally examples of instinctive purposes operating under the level of conscious awareness. So a recovering smoker might convince themselves that they are going down to the dairy simply in order to get some milk, but underlying this is a strong unacknowledged desire to buy a new packet of cigarettes.

## 2.4 Conclusion

In this chapter I have introduced a Peircean account of human practice. According to this picture the agent is a bundle of integrated habits embedded in an environment. The habits which make up this bundle are only determined in part by the deliberate control of the agent. In particular, many of the details of the agent's habits have been determined by their innate biological tendencies, and by the interaction of those tendencies with the environment in the history of the particular agent. Moreover, these non-deliberate interactions continue throughout the agent's life. These features of human practice, called the background of our practices in this chapter, are not entirely constrictive. In fact, on this picture of human practice they are one of the conditions for coherent action. Those aspects of our practices which are within the scope of our deliberate self-control were called the foreground of our practices.

This chapter has introduced key features of both the foreground and the background of our practices. It considered the role of our instincts and their development over time in the background of our practices, suggesting that these instincts can be described as a form of 'attunement' with our environment. It also considered the importance of purposes for the task of deliberate self-control. It emphasised the idea that our practices are directed towards the cultivation of general forms of behaviour, and that this cultivation depends on a non-deliberate attunement with the world.

Both of these features manifest themselves in Peirce's account of our practice of theoretical inquiry. That, on this conception, all practices rely on a non-deliberate attunement with the world, is the key to the claim that practice is prior to theory. That our practices are directed to purposes, and in the case of the theoretical sciences, to truth, will allow us to see how the theoretical sciences are distinct from our other practices. It is to the task of articulating these arguments that we now turn.

# Chapter 3

# Theoretical Inquiry and the Priority of Practice

## 3.1 Introduction

This chapter completes the 'ground up' articulation of Peirce's prioritisation of practice to theory. It shows that, on Peirce's view, theoretical inquiry is a form of deliberate practical interaction with the world, which, like all such interaction, depends on a vast background of uncontrolled and uncontrollable habits.

In the previous chapter I developed a Peircean account of our practical interaction with the world. According to that account we direct our body of habits in order to achieve our purposes by means of the small domain of that body over which we can exercise deliberate self-control. What is within the domain of deliberate self-control is, Peirce says, the 'mere blossom of a vast complexus' (EP2, p. 241). I called the aspects of our body of habits which we cannot control the 'background', and the aspects which we can control the 'foreground'. This chapter is also organised according to that distinction.

I consider the foreground of theoretical inquiry in Section 3.2. The foreground of any practice is characterised by a purpose and by the variety of deliberate habit development by which that purpose is sought. According to Peirce the purpose

of theory is the discovery of truth, and its method is the 'method of science'. Under the method of science we develop our beliefs, which are a form of habit, by putting them into contact with the environment in experiments. Truth is then understood as the ultimate harmony between an agent's beliefs and their environment.

In Section 3.3 I consider the background of theoretical inquiry. The background is characterised by those features of our body of habits that are necessary for theoretical inquiry but are outside the domain of our deliberate self-control. I will consider two constituents of the background, the first, background beliefs; the second, our ability to generate explanatory hypotheses. The need for background beliefs is a consequence of Peirce's account of habit development. On that account, for a habit to be subject to genuine development it must clash with the agent's environment. Beliefs are no exception. Those beliefs that have not clashed with the environment are not subject to theoretical inquiry; they are background beliefs. Peirce places particular emphasis on a set of 'common-sense' background beliefs, which, he claims, are instinctive. Our ability to generate explanatory hypotheses is a special case of our instinctive ability to respond appropriately to experience.[1]

The main features of this account of inquiry are visible in the example, considered in Chapter 1, of my failed expectations about the moon. In this example we are to imagine that it is around sunset and I am leaving my flat for the evening. Upon leaving my flat I have a vast number of beliefs, some of which are related to the behaviour of the moon. These include, for instance, that the moon orbits the earth at a regular rate, that it is roughly the same angular size as my thumb when

[1] Note that this account of theoretical inquiry involves very familiar Peircean claims which have been discussed at length in the secondary literature. For instance: that inquiry requires a genuine clash with experience (e.g. Misak, 'C. S. Peirce on Vital Matters', pp. 152–3), that truth is the purpose of theoretical inquiry (e.g. Hookway, *Peirce*, pp. 41–79; Misak, *Truth and the End of Inquiry*), and that we have a set of indubitable 'common-sense' background beliefs (e.g. Anderson, 'Peirce's Common Sense Marriage of Religion and Science'; Gallie, *Peirce and Pragmatism*, pp. 84–108; TRP, pp. 198–222). The contribution I am making is not to provide new and better versions of these claims, but to place them within the wider framework developed in the previous chapters of this thesis.

I fully extend my arm, and that it appears greyish-white in most circumstances. I also have more basic beliefs about the behaviour of physical objects, including the belief that they persist over time, that there is some regularity in their behaviour, and that two of them cannot be in the same place at the same time. But the most important belief for the purpose of this example is that, because of a tide chart that I read in the newspaper a few hours ago, I believe that the moon is full tonight. As a result I also believe that the moon will appear on the horizon around sunset. This belief is manifested in a habit of more or less unconscious expectation.

Once I have made it outside I am surprised to find that the moon is high in the sky in first quarter; my expectation has clashed with reality. Many of the beliefs that led to this expectation are now subject to doubt. My doubt will likely be strongest for the beliefs that are only related to this particular expectation, less strong for my beliefs about the moon's behaviour in general, and extremely unlikely to touch my most basic beliefs about the behaviour of physical objects. In any case, this doubt motivates experimental inquiry. According to Peirce the first step in an experiment is to consider an explanatory hypothesis: perhaps I fancifully entertain the hypothesis that the moon has been shifted along its orbit by some external force. The second step is to deduce some experiential consequences of this hypothesis: I deduce from my initial hypothesis and my background beliefs, that the truth of this hypothesis would require the moon to have been subjected to an incredible force and that this should have left some very prominent evidence. The evidence would be likely to include, for instance, reports of an extreme explosion, widespread panic, or visible scarring on the moon itself. The final step in experimental inquiry, induction, is to consider whether this evidence obtains: I look for it but find none, so I reject the hypothesis. I then consider another hypothesis: perhaps I read the wrong newspaper this morning. I deduce that, if the hypothesis is true and I return to my house and look at the date on the newspaper, then I will find that it is not today's edition. It turns out

that this hypothesis is validated when I return home and see that I have a three-week-old newspaper on my desk. This brings my doubt to an end, and corrects the flaw in my beliefs, in this case the flaw was my belief in the appropriateness of the chart I read in the newspaper.

On Peirce's model of theoretical inquiry we use this kind of reasoning in order to discover the truth. However, there is a major difference between everyday cases of inquiry like the one just considered and genuine theoretical inquiry. In theoretical inquiry we actively look for experiences that will engender doubt where ever they can be found. We do not simply wait for some expectation or habit of action to clash with the environment; we take on a habit of disrupting our habits.[2]

I conclude, in Section 3.4, by briefly reflecting on an important consequence of Peirce's prioritisation of practice to theory. Namely, that anyone in a position to take up theoretical inquiry must already be engaged in non-theoretical forms of practical interaction with the world.

## 3.2 The Foreground of Theoretical Inquiry

This section articulates the foreground of theoretical inquiry. The foreground of a practice consists of a purpose and a form of habit development by which that purpose is attained. In Section 3.2.1 I introduce Peirce's claim that truth is the purpose of theoretical inquiry. Peirce analyses truth in the language of beliefs and their development in experimental inquiry. The former is considered in Section 3.2.2, and the latter in Section 3.2.3.

### 3.2.1 Truth as the Purpose of Theoretical Inquiry

In order to show that Peirce makes truth the purpose of theory, I must link my vague use of the word 'theory' with Peirce's own philosophical terminology. The

[2]The phrase 'habit of disrupting our habits' was suggested to me by Cathy Legg.

best match for 'theory' within Peirce's system is what Peirce refers to as the 'theoretical sciences'.[3] Peirce's characterisation of the theoretical sciences is to be found within his attempts to build a natural classification and hierarchy of the sciences.[4] In his 1902 *Minute Logic* Peirce claims that natural classifications are classifications according to final causes (EP2, p. 125).[5] Consequently, he classifies the sciences according to their purposes. But, before Peirce takes up this task he offers an account of the purpose of science in general.

According to Peirce, science is to be characterised according to the guiding purpose of its practitioners. In the *Minute Logic* Peirce claims that someone becomes a scientific investigator by 'their being seized with a great desire to learn the truth, and their going to work with all their might by a well-considered method to gratify that desire' (EP2, p. 130).[6] In an often-quoted passage Peirce says that 'science consists in actually drawing the bow upon truth, with intentness in the eye, with energy in the arm' (EP2, p. 131). Later, in 1906, he defines 'science' as the activity of 'seeking such truth as seems to [the scientist] highly worthy of life-long devotion, and in pursuing it by the most critically chosen methods' (EP2, p. 372).

As Kent notes, Peirce shifts between a strict and a lenient use of the word 'sci-

[3]Peirce uses the term 'theoretical sciences' in a few places (CP, 1.239; 5.13; 7.58; EP2, pp. 28–29). This seemingly sparse use of the term is misleading. It hides the fact that Peirce refers to 'theoretical science' using a large variety of terms. For instance, 'heuretic science' (EP2, p. 372). A full list of Peirce's synonyms for 'theoretical science', including terminology from Peirce's unpublished manuscripts, is provided by Kent (*Charles S. Peirce*, p. 205).

[4]The project of classifying the sciences was popular in the 19th century. Peirce cites similar work by Humboldt, Comte, and Spencer (EP2, pp. 258-9). That this kind of work was prominent at the time is quite strikingly evidenced by the fact that Peirce can cite a contemporary text that contains 146 distinct classifications of the sciences (EP2, p. 115). This aspect of Peirce's work is considered in great detail in Kent's *Charles S. Peirce: Logic and the Classification of the Sciences*. Kent makes out Peirce's ordering of the sciences as an attempt to provide a pragmatic clarification of the nature of logic, that is, to show the practical consequences of logic for the other sciences (Kent, *Charles S. Peirce*, pp. 17–9; Ch. 5). This shows that Peirce's classificatory project is not simply a throwback to outmoded intellectual fashions, but is deeply connected to his pragmatism.

[5]This is in contrast to his earlier efforts, starting at least as early as 1866, to classify the sciences by means of the kinds of reasoning employed in them, and to other methods he attempted in the intervening time. For a detailed discussion of the development of these systems see (Kent, *Charles S. Peirce*, pp. 90–114). It should also be noted that the 1902 classification was not the final form of the classification. For instance, it does not include aesthetics as a normative science (Kent, *Charles S. Peirce*, pp. 117–8). However, the later versions of the classification are all attempts at a natural classification in the sense just mentioned (Kent, *Charles S. Peirce*, p. 114).

[6]Recall from Chapter 2 that Peirce defines a purpose as an operative desire (EP2, p. 118). So, to go to work to gratify a desire is to have a purpose.

ence' (Kent, *Charles S. Peirce*, pp. 81–2). In the strict sense it applies only to the pursuit of truth without ulterior motive, that is, to the theoretical sciences. In the lenient sense it applies to all forms of inquiry, even if they have ulterior motives. Peirce calls these forms of inquiry 'practical science' (CP, 1.243; EP2, p. 372). For instance, it might be valuable to determine truths about the acoustic properties of various woods in order to make better bassoons. On this conception such an inquiry is carried out in order to discover the truth, but this purpose is subordinate to the purpose of making bassoons. Peirce's characterisations of science are primarily directed at the theoretical sciences, with the practical sciences as an afterthought.[7] It is clear that the characterisation of the purpose of science in the previous paragraph is about 'science' in the strict sense.[8]

It is important to note that equating theory with what Peirce calls 'theoretical science' is not an endorsement of scientism. By scientism I mean the claim that either the methods of the natural sciences or the objects discovered by the natural sciences are the only legitimate elements of inquiry (c.f. Blackburn, *The Oxford Dictionary of Philosophy*, p. 344). To accuse Peirce of scientism is to misunderstand what he means by 'science' and the 'method of science'. Peirce does not equate 'science' with the 'natural sciences' (Haack, *Manifesto*, p. 49; TRP, pp. 76–7; Misak, 'C. S. Peirce on Vital Matters', p. 154). This is clear from an examination of the classification of the sciences. In the classification Peirce distinguishes between philosophy and the 'special sciences' (EP2, p. 259).[9] Both are 'sciences' according to Peirce, but each have their own methods and subject matter. Philosophy is concerned with what can be inferred from 'common

[7] In the middle of one of Peirce's discussion of the classifications of the sciences he turns to the practical sciences, lists some, and claims to be 'utterly bewildered by its motley crowd', before turning back to the theoretical sciences (CP, 1.243).

[8] That 'theory' should be equated with Peirce strict use of the word 'science' is further supported by the few times that Peirce himself uses 'theory' as an abstract noun. For instance, in the 1898 Cambridge Conferences Lectures 'theory' is equated with 'science', and Peirce uses the phrase 'pure theoretical knowledge, or science' (EP2, p. 33). He makes similar remarks in other writings. For instance, in 1904 he, in passing, equates the 'theoretical' with the '*purely* scientific' (EP2, p. 328).

[9] Moreover, the special sciences include more than the natural sciences. Peirce includes traditional humanities disciplines like history and literary criticism amongst the special sciences (EP2, pp. 261–2).

experience', while the special sciences are 'occupied with the accumulation of new facts' (EP2, p. 259). The sense in which these various forms of inquiry share a method is simply that their practitioners endeavour to test and improve their claims against experience; they are all forms of experimental inquiry.

Having seen that Peirce thinks the purpose of theoretical inquiry is the discovery of truth, we need to consider his account of truth.[10] In Chapter 2 we saw that our purposes cannot be separated from the forms of habit development by which we work towards them. On this view, if we are to understand truth we must consider the methods by which we attempt to attain it. This is exactly what Peirce does. As Hookway has argued, Peirce offers a 'pragmatic clarification' of the notion of truth rather than a new definition of truth (Hookway, 'Truth, Reality, and Convergence', pp. 146–7). The Peircean 'theory of truth' is not a theory of the same sort as say, the correspondence theory, or the coherence theory. Rather, Peirce articulates the consequences of asserting that something is true within our practices of inquiry.[11] Pragmatic clarification of the concept of truth is necessary because we cannot step outside our practices of inquiry to check that our beliefs correspond with reality. According to Peirce '[we] only puzzle [ourselves] by talking of this metaphysical "truth" and "falsity," that [we] know nothing about' (EP2, p. 336). We only 'have any dealings with [our] doubts and beliefs, with the course of life that forces new beliefs upon [us] and gives [us] the power to doubt old beliefs' (EP2, p. 336). Consequently, we must define truth and falsity in terms of our beliefs, doubts, and the course of experience (EP2, p. 336).

[10] Of course, Peirce's theory of truth is one of the most salient features of his philosophy and has been widely discussed. I do not intend to consider this secondary literature in any detail. I will stick to claims that are fairly uncontroversial amongst Peirce scholars. Important discussions of Peirce's account of truth include: Misak, *Truth and the End of Inquiry*; Hookway, 'Truth, Reality, and Convergence'; Wiggins, 'Reflections on Truth and Inquiry'.

[11] The question of whether Peirce accepts the correspondence theory or not is controversial. On one hand, he claims that '[t]ruth is the conformity of a representamen to its object' (EP2, p. 380). This is cited as evidence of Peirce' acceptance of a correspondence account by Haack, who notes as well that, even if he does accept it he does not think that it is particularly informative (Haack, 'Introduction: Pragmatism, Old & New', pp. 25–6; c.f. Haack, *Manifesto*, p. 33). On the other hand, Misak argues that Peirce's arguments against the metaphysical view of truth that I have just cited count as arguments against the correspondence theory (Misak, 'Charles Sanders Peirce (1839–1914)', pp. 6–7). We need not pursue this question further.

Peirce argues that a true belief is a belief which *would* ultimately prevail *if* inquiry were to be carried out sufficiently far (EP2, p. 457).[12] In 1901 Peirce characterises truth by saying that a '[t]rue proposition is a proposition belief in which would never lead to…disappointment' (CP, p. 5.569), where disappointment is understood as a clash with the world. I was disappointed in this sense when my expectation of a full moon went unfulfilled. These characterisations of truth can be straightforwardly transposed into the language of habit development. In Chapter 1 an agent's habit was described as in greater harmony with the agent's environment the less it led to clashes between the agent and their environment. According to the account of truth we have just considered a belief is true if there is no possible way for it to clash with experience. In other words, for a belief to be true is for it to be completely in harmony with experience.

Finally, before turning to a more full articulation of the experimental method, it is important to note that on Peirce's account theoretical inquiry is not simply aimed at finding *some* truths. Finding one belief that would never be overthrown by experience would not satisfy the hopes of theoretical inquiry. Rather, the theorist aims to find as much truth as possible. Peirce expresses this clearly in *Reason's Conscience* (1904) where he characterises the goal of theoretical inquiry as: 'the maximum of expectation and the minimum of surprise' (R693, p. 164 via. Hookway, *Peirce*, p. 67). To maximise expectation is, as we will soon see, to maximise belief; to minimise surprise is to maximise truth.

### 3.2.2 Beliefs as Habits

According to Chapter 2 the foreground of a practice consists, in part, of a form of deliberate habit development. In theoretical inquiry we develop a particular kind of habit, beliefs, by subjecting them to experimental test. This section articulates

[12] In the passage just cited Peirce is concerned to head off some tempting misinterpretations of, and errors in, his earlier pragmatic elucidations of 'truth'. This is why in later writings Peirce emphasised the modal aspect of his characterisation of truth. In other words, in his account of truth he is not prophesying the end of inquiry as an actual event in the future. Other late characterisations of truth agree with the one just cited (e.g. EP2, p. 87; p. 336; p. 380).

the relevant features of Peirce's conception of belief.

One of the most consistent features of Peirce's philosophy is his application of something like Alexander Bain's definition of belief as 'that upon which a man is prepared to act' (EP2, p. 399).[13] This leads to the claim that a belief is a habit of action.[14] For example, the novice bassoonist's belief that bassoons should be returned to their cases after they have been played is to be understood as a habit of action such that, if she is behaving deliberately, she will return her bassoon to its case when she has finished playing it, and will, perhaps, criticise her fellow bassoonists if they fail to put their instruments away. Peirce also claims that beliefs are habits of expectation.[15] My belief that there will be a full moon tonight answers more closely to this description. For instance, the belief implies that I will expect that the moon will appear on the horizon when I leave my flat at sunset. I will return to the roles of action and expectation in belief in a moment.

Peirce does not claim that all habits are beliefs. For a habit to be a belief it must be 'deliberately satisfied' (EP2, p. 12; NM4, p. 39) and active in imagination (NM4, pp. 39–40; CP, 2.148).[16] A deliberately satisfied habit is one which we are aware of, and that we do not struggle against (NM4, p. 39).[17] This clause captures the fact that beliefs structure our deliberate behaviour. For instance, the novice bassoonist really does act according to her belief that bassoons belong in their cases when she is acting deliberately. If she genuinely struggled against the habit she would not put the bassoon in its case when acting deliberately. This

[13]Peirce even claims that pragmatism is 'scarce more than a corollary' of this definition (EP2, p. 399).

[14]This and similar claims can be found throughout Peirce's writings (e.g. NM4, p. 39; CP, 5.538; EP1, pp. 114–5; pp. 129–30; p. 201; EP2, p. 12; p. 33; pp. 139–41; p. 312; p. 418).

[15]This and similar claims can also be found throughout Peirce's writings (e.g. CP, 2.148; 5.539; 7.115; 8.270; EP2, p. 235; p. 441)

[16]In some writings Peirce says instead that a belief is a habit that is 'controlled and contented' (EP2, p. 312), or that a belief is a 'self-controlled' habit (CP, 5.480). These characterisations seem to be in tension with Peirce's claim, considered in Section 3.3.1, that we have a set of uncontrollable instinctive beliefs. I think that these tensions are superficial, but for simplicity's sake I will avoid these formulations.

[17]Recall from Chapter 1 that awareness of a habit does not imply complete awareness of all the ways it might cause us to act. A belief, since it is a habit, cannot be captured by a 'momentary mode of consciousness' (EP2, p. 336). We might only have a vague and barely-articulate understanding of the habit, but this is awareness nonetheless.

clause also allows us to understand how, say, an alcoholic can genuinely believe that alcohol is killing them and that they do not want to harm themselves, while continuing to drink. Their condition prevents them from acting deliberately (c.f. EP2, p. 12).

There are two senses in which beliefs are active in imagination. First, they structure our imaginary consideration of what would happen in hypothetical circumstances. Using one of Peirce's examples, 'if I *believe* that fire is dangerous, and I imagine a fire bursting out close beside me, I shall also imagine that I jump back' (CP, 2.148). This is not true of many of our habits. For example, Peirce suggests that he probably has a habit of putting one leg in his trousers before the other, but if he imagines putting them on he 'shall probably not definitely think of putting the left leg on first' (CP, 2.148). In this case he has a habit of action but it is not a belief. This clause captures the fact that our beliefs structure our conditional expectations. The second way that beliefs are active in the imagination is that they can be developed by imaginary experimentation; we can imagine possible future scenarios and come to beliefs about what would or should happen in those scenarios (NM4, pp. 39–40; CP, 2.148). We have already considered a striking example of this: Herbert Peirce's imaginative preparation for the possibility of a dress catching on fire at the dinner table.[18]

One might think that the above conditions are too lenient. For instance, we all have a habit of eating with which we are, for the most part, deliberately satisfied. It is also active in the imagination; I can, for instance, imagine future meals. It seems to satisfy the above conditions, but it might seem bizarre to call it a belief.[19] This worry is relieved if we describe the case more carefully. On Peirce's view our bare habit of eating with a certain regularity is not a belief. But whatever structures our conditional resolutions and expectations about eating is. This conditional structure is what Peirce is trying to capture with the criteria just mentioned. If I believe that I eat three times a day I will expect that if I count

[18] This example was considered in Chapter 1 (Section 1.3.2).

[19] This objection was suggested to me by Cathy Legg.

up the times that I have eaten at the end of the day they will add up to three. This is a belief about me. If I believe that I should only eat three times a day, then I will, for instance, resolve not to buy snacks from the vending machine. This is a belief about how I should act in the future. In neither case is my habit of eating in and of itself a belief.

Another way to put this is in terms of 'propositional form'. Peirce holds that '[e]very belief is belief in a proposition', and that a proposition requires a subject and a predicate (CP, 5.542). To have conditional expectations about the behaviour of some entity is to ascribe some way of acting, a predicate, to that thing, a subject. Merely having a habit of eating does not apply a predicate to a subject; it is not *about* anything. But if I have conditional expectations about my future eating behaviour, then I am applying a predicate to a subject. For instance, the predicate '. . . is a thing that eats', to the subject 'me'.

I noted above that Peirce refers to beliefs as both habits of action and habits of expectation. The relative roles of action and expectation in belief was a major issue for Peirce. For instance, the tension between the two led him to posit two categories: 'theoretical beliefs', which are primarily habits of expectation; and 'practical beliefs', which are primarily habits of action (CP, 5.538–45). We are now in a position to understand the different roles of action and expectation. In so far as they structure our conditional expectations all beliefs are habits of expectation. Further, it is only by causing expectations that they can be subject to theoretical inquiry. Like all forms of habit development, theoretical inquiry requires that our habits clash with the environment in some way. For a belief to clash with the environment is for it to cause an expectation which goes unfulfilled. This as true for 'practical beliefs' as it is for 'theoretical beliefs' (CP, 5.540). Take the 'practical belief' that coffee keeps you awake. This belief clashes with my environment when it to causes me to fail to achieve my purposes. For instance, if drinking coffee did not allow me to stay awake for another hour when I desired to. But this implies that I expect the coffee to keep me up for another hour. This

expectation is what clashes with the environment; without expectations we cannot be surprised. Consequently, this chapter is primarily concerned with beliefs as habits of expectation.[20]

At the end of Section 3.2.1, I suggested that to maximise expectation is to maximise belief. We are now in a position to see why. To maximise expectation is to maximise our habits of expectation. That is, we have maximised expectation when we are such that any particular set of antecedent conditions leads us to expect as many things as we can given those conditions. If we expect every possible event given any set of conditions then we have every possible belief. Of course, this is not the goal of theoretical inquiry. In theoretical inquiry we must also minimise surprise. In other words, theoretical inquiry attempts to discover every true belief.

Finally, it is important to note that beliefs are features of deliberate activity and that deliberate activity is continuous with and depends on non-deliberate forms of activity. An entity must develop a large amount of behavioural competency before it can have beliefs. To believe, for instance, that there are biscuits in the biscuit tin requires 'animal' competence with foodstuffs, spatial navigation, and temporal orderings. This suggests that beliefs cannot be taken as primitive features in an account of human activity. To account for human activity requires us to account for the background on which the foreground of beliefs and desires builds, and with which it is continuous. This is why Peirce's understanding of the role of beliefs in action goes deeper than that offered in the 'Standard Story of Action' (considered in Chapters 1 and 2). It is also why Peirce could not agree with recent attempts to argue that knowledge-how is a variety of knowledge-that (e.g. Stanley and Williamson, 'Knowing How'; Stanley, *Know How*). To have knowledge-that, that is, to have successful beliefs, we must already have developed a vast amount of background competencies. That is, we must

[20] All habits of expectation are also, from another angle, habits of action (c.f. CP, 5.539). They *would* affect our conduct *if* we were in a situation where they are practically salient.

have a great deal of 'know how'.[21] To fully engage with these arguments would take us far from the present task.[22] But one further remark is appropriate. Stanley and Williamson claim that someone knows how to ride a bicycle 'if and only if, for some relevant way *w* which is a way for [that person] to ride a bicycle, [they] know that *w* is a way for [them] to ride a bicycle' ('Knowing How', p. 426). On the view I am attributing to Peirce, the ability to point to something as an enduring object, let alone to point to a 'way' of doing something, builds on this prior 'animal' engagement with an environment. In other words, recognising something as a 'way to do something' already depends on the know-how embedded in our background attunement with the world.

### 3.2.3 Experimentation as Deliberate Habit Development

I now turn to the development of beliefs by means of experiment.[23] The experimental method is a form of deliberately self-controlled habit development. In this section we we will consider the method in skeletal form. More details will be introduced as needed in subsequent sections.

Deliberate experimentation is not the only way that beliefs develop. Beliefs are habits and the forms of habit development considered in the previous chapters also apply to them. In particular, they are subject to ongoing processes of non-deliberate habit development. Examples of the effect of these processes were introduced in Chapter 2. For instance, the case of radical change in someone's habits as a result of their being electrocuted. I will expand on that example. It is easy to imagine that after the electrocution the person's expectations about the risk involved in the use of various household appliances, and their resolutions about their future action involving those appliances, radically changed. If so,

[21] Colapietro makes a very similar argument which focusses on what is necessary for the possession of concepts (HCP, p. 360).

[22] In particular, Stanley and Williamson's arguments depend on a vast amount of linguistic theory. A full Peircean response would thus require us to consider his account of language, and the relationship between language and beliefs. This would be well outside the scope of this thesis.

[23] For reasons of space I cannot go into Peirce's defense of the experimental method as the only means by which truth can be attained. This was a theme throughout his work, but it is most prominent in 'The Fixation of Belief' (EP1, pp. 109–123).

then on Peirce's account their beliefs have changed. Note that these need not be rational changes. Let's say that this person has developed an extreme aversion to using the toaster, and that they claim that toasters should not be used because they are incredibly dangerous. In this case it seems natural to say that their beliefs have been changed non-deliberately in response to their electrocution. Less dramatically, Peirce holds that our deepest beliefs are not directly developed in any particular case of self-controlled habit development. Rather, the development of our deepest ideals is not something we '[sit] down to do and have done with'. Instead they are 'digested first ... in the depths of our reasonable being', and '[t]he results come to consciousness later' (EP2, p. 248).

In Chapter 1, I generalised Misak's account of the cycle of belief development in inquiry, her original statement can now be reintroduced. In inquiry beliefs develop according to a 'belief – surprise – doubt – inquiry – belief' cycle (Misak, 'Charles Sanders Peirce (1839–1914)', p. 11). Like all forms of habit development, the development of beliefs begins in a clash with the environment; a surprise. My expectation that the moon will be on the horizon fails, or perhaps I get lost on my way to the park. I am left in a situation where I do not know how to continue. I can't make sense of the moon's position and I can't decide which road I should take to get to the park. This, says Peirce, is doubt and doubt is not a habit, rather, it is 'the privation of a habit' (EP2, p. 337). This doubt provides affordance for experimental inquiry.[24] Without genuine doubt, doubt generated by an experiential clash with the environment, we cannot take up experimental inquiry.

Once we have genuine doubt we can begin to experiment. Experimentation has three phases: abduction, deduction, and induction.[25] In the first stage, abduction, we generate an explanatory hypothesis. In the second stage, deduction, we deduce some experiential consequence of the truth of that hypothesis. In the final stage, induction, we attempt to determine if the deduced consequences ob-

[24] It provides affordance for other responses as well. For instance, we could bury our heads in the sand. I am not concerned that kind of strategy here.

[25] This division of forms of reasoning into three is one of the central features of Peirce's logic. It appears in his earliest published works (e.g. EP1, pp. 33–7) and his latest (EP2, pp. 441–2).

tain. This stage might take the form of making special observations. For instance, we might need to build an instrument to expose ourselves to a new form of experience, or we might need to perform a complex task with pre-existing scientific instruments. This is a common form of experimentation in the natural sciences, and is most dramatically illustrated by the construction of massive experimental apparatuses like the Large Hadron Collider. Experiment can also take the form of imagining some future situation which I need to prepare for (doubt). I consider various possible responses to the situation (hypotheses), and reflect on whether those responses are desirable (induction and deduction). The example of Peirce's preparation for an interview, considered in Chapter 2 is of this sort.

Having determined whether the consequences derived from the hypothesis obtain or not we must decide how to respond to the result. This response will depend on the particular circumstance of the experiment. If the hypothesis failed one might adjust it to satisfy the new observation or one might reject it entirely. If the hypothesis succeeded one might move on to another question, or one might devise further tests for the same hypothesis. The status of our original beliefs at the end of this cycle will also depend on the circumstances of the experiment. Perhaps we will conclude the cycle with new and better beliefs; beliefs more in harmony with our environment. Alternatively, it might be that our inquiry fails and we are left without the beliefs that we started with. We might become stuck testing new hypotheses indefinitely, never developing a new belief.

The experimental method might not look like a form of deliberate self-control in the sense introduced in Chapter 1. In that chapter I suggested that the distinguishing feature of deliberate self-control was that we take responsibility for the resulting habits. Yet experimental inquiry is set up so that our beliefs are not just the result of a decision to believe one thing rather than another. In inquiry we want the world to determine our beliefs rather than ourselves; we want our beliefs to match an 'external permanency' (EP1, p. 120), rather than the shifting standards of fashion (EP1, pp. 119–20), or the dictates of authority (EP1, pp. 117–

8).[26] But this is consistent with the account provided in Chapter 1. Recall the least sophisticated example of deliberate self-control that we considered: becoming one's 'own training master' (CP, 5.533). There we took responsibility for developing a a habit that we did not create ourselves. The case of experimental inquiry is analogous. If experimental inquiry is operating correctly we do not determine what our beliefs will be, but we take responsibility for our holding them.

This account of experimentation applies outside of strictly theoretical inquiry. For instance, the same basic method applies in what I called the 'practical sciences' above. I conclude this skeletal account of experimental inquiry by noting two features of its application in specifically *theoretical* inquiry. First, recall that in theoretical inquiry we actively look for doubt, Peirce holds that the theoretician must engage in the 'eager pursuit' of doubt (CP, 5.520). This is not to say that we introduce 'paper doubts'. Rather, we open ourselves up to as much experience as possible in order that we might attain genuine doubt; we look for clashes with the environment. Second, note that in any finite span of time our experimental inquiry might be chasing up a blind alley. Perhaps some new experimental result will force us to throw away huge amounts of work. Consequently, if theoretical inquiry is to achieve its goal, truth, it must open itself up to an indefinite future. Theoretical inquiry works on the hope that, in the long run, any errors in our beliefs or hypotheses will be uncovered; it is only by opening ourselves up to the indefinite future that we can hope for ultimate harmony between our beliefs and the world.[27]

## 3.3 The Background of Theoretical Inquiry

In Chapter 2 I defined the 'background' as that in our body of habits which is not subject to deliberate self-control. Theoretical inquiry, like all of our deliberate

[26] These citations are from 'The Fixation of Belief', one of Peirce's early defenses of the experimental method.

[27] This and other things that distinguish theoretical inquiry from our other practices will be considered in more detail in Chapter 4.

practices, depends on this background. This section articulates two forms of this dependence. First, our background beliefs (Section 3.3.1), and second, our ability to generate explanatory hypotheses (Section 3.3.2). According to Peirce both of these are instinctive. We will see that they correspond to the two forms of instinct considered in Chapter 2.

### 3.3.1 Background Beliefs

According to Peirce theoretical inquiry depends on a set of instinctive and indubitable background beliefs.[28] He introduces these beliefs as part of his 'Critical Common-Sensism'.[29] The argument for their existence can be introduced through his account of experimental inquiry. On this account all experiments rely on beliefs that are not directly tested in that experiment. That is, beliefs that are in the background relative to that experiment. These beliefs might themselves be subject to deliberate self-control, but they are not subject to it in the experiments for which they are the background. On Peirce's account our 'common-sense' beliefs are beliefs that are in the background of any experiment that we can currently perform. That is, in our current condition we cannot subject them to genuine experimental inquiry.[30]

According to Peirce an experiment is 'a question put to nature' (EP2, p. 215), which relies on a definite purpose and a plan (EP2, pp. 339–40). Questions, purposes and plans always depend on 'background' beliefs. On one side of the experiment, when formulating a plan we rely on certain conditions holding. On the other, the result of an experiment does not interpret itself; 'background' beliefs are required for the 'recognition of the teaching of the experiment' (EP2, p. 340). The reliance of experiments on this 'background' is most prominent in the de-

[28] Strictly speaking, all of our deliberate practices depend on these background beliefs, but I am only concerned with theoretical inquiry here.

[29] Peirce's sustained discussions of Critical Common-Sensism are to be found at EP2, pp. 346–59, and CP, 5.497–537.

[30] Henceforth I will put 'background' in scare-quotes when it refers to beliefs that are in the background with respect to a particular experiment, as opposed to beliefs that in the background in the sense defined in Chapter 2.

ductive and inductive phase.

These dependences are clear in the moon example, which I will expand here. When I was first confronted with my failed expectation I considered a few hypotheses. The first hypothesis was that the moon had radically shifted in position. When developing a plan to test this hypothesis I had to rely on 'background' beliefs about the moon and its movement. In particular, I relied on the belief that the moon is a massive object, that it orbits the Earth due to the force of gravity; more deeply, I relied on the belief that the moon is one object that endures over time, and that the object that I am observing is actually the moon. Given these beliefs I concluded that, if the moon has radically changed position, then it must have been subjected to a massive force. Having concluded this, I needed to determine whether it actually obtained. This also required 'background' assumptions. For instance, that any such force would have observable effects, for instance, a large flash. It also relied on the thought that any such event would have been widely noticed by my fellow humans. These together suggested a plan for testing the hypothesis, which was to look for signs that my fellow beings had witnessed such a shocking event. Finally, to interpret the results of my observation required assumptions about what surprise in others looks like. For instance, that such an event would completely dominate broadcast media.

Peirce suggests an example from chemistry. Let's say that a chemist has some hypothesis about the behaviour of a certain molecule in relation to other molecules and that they want to test it. They decide to use diagrams of the structures of the relevant molecules. This strategy depends on the belief that, for instance, the diagrams are representative of all molecules of those types, and that the rules for manipulating the diagrams correspond sufficiently closely to their actual behaviour (c.f. PM, pp. 80–81).

The beliefs in the 'background' of a particular experiment need not be in the background in the sense defined in Chapter 2. Recall that the background is, in this more involving sense, any feature of our body of habits that is not subject to

deliberate self-control. The beliefs in the 'background' of a particular experiment are possibly within the scope of deliberate self-control. Many of the 'background' beliefs that I listed in connection with the moon example are the result of previous inquiry or could be subjected to further inquiry. For instance, my beliefs about what would be required for the moon to radically shift in position are the result of previous scientific inquiry. Similarly, in the case of the chemist, Peirce holds that their diagram can only be used as a representation of all molecules of that type because of previous experiments which have convinced the chemist that all of the relevant molecules have the same structure (PM, p. 81).[31]

Peirce holds that some beliefs, our 'common-sense' beliefs, are not subject to deliberate self-control. Some of these beliefs are in the background of all action, for example, the belief that there is some regularity in the world. Since it is assumed by all experiments, testing it by means of experiment would be as futile as 'adding a teaspoonful of saccharine to the ocean in order to sweeten it' (CP, 5.522). Others are more specific, for instance: that fire burns (CP, 5.498), and that incest is wrong (EP2, pp. 349–50).

One reason that Peirce thinks we have these beliefs is the general principle that all deliberate self-control depends on something uncontrolled. So that, if we consider an experiment, and then attempt to inquire into its 'background' beliefs, and then into the 'background' beliefs of that inquiry, and so on, we would never succeed in testing them all, or we would come to beliefs that we could not control. Peirce holds that the latter is the case.

These beliefs are not subject to inquiry because they do not clash with experience, and thus are not subject to genuine doubt (EP2, pp. 347–8). They are distinct from those beliefs which we have simply not put enough effort into investigating. Some beliefs that we don't currently doubt could easily be doubted if we looked for disconfirming instances. The 'common-sense' beliefs are beliefs

[31] Another way to think about this would be to return to Peirce's hierarchy and classification of the sciences. The hierarchy is organised according to the idea that more fundamental sciences 'provide principles' to less fundamental sciences (EP2, p. 258). To rely on the principles provided by another science is to use those principles in the 'background' of your experiments.

that cannot be genuinely doubted no matter how much effort we put in (c.f. EP2, p. 337). A consequence of this is that to declare a belief indubitable we must put into practice 'a plan for attaining to doubt', which 'may involve a solid month of hard work' (EP2, p. 353). Only after going through this kind of systematic process can an inquirer pronounce a belief to be indubitable (EP2, p. 353). But note that, in accordance with his fallibilism, Peirce holds that these beliefs *might* conceivably clash with experience in the future (EP2, p. 348).

Peirce holds that our indubitable beliefs are 'invariably vague' (EP2, p. 350). To say that there is some regularity in the world is not to say that, for instance, the universe is entirely made up of atoms in mechanical interaction with one another, nor is to to claim that there is absolute regularity, or to assent to some particular collection of broad regularities. Each of these beliefs could easily be doubted. However, the vague belief that there is *some* regularity in the universe is not subject to doubt. Similarly, to say that fire burns is not to endorse any specific claims about how hot the fire has to be, or what it burns. Each specific claim of that form is open to doubt.

Our indubitable 'common sense' beliefs are instinctive (EP2, p. 349). In Chapter 2 I argued that, on Peirce's view, our instincts are to be understood as innate tendencies to respond in certain ways to experience; tendencies which themselves develop in response to experience. One way of gaining a conception of these instincts is to consider the habits which they generate in a sufficiently normal course of experience.[32] Our 'common-sense' beliefs are instinctive in this way; they are beliefs that will arise in any human being given a sufficiently ordinary course of experience. Further, this is why they are vague. Just as the vague and instinctive habit of eating has developed into many culinary cultures; so there are many ways of believing that there is some regularity in the world.

[32]This way of looking at our instincts was introduced in Section 2.2 of Chapter 2.

### 3.3.2 Hypothesis Generation

In Section 3.2.3 we saw that one of the phases of experimental inquiry is hypothesis generation. I did not consider where these hypotheses come from. Why, for instance, did I hit upon the idea that I might have read the wrong newspaper when I was surprised by the position of the moon?

Peirce frequently describes our power of generating hypotheses as instinctive (e.g. EP2, p. 108; pp. 217–8; p. 250; pp. 443–5.). Moreover, Peirce suggests that this 'guessing instinct' is correct more often that sheer chance would suggest. Following Galileo, he calls it '*il lume naturale*' (EP2, p. 32; p. 55; pp. 444–5).[33] He claims that if we did not have this power we would not be able to discover the truth (EP2, p. 108; p. 444; CP, 2.753). In this sense science is 'but the development of our inborn animal instincts' (CP, 2.754).[34]

These claims can be linked to the account of instinct offered in Chapter 2. I have just mentioned that instinct can be understood as the development of innate potentials in response to experience.[35] These potentials and their development represent a form of 'attunement' with the world; they allow us to respond appropriately to experience, both surprising and familiar. In our discussion of this way of looking at instinct we saw that Peirce used the language of hypothesis generation. For instance, in his claim that it is ridiculous to think that 'every little chicken, that is hatched, has to rummage through all possible theories until it lights upon the good idea of picking up something and eating it' (CP, 5.591).

An analogy will help to make this point. Peirce considers the position of two different inquirers with respect to a United States Census Report. One of the inquirers is an alien entity from a radically different environment. The other is an American social scientist. The alien has no background familiarity with the

[33] '*Il lume naturale*' is Italian for 'the natural light'.

[34] Peirce also offers a statistical argument to the conclusion that if we did not have some inbuilt sympathy with nature then we could never hope to develop an adequate explanatory hypothesis (see e.g. CP, 5.591). The number of options of possible theories is so vast that it dwarfs the number that would be adequate explanations, let along true. I will not go into this argument.

[35] This is the analysis of instinct in terms of its development in the course of an individual run of experience. The analysis of instinct in the previous section was a vague conception of the results of this development in a sufficiently normal course of experience.

kind of information recorded in the census. Consequently, the alien is forced to try to find random correlations between different bits of data. For instance, he might begin by 'comparing the ratio of indebtedness to deaths by consumption in counties whose names begin with the different letters of the alphabet' (CP, 2.752). Even if the alien manages to hit upon a significant correlation it would not be able to make much of it. It might discover, for instance, 'that in places that are drier in January there is, not always but generally, less illiteracy than in wetter places' (CP, 2.752). But having no familiarity with the effect of rainfall on things like agriculture, the wealth of a region, and illiteracy, there is no obvious way for the alien to proceed. The American is in a different position; he is already attuned with the circumstances of life in his country. As a result he has the ability to generate plausible hypotheses about the relations between different features of the census information. In particular, he will not have to thrash about randomly in order to find possible relationships between January rainfall and illiteracy.

In this example the American's background familiarity with his environment need not be instinctive. He might have had a previous career as a farmer for instance. Peirce's claim about instinctive hypothesis generation is that for us to be able to achieve knowledge of nature in general we must pre-deliberately attuned with it. According to Peirce, 'if men had not come to [nature] with special aptitudes for guessing right, it may well be doubted whether in the ten or twenty thousand years that they may have existed their greatest mind would have attained the amount of knowledge which is actually possessed by the lowest idiot' (CP, 2.753). Our instincts make our relationship with the universe analogous to the American's relationship to the United States Census Report rather than the Alien's.

## 3.4 Conclusion: The Priority of Practice

Peirce prioritises practice to theory by showing that theoretical inquiry is a form of practical interaction with the world. Having systematically developed this claim in the first three chapters of this thesis, it is worth pausing to reflect on what it entails. I want to make one of these consequences explicit. Namely, that anyone in a position to take up theoretical inquiry must already be engaged in other practices; theoretical inquiry can only be taken up by agents that are already practically engaged with a world.

On Peirce's account, theoretical inquiry depends on abilities developed in our other forms of interaction with the world. This includes those practical abilities that are the result of deliberate habit development. We use techniques developed in our other practices in order to advance theoretical inquiry. Examples of this sort are prominent in the natural sciences. For instance, Peirce suggests that Lavoisier made a major contribution to logic by showing that thinking is something to be done 'by manipulating real things', and that he '[made] of his alembics and cucurbits instruments of thought' (EP1, p. 111). For this to happen Lavoisier relied on techniques of, for instance, glass blowing and heat control that had already been developed to a high level; Lavoisier's theoretical inquiry depended on the prior development of other practices.

The dependence of theoretical inquiry on other forms of practical interaction with the world can be made out in a more principled way by reflecting on the dependence of theoretical inquiry on the background. One aspect of this dependence is that to achieve the purpose of theoretical inquiry, the discovery of truth, we must rely on instinct. In particular, instinct is required in order for us to generate explanatory hypotheses and in order that we might avoid inauthentic forms of inquiry generated by paper doubts.

These are, as we saw in Section 3.3, particular manifestations of more general instincts. Hypothesis generation is a special case of our ability to respond appropriately to experience, and our 'common-sense' beliefs are manifestations

of our instinctive potential in response to an ordinary course of experience. In Chapter 2 we saw that our developed instincts are not the result of deliberate self-control; they come about over a history of non-deliberate interaction with our physical and cultural environment. Consequently, anything in a position to take up theoretical inquiry must already have such a history of practical interaction with an environment.

Throughout this thesis I have used the 'attunement' metaphor to describe the background. It should now be clear why it is apt. The background is the tuning of an instrument; our particular forms of deliberate activity are the performance of melodies. The success of the latter depends on the former. So another way to make the above claim is to say that the theorist must already be attuned to a particular physical and cultural environment.

# Chapter 4

# The Autonomy of Theory and Practice

## 4.1 Introduction

In the last chapter I argued that, according to Peirce, theoretical inquiry is a form of practical interaction with the world. I called this Peirce's prioritisation of practice to theory. This claim brings theory and our other practices together. However, Peirce also holds that theory and our other practices are importantly distinct. Some commentators have suggested that this distinction is a radical dualism and is inconsistent with an understanding of theory as a practice.[1] In this chapter I argue that, rather than being inconsistent with Peirce's prioritisation of practice, Peirce's distinction between theory and practice is a consequence of it. As argued in Chapter 3, theory is the practice devoted to the discovery of truth without ulterior motive. It is the special character of truth that requires us to carefully mark the distinction between theory and our other practices, and to ensure their autonomy from one another.[2]

[1] My use of the phrase 'theory and our other practices' in this paragraph already signals that I disagree. If these commentators are correct then Peirce cannot hold that theory is a practice.

[2] Similar interpretations have been suggested by Colapietro ('Experimental Logic'), Migotti ('The Key to Peirce's View of the Role of Belief in Scientific Inquiry'), and Skagestad (*The Road of Inquiry*). Colapietro claims that Peirce's aim when distinguishing theory from practice is to distinguish 'one array of experimental practices from another', practices with an 'integrity of their own' (Colapietro, 'Experimental Logic', p. 47). Skagestad describes his interpretation is one which

In Section 4.2 I introduce Peirce's most extreme formulations of the distinction between theory and practice. These formulations appear in his 1898 Cambridge Conferences Lectures and drafts towards those lectures.[3] In the lectures Peirce argues that theory and practice should not 'mingle'. For theory and practice to mingle is, he claims, dangerous for both. If we carry out theoretical inquiry in order to satisfy practical needs and desires we can be thrown off the path of truth. On the other hand, if we let theoretical results affect our practices then we can suppress long-developed and reliable instinct in favour of highly-fallible reason. In the course of this argument Peirce appears to make two radical claims that are worth naming now. The first, the 'no-belief thesis', is that there are no beliefs in theoretical inquiry. The second, the 'no-instinct thesis', is that instinct has no place in theoretical inquiry. At face value these comments set up a hard dualism between theory and practice, and contradict the work of the previous chapters. In particular, the claim that theoretical inquiry is directed to the development of beliefs and that it depends on instinctive features of the background.

In Section 4.3 I argue that the conflict between Peirce's 1898 statements and the account of theory and practice already developed in this thesis is mostly superficial. I consider the no-belief thesis and the no-instinct thesis in detail. In both cases the appearance of conflict is defused when we examine Peirce's underlying arguments. In Section 4.3.1 I take up the no-instinct thesis. According to Chapter 3, one instinctive aspect of theoretical inquiry is our ability to generate explanatory hypotheses. But Peirce acknowledges this in the 1898 lectures themselves, so he cannot be arguing for a strict version of the thesis. I argue that Peirce is best understood as holding that instinct is a necessary input to theoretical inquiry, but that it must not determine the eventual results of theoretical

attempts to 'reconcile the conflicting claims of science and non-scientific knowledge, while preserving the integrity and autonomy of each' (Skagestad, *The Road of Inquiry*, p. 195). He notes that this kind of interpretation is not original with him; an early version is provided by Gaille (*Peirce and Pragmatism*, p. 89). My debt to Migotti will be noted in sections 4.3.2 and 4.4.1.

[3]The Cambridge Conferences Lectures have been published in their entirety in *Reasoning and the Logic of Things* (RLT). The two lectures in which he discusses the distinction between theory and practice are published in the second volume of *The Essential Peirce* (EP2, pp. 27–56). Draft versions of first lecture can be found in the *Collected Papers* (CP, 1.649–677).

inquiry.

I consider the no-belief thesis in Section 4.3.2. In the 1898 lectures Peirce uses the word 'belief' to refer to that 'upon which we are willing to act' (EP2, p. 33). But, he claims, theoretical inquiry has nothing to do with action. He argues for this by distinguishing the 'attitudes' that practice and theory take towards experience. In theoretical inquiry we treat the force of experience as an opportunity to learn, whereas in our other practices the force of experience is something we must anticipate in order to achieve our various goals. Peirce's later account of experimentation, which was articulated in part in Chapter 3, led Peirce to abandon the claim that acceptance of a proposition in the context of theoretical inquiry has nothing to do with our conduct. That is, the no-belief thesis itself must be abandoned. However, the spirit of the underlying argument can be maintained; theory and our other practices can be distinguished by the attitudes they take towards experience. These attitudes are determined by their respective purposes.

Section 4.4 articulates a positive account of Peirce's distinction between theory and practice in terms of the framework already developed in this thesis. The first task, taken up in Section 4.4.1, is to translate Peirce's distinction between the theoretical and practical attitudes into this framework. In Chapter 2, we saw that all practices are characterised by a purpose and the deliberate forms of habit development by which that purpose is achieved. In Chapter 3 we saw that theoretical inquiry has a very special purpose, namely, truth. In theoretical inquiry we aim at the long-run fixation of belief; we are working towards the eventual acquisition of deliberate habits that create a maximum of expectation, and a minimum of surprise.[4] The theoretical attitude is to treat experience with this goal in mind.

On the other hand, in our non-theoretical practices we are attempting to

[4]It might be that there are a wider class of practices with this character. One might understand the search for goodness and beauty in similar terms. Perhaps this is behind Peirce's later attempts to understand truth as a particular mode of the '*summum bonum*' (e.g. CP, 1.191; EP2, p. 377; p. 388). This aspect of Peirce's thought is explored in detail by Potter (*Charles S. Peirce on Norms and Ideals*).

achieve some purpose within a finite time; we are working towards the acquisition of habits which put us into sufficient harmony with the world that we can satisfy certain desires within some relevant set of circumstances. This distinction can be expressed compactly by saying that theory and our other practices have a different relationship to time, instinct, and doubt. In the former we are not temporally constrained, our instinctive expectations are always subject to further test, and we actively search for situations where our beliefs will clash with experience. In the latter we need to act within a finite time-frame, we can rely on our instincts, and we only consider a narrow range of relevant cases.

The second task, taken up in Section 4.4.2, is to reintroduce Peirce's warnings against 'mingling' theory and our other practices in light of this new framework. According to Peirce if we miss the distinction between theory and practice we might let needs and desires from out other practices affect the course of our theoretical inquiries; we risk introducing the constraints of the practical attitude into our theorising. At worst we might 'block the path of inquiry', at best we can take ourselves off the most efficient path to the truth. For example, we might focus our attention on objects which we already expect will be useful to us at the expense of currently-useless objects that might teach us more.[5] On the other hand, the special character of theoretical inquiry means that we must be very careful about allowing it to influence practice. In particular, without marking the distinct roles of instinct within the theory and practice we might allow what seem to us to be very good theoretical reasons for some policy overrule strong instincts to the contrary. Instincts, as we saw in Chapter 2, are not arbitrary. They are the result of sustained, non-deliberate, habit development, and consequently have

[5]It is more clear today than it was in Peirce's time that even the most seemingly useless object can likely be made useful. One well-known case of the rapid and unpredictable shift from useless to useful can be illustrated by G. H. Hardy's remark that, as a special case of their general uselessness, '[n]o one has yet discovered any warlike purpose to be served by the theory of numbers or relativity' (Hardy, *A Mathematician's Apology*, pp. 140–1). This comment was first published in 1940. Within five years nuclear weapons had been developed using relativity theory, and within the same period number theory became the foundation of cryptography. That this shift often happens does not affect Peirce's claims about what should motivate pure theoretical inquiry. This will become clear in Section 4.4.2.

a great deal of experience and 'virtual reasoning' behind them. For instance, a bassoon teacher might miss this distinction and adopt a theory of teaching at the expense of their long-developed, instinctive, attunement with the needs of their bassoon students. While this 'virtual reasoning' is not appropriate for the fixation of our views in theoretical inquiry, Peirce argues that it is highly appropriate in practical situations.

## 4.2 Peirce on Vital Matters and Practical Utilities

Peirce opened his 1898 Cambridge Conferences Lectures with a confession to his audience. Having argued that the majority of Ancient Greek philosophers thought philosophy should deeply affect conduct, and noted that in this regard Aristotle was an exception, Peirce continues: 'Now, Gentlemen, it behooves me, at the outset of this course, to confess to you that in this respect I stand before you an Aristotelean and a scientific man, condemning with the whole strength of conviction the Hellenic tendency to mingle Philosophy and Practice' (EP2, p. 29).

In the quote just given Peirce contrasts philosophy with practice, but his claim is more general. Philosophy is not to be mingled with practice because theory is not to be mingled with practice. I will divide Peirce's claim into two and consider each part in turn. First, I consider why he thinks that theory should not affect practice. Second, I consider why he thinks that practice should not affect theory. Peirce articulates both of these positions by pointing to the distinct relationship theory and practice have to our beliefs and instincts. Practice, Peirce seems to say, relies on instincts and beliefs. In theoretical inquiry, on the other hand, there is no role for instinct or belief.

Peirce argues that practice should not influence theory. He divides the cases where practice might influence theoretical inquiry into 'vital matters' and 'practical utilities'. Vital matters are issues that have momentous impact on us as individuals (CP, 1.673). Vital matters demand full commitment and immediate action from an agent (EP2, p. 33); they are cases upon which the agent's life is risked

(EP2, p. 29). Peirce's primary examples of vital matters are our most fundamental ethical and religious commitments.[6] Here Peirce seems to be saying that we cannot inquire into matters of ethics and religion. These are some of the most central questions of philosophy as traditionally construed. So, if Peirce really means this, then he is making a radical claim.[7] On the other hand, a practical utility is something which helps us to achieve our desires. According to Peirce, in theoretical inquiry practical utilities must be 'put out of sight' (EP2, p. 34). He acknowledges that the temptation to inquire for the sake of practical utilities is a strong one; there are theoretical results which are 'almost immediately applicable to human life' (EP2, p. 29). He cites engineering and surgery as sciences that are particularly susceptible to this kind of temptation (CP, 1.671). Peirce does not think of engineering and surgery as non-science, or even as not theoretical, but in so far as they are theoretical sciences they are not carried out for practical ends; they still have a 'divine spark' (CP, 1.671). Peirce seems to be claiming that the value of engineering is not in the fact that it helps us to, for instance, build bridges. Moreover, if this is right we should not take up the science of engineering in order to achieve our goal of building bridges. To do so would be to 'obstruct the advance of the pure science' (EP2, p. 29).

Peirce also seems to argue that theoretical inquiry should never influence practice. We should, says Peirce, rely on instinct and sentiment in practical matters rather than theoretical reason (EP2, pp. 32–33). According to Peirce our in-

[6] That Peirce thinks of these as vital matters is clear from his suggestion that 'the man who would allow his religious life to be wounded by the sudden acceptance of a philosophy of religion or who would precipitately change his code of morals, at the dictate of a philosophy of ethics,..., is a man whom we should consider unwise' (EP2, p. 32). Later he refers to this kind of change as a 'vital change' (EP2, p. 34). These are decisions on which an individual life is risked because they deeply affect the character of that life.

[7] Misak has interpreted Peirce's comments on vital matters in this way. She makes the further inference that, since Peirce defines truth in terms of inquiry (as argued in Section 3.2.1), Peirce must hold that there is no truth or falsity about matters we cannot inquire into. Consequently, if we cannot inquire into ethics and religion then there cannot be any truth about those matters. Misak thus connects Peirce's comments on 'vital matters' to the question of cognitivism in ethics (Misak, 'C. S. Peirce on Vital Matters', pp. 149–52; Misak, 'A Peircean Account of Moral Judgements', pp. 39–40). I will challenge Misak's interpretation in Section 4.4.2. I argue that vital matters are defined by the degree of commitment that they require, rather than any particular subject matter.

stincts are unlikely to lead to mistakes in everyday life; they are the result of 'induction[s] summarising the experience of all our race' (EP2, p. 32). That is, instinct embodies the long-developed wisdom of the human species and of our particular culture. As such, it is to be relied on in the everyday cases in which it developed. In the case of vital matters, Peirce suggests that they must be left entirely to instinct (EP2, p. 33). He is less strict regarding practical utilities. As we have already seen, he allows that there are theoretical results which are 'almost immediately' applicable. However, the application of these results requires more than theoretical reason. It relies on the kind of instinctive wisdom that Peirce thinks we require in all of our practical life.

One of the most striking claims that Peirce makes here is that '[t]here is... no proposition at all in science which answers to the conception of belief' (EP2, p. 33). This claim has been called the 'no-belief thesis'.[8] In this lecture Peirce defines a belief as that which we are willing to act on (EP2, pp. 32–3). If theory has nothing to do with action, then it has nothing to do with beliefs.[9] Peirce also says that he 'would not allow to sentiment or instinct any weight whatsoever in theoretical matters, not the slightest' (EP2, p. 32). I will call this the 'no-instinct thesis'. According to the most extreme reading of this thesis instinct plays absolutely no role in theoretical inquiry. It is clear that this reading is not compatible with the claim, defended in Chapter 3, that theoretical inquiry depends on our instinctive attunement with the world.

Many commentators hold that Peirce's 1898 position results in a radical split between theory and practice, and that this is a very uncomfortable place for a pragmatist to be in. This line of thinking has been forcefully put by recent Dewey-influenced pragmatists such as John Stuhr and Larry Hickman. Stuhr suggests that there is a 'fundamental dualism of theory and practice in much of Peirce's

[8]The terms 'no-belief thesis', 'no-belief doctrine', or similar are used in the work of many commentators (e.g. TRP, p. 24; Misak, 'C. S. Peirce on Vital Matters'; Migotti, 'The Key to...'; Boyd, 'Levi's Challenge').

[9]It is important to note that the no-belief thesis encapsulates one aspect of his distinction between theory and practice. It is not an argument for the distinction between theory and practice. We will see in Section 4.3.2 the Peirce argued for it as a consequence of the distinction.

philosophy' (Stuhr, 'Rendering…', p. 9). He thinks that this dualism is dangerous, in particular, he claims that leaving practice to instinct rather than reason results in 'ignorance, prejudice, absolutism, isolation, frustration, and conflict' (Stuhr, 'Rendering…', p. 11).[10] Hickman, in response to Peirce's claim that the theorist must keep the usefulness of their results out of sight, holds there is a 'chasm' in Peirce's thought between theory and practice (Hickman, 'Why Peirce Didn't Like Dewey's Logic', p. 181). He goes on to imply that this chasm means that Peirce cannot think of theory as a kind of practice.[11] Maryann Ayim cites the 1898 comments (amongst others) as representing Peirce's 'rigid distinction' between theory and practice. She claims that 'the underlying tendencies of Peirce's philosophy cry out against the type of rigid distinction he tried to draw between theory and practice' (Ayim, 'Theory, Practice…', p. 51). Each of these commentators highlights the fact that there is a tension between, on the one hand, distinguishing between theory and practice as Peirce seems to in 1898, and holding that theory is a variety of practice. I now turn to arguing that, properly understood, Peirce's distinction between theory and practice is in fact a consequence of the way that he makes theoretical inquiry a mode of practical interaction with the world.

## 4.3 Instinct and Belief in Theoretical Inquiry

### 4.3.1 The No-Instinct Thesis

The strong form of the 'no-instinct' thesis takes Peirce's claim that 'he would not allow to sentiment or instinct any weight whatsoever in theoretical matters' to exclude any influence of instinct in theoretical inquiry. I argue that, when we examine Peirce's claim and the arguments for it in more detail, the strong inter-

[10] I will return to this claim in Section 4.4.2. I will argue that this complaint depends on a static view of instinct and misses Peirce's account of practical inquiry.

[11] Hickman cites Dewey's claim that 'the conduct of scientific inquiry…is a mode of *practice*' as a 'radical' contrast with Peirce's 'dualism of science and "vital affairs"' (Hickman, 'Why Peirce Didn't Like Dewey's Logic', p. 186).

pretation is untenable. Rather than excluding instinct from theory *in toto*, Peirce argues that instinct should not determine the ultimate results of theoretical inquiry. Further, I argue that this is consistent with Peirce's claim that theoretical inquiry depends on our instinctive attunement with the world. If so, then the no-instinct thesis does not conflict with the claims about instinct and theory defended in the previous chapters of this thesis.

That Peirce aims to prevent instinct from determining the results of theoretical inquiry is clear from the examples that he considers. For instance, in the 1898 lectures, Peirce singles out metaphysics as particularly susceptible to this form of influence from instinct. The traditional metaphysical questions, as Peirce uses the term 'metaphysics' in this lecture, concern issues such as life after death and the existence of God.[12] These matters are not experientially tractable in the same way that, for instance, questions about the motion of solid bodies are. Consequently, Peirce claims, metaphysicians frequently adopt reasonings because they are 'impressed that [they are] sound' (EP2, p. 30). This is an appeal to instinct. This suggests that the form of influence of instinct on theory that is inappropriate is the form of influence which makes theory unresponsive to experience (EP2, pp. 32–3). That is, allowing our instincts to determine our views prevents us from determining our views according to something external to us. This point does not need to be made by considering the methodological problems of metaphysics though. One need only consider the reception that a physical scientist would receive at a conference if they defended their conclusions by simply saying that they 'have a hunch'.

It is clear from these very lectures that Peirce is not concerned about instinct providing some form of grounding for theoretical inquiry. In the first lecture he says that 'reason. . . comes down upon its marrow-bones to beg the succor of instinct' (EP2, p. 32). Peirce refers here to the role of instinct in hypothesis gener-

[12] Peirce explicitly cites the example of life after death in this lecture (EP2, p. 30). In other writings from the 1890's Peirce characterises the traditional questions of metaphysics as 'God, Freedom, and Immortality' (CP, 5.382fn.1).

ation (EP2, pp. 31–2). This is also clear in a later lecture, where Peirce says that '[science] is driven in desperation to call upon its inward sympathy with nature, its instinct for aid' (EP2, p. 55). Since these hypotheses are, as far as theoretical inquiry is concerned, guesses, they must be tested against experience (EP2, p. 32). It is the test of experience that determines whether our hypothesis is maintained or not. In other words, the hypothesis is generated by instinct, but its survival is determined by experience. Consequently, my appeal to instinct as the ground of our ability to generate explanatory hypotheses does not fall afoul of the no-instinct thesis.[13]

According to my account, theoretical inquiry is also grounded in a set of instinctive common-sense beliefs (Section 3.3.1). Since Peirce had not yet formulated his critical common-sensism in 1898, he does not mention these beliefs in the lectures. However, we can test them against the principle that instinct can play a role in the method of theoretical inquiry but must not determine its results. Our common-sense beliefs, while they are indubitable for now, do not determine the eventual result of theoretical inquiry. While these beliefs, by definition, cannot be genuinely inquired into at the present time, they are subject to change in response to experience (EP2, p. 349). According to Peirce's definition of truth, if one of these beliefs is false then there will be some external regularity with which it clashes, although we cannot now conceive of what that clash would look like. In the long-run this clash will be experienced, the belief will cease to be indubitable, and will either be replaced or adjusted.[14] If the belief is true, then it will be sustained. In both cases the belief's being the ultimate result of inquiry is determined not by instinct, but by the force of experience.

In sum, the starting point of theoretical inquiry does not determine the results of theoretical inquiry. Theoretical inquiry uses our instincts in order that we

[13] Misak provides a similar analysis (Misak, 'C. S. Peirce on Vital Matters', pp. 159–60).

[14] The claim that the clash will be experienced is a consequence of Peirce's later articulations of the 'long run'. Simply, if there is an experience to be had which clashes with a given belief, and we have not yet come across that clash, then we have not yet exhausted inquiry with respect to that belief (c.f. EP2, p. 457).

might determine our beliefs according to, in the words of 'The Fixation of Belief', 'some external permanency' (EP1, p. 120). Consequently, the account of the role of instinct in theoretical inquiry defended in Chapter 3 is not challenged by Peirce's 1898 lectures.[15]

### 4.3.2 The No-Belief Thesis

The no-belief thesis has been taken in a very strong form by some commentators. This has led to claims that Peirce's distinction between theory and practice is inconsistent. For instance, Misak claims that Peirce vacillates between saying that belief has no place in science and that it does 'in the same breath' (Misak, 'C. S. Peirce on Vital Matters', p. 164). She comes to this conclusion by taking Peirce's claim that there are 'propositions to which no competent man today demurs' in science to imply that there are beliefs in science (Misak, 'C. S. Peirce on Vital Matters', p. 164). Hookway notes that, when dealing with the no-belief thesis, we can be misled by Peirce's various uses of the word 'belief' (TRP, pp. 24–5).[16] Strong interpretations of the no-belief thesis, like Misak's, take his use of 'belief' to mean 'any kind of holding for true'.[17] However, in this series of lectures Peirce clarifies that he is referring to 'what is properly and usually called *belief*' (EP2, p. 33).[18] Peirce sheds light on what he means by this in a later lecture from the same series

[15] One further piece of evidence from these lectures that supports this idea that instinct and sentiment ground theoretical inquiry is Peirce's insistence that the metaphysician who determines the result of their inquiry by means of instinct is failing to be the 'genuine, honest, earnest, resolute, energetic, industrious, and accomplished doubter that it is his duty to be' (EP2, p. 31). One could argue on the basis of this that theoretical inquiry must be grounded in the instincts and sentiments of the inquirer that embody those virtues. To make this out would require further work of the sort carried out by Savan ('Peirce's Semiotic Theory of Emotion') and Hookway (TRP, pp. 223–45).

[16] Peirce worried about his use of the terms 'belief' and 'doubt' from early on in his published writings. For instance, in 'How to Make Our Ideas Clear', he suggests that the words are normally used only in 'religious and other grave discussions' (EP1, p. 128). He goes on to say that his wide (in that article) use of the words suggests 'a temper which is uncomfortable to the verge of insanity' (EP1, p. 128). It is my impression that the connotations that these words have for Peirce have changed quite markedly since his time. The idea that 'belief' should apply to any kind of 'holding for true' seems to be more in line with contemporary usage. This is perhaps in the background of some of the more extreme responses to Peirce's supposed no-belief thesis.

[17] As Peirce himself does in later writings (e.g. NM4, p. 39).

[18] The same point, regarding Misak's interpretation, is made by Boyd ('Levi's Challenge', pp. 58–9), and Migotti ('The Key to…', p. 45).

called 'The First Rule of Logic'. There Peirce claims that 'belief' is only appropriately used to refer to 'practical holding for true', rather than 'theoretical holding for true' (EP2, p. 56). That is, it only applies to action-guiding acceptance of a proposition (c.f. Migotti, 'The Key to…', p. 51). One consequence of this is that the mere fact that I referred to the habits under development in theoretical inquiry as 'beliefs', does not directly put my account in tension with the no-belief thesis.[19]

Taking 'what is properly and usually called *belief*' to be equivalent to 'practical holding for true', we can turn to Peirce's argument for the no-belief thesis. His argument concerns the relationship between theoretical inquiry and action. Pure theoretical inquiry has, says Peirce, 'nothing at all to do with action' (EP2, p. 33). If so, then it has nothing to do with beliefs. This argument is most clear in 'The First Rule of Logic', where Peirce explicitly distinguishes between the attitude that theory and practice take to 'facts' (EP2, pp. 54–5). Here we are to understand a 'fact' as that in our experience which cannot be wished away; facts are things that have compulsive power over us.[20] According to Peirce, '[s]cience, when it comes to understand itself, regards facts as merely the vehicle of eternal truth' (EP2, p. 55).[21] This is just to say that theory is carried out for the purpose of the discovery of truth; 'to learn the lesson that the universe has to teach it' (EP2, p. 54). This means that theory constantly opens itself up to the compulsive force of facts. Practice, on the other hand, is not directed to truth. Peirce holds that '[f]or Practice, facts are the arbitrary forces with which it has to reckon and wrestle' (EP2, p. 55). When taking the practical attitude we have to act in the world in order to achieve our ends. Facts are simply that which we must master in order to achieve of those ends. Peirce confines the term 'belief' to commitment to a proposition whilst taking the practical attitude towards the world. That is, to

[19] I used 'belief' to mean any kind of holding for true in Section 3.2.2.

[20] Peirce links compulsion and facts in a few places (EP2, 182; CP, 1.358; 7.659). He defines a 'fact' in terms of his categories as 'the Secondness which consists between anything and a possibility, or Firstness, realized in that thing' (EP2, p. 271). Secondness is, from one perspective, identical with compulsion.

[21] As discussed in Chapter 3 (Section 3.2.1), we can equate 'science' with 'theory' here.

'practical holding for true'.[22]

The spirit of this distinction can be maintained consistently with the framework developed in previous chapters. However, it cannot be drawn quite as starkly as Peirce did in 1898. This is simply because theoretical inquiry requires action, namely, experimental action. Peirce admits this in later writings, where he says '[scientists] are particularly given to thinking of their results as affording possible conditions for new experiments ... [t]his shows that regarding a truth as purely theoretical does not prevent its being regarded as a possible determinant of conduct' (EP2, p. 372). In other words, theoretical results are used in the construction and prosecution of experiments, and experiments are deliberate actions carried out for the purpose of the discovery of truth. Consequently, there is action when we take up the theoretical attitude, and this action is guided by our theoretical results. If so, then we cannot maintain the no-belief thesis.[23] However, we can maintain the underlying distinction between the theoretical and practical attitudes.

## 4.4 The Distinction Between Theory and Practice

### 4.4.1 The Theoretical and Practical Attitudes

Having shown that Peirce's distinction between theory and practice is not in deep contradiction with the framework developed in this thesis, I can now provide a positive account of Peirce's distinction within that framework. The heart of the distinction between theory and practice is the distinction between the theoretical and practical attitudes to experience. So the first task of this section is to translate that distinction into the language of habits and their development. It will then be possible to list the distinguishing characteristics of theory and our

[22]The interpretation offered in this paragraph is inspired by Migotti's, although I equate 'what is properly and usually called *belief*' with 'practical holding for true', rather than with 'full belief' (c.f Migotti, 'The Key to...', pp. 49–50).

[23]This interpretation is consonant with Hookway's eventual conclusion regarding the no-belief thesis, namely, that it is a provisional response to the issue of distinguishing theory and practice that he later overcomes with his account of the 'practice of theoretical science' (TRP, p. 42).

other practices, namely, their distinct relationship with time, instinct, and doubt.

As noted above, Peirce distinguishes between the theoretical and practical attitudes according to their relationship to 'facts'. For the former, facts offer affordances for the discovery of truth. For the latter, facts are something which we must overcome in order to achieve our ends. In Chapter 3 I argued that a true belief is one that is in perfect harmony with experience. Using that account of truth we can characterise the theoretical attitude as the attitude in which we treat the compulsive force of experience as providing opportunities for the eventual development of perfect harmony between our belief-habits and the widest possible environment.[24] For example, if I take the theoretical attitude towards my experience of the moon, I will open myself up to the correction of my expectations about its behaviour in as many ways as occur to me. I might, for instance, attempt to determine how its craters developed, or what it would look like if I were to be transported there, or whether it behaves in a similar way to other moons. I might even ask what would happen in highly implausible cases, for instance, I could ask how the moon's behaviour would change if there were another moon of the same size also orbiting the Earth. When taking on the theoretical attitude I have no aim apart from the discovery of truths about the moon and its actual and potential relationships with other things.

The practical attitude is then the attitude in which we attempt to overcome the compulsive force of the experience in order to achieve some desire. When we are prevented, we engage in habit development in order to be able to satisfy the given desire or goal. When taking up the practical attitude we attempt to attain habits sufficiently in harmony with our environment for us to achieve our desires in some relevant set of circumstances. If I take up the practical attitude towards my experience of the moon I might ask how I can use it to navigate, to plan a fishing trip, or to make sure that I don't get caught out by high-tide when walking along the coast. When taking up the practical attitude all that matters is that my

[24] Or, habits which grant us 'the maximum of expectation and the minimum of surprise' (R693, p. 164 via: Hookway, *Peirce*, p. 67).

habits are in sufficient harmony with the behaviour of the moon for me to attain my various purposes. For example, say that I have a habit of avoiding walking along the coast around midnight when I know that it is a full moon and that this is the full extent of my practical use of the moon. I might then get caught out by high tide at some other time of the day when the moon is in a different phase. This surprise might set habit development in motion. I might, for instance, discover that I should avoid walking along the coast when the moon is high in the sky. In this case I only develop my expectations about the moon to the extent that they help me to plan my coastal walks.

According to Chapter 2, a practice is defined by a purpose and a form of deliberate habit development. Consequently we can understand the distinction we have just drawn in terms of habits and their development as a distinction between the practice directed to truth, namely, theoretical inquiry; and practices directed to other purposes. The distinction between theory and practice thus depends on the distinction between truth and other purposes.

I suggested above that the pursuit of truth puts us into a distinct relationship with time, instinct, and doubt. It is now time to articulate these differences. The three distinctions in question are:

1. unlike other practices, theoretical inquiry has no temporal constraints;[25]

2. in the pursuit of truth our instincts provide provisional guesses for further testing, in other practices we must rely on instinct to determine our action; and

3. in the pursuit of truth we actively seek out clashes with experience wherever they can be found, in the pursuit of other purposes we need only anticipate plausible cases in which we might need to achieve those purposes.[26]

[25]This distinction, not necessarily using exactly this terminology, has been emphasised by Skagestad (*The Road of Inquiry*, p. 208) and Ayim ('Theory, Practice…', pp. 48–9).

[26]Note that these three distinctions are not independent. For instance, the inapplicability of instinct in theoretical inquiry is a result of the fact that, according to Chapter 2, our instincts develop within a circumscribed environment. Since we extend ourselves into unfamiliar territory in theoretical inquiry we cannot trust our instincts. That is, since we look as widely as possible

According to Peirce, truth is a long-run goal. He says, for instance, that theoretical inquiry has 'an indefinite future before it; and what it aims at is to gain the greatest possible advance in knowledge in five centuries or ten' (CP, 7.606). This is a consequence of Peirce's definition of truth in terms of belief and doubt, and ultimately in terms of habit. No matter how long a habit has survived we have no guarantee that it won't clash with experience tomorrow. This is as true for beliefs as it is for any other habit. External time constraints do not enter into theoretical inquiry. When taking up the theoretical attitude towards the moon I hope to contribute to the long-run settlement of beliefs about its behaviour. When I take up the practical attitude I need my beliefs about the moon to be sufficiently reliable that I can plan my coastal walks. Every clash between my habits and my experience of the moon while taking the theoretical attitude opens me up to the possibility of improving my beliefs, and so is desired. On the other hand, a clash between my habits and my experience of the moon when on a coastal walk might end with me swept out to sea. This is not desired – in this kind of case I need my habits to be in sufficient harmony with my environment *now*.[27]

Theoretical inquiry and our other practices have different relationships with instinct. In Chapter 3 I argued that hypothesis generation is a special case of our more general instinctive ability to respond appropriately to novel situations. When attempting to attain some practical purpose I must rely on my instinctive responses in the moment. In theoretical inquiry on the other hand my instinctive beliefs and hypotheses are always provisional. Moreover, when taking up the theoretical attitude we attempt to bring our beliefs under our control as much as possible. We want to be fully aware of what is going on in our environment. Another way to put this is that in theoretical inquiry believing something simply because it is instinctive is a sign that there is further work to be done. This is not the case in our other practices. If our instincts allow us to achieve our ends we

for doubt, instinct cannot be relied on to determine our views.

[27] Migotti draws this distinction in terms of 'provisionality'. Our theoretical results are always provisional, but our beliefs are not; they must be acted upon in the now (Migotti, 'The Key to…', pp. 50–51).

need not criticise them. It is fine to rely on my instinctive, and otherwise non-deliberately developed, beliefs about the moon if they help me to successfully plan my fishing trips. In theoretical inquiry, on the other hand, I want to understand why these beliefs are true.

Finally, in theoretical inquiry we attempt to develop habits which would be in perfect harmony with experience in any conceivable circumstance. Consequently, in theoretical inquiry we attempt to find any possible way that our beliefs might clash with experience. In the language of Peirce's critical commonsensism, we strive to attain 'genuine doubt' (CP, 5.514; 5.520). That is, we open ourselves up to the force of facts, trying to learn whatever they have to teach us (EP2, p. 55). For instance, it is a failure in my theoretical understanding of the moon if I cannot predict what would happen if another moon was inserted into the Earth-Moon system according to some given parameters, and if I realise that I do not know the answer to this question it will cause genuine doubt. However when taking up the practical orientation we need only consider the possibilities for experiential clash which we think might plausibly prevent us from attaining our goals.[28] Perhaps I realise that for some practical purpose I need to know what phase the moon is in when it is clouded over for long periods of time. This case is thus brought within the practically relevant cases that I need to consider.

### 4.4.2 The Dangers of Mingling Theory and Practice

I can now reintroduce Peirce's worries about the 'mingling' of theory and our other practices in terms of the distinction between the theoretical and practical attitudes developed in the previous section. More specifically, Peirce's concerns can be understood in terms of the different relationship theoretical inquiry and our other practices take to time, instinct, and doubt. I begin by considering

[28] Peirce makes a very similar point when he distinguishes 'logical' and 'moral' self-control. He holds that 'in the logical process [of habit-development] the imagination takes far wider flights, proportioned to the generality of the field of inquiry, ... while in the moral process we consider only situations that may be apprehended or anticipated' (EP2, p. 347). That is, when deliberately controlling our action we need only consider a narrow set of cases, whereas in theoretical inquiry we must consider as many cases as possible.

Peirce's worries about the influence of other practices on theoretical inquiry. Here Peirce's overarching worry is that this influence introduces external constraints which can divert us from the pursuit of truth.[29] As we will see this worry manifests itself slightly differently in the case of vital matters and practical utilities. I then turn to Peirce's claim that our other practices should not be influenced by the results of theoretical inquiry. This claim rests on the different roles on instinct in each. According to Peirce, while instinct cannot be relied on when we take up the theoretical attitude, it is our surest guide in our other practices.

It is easy to misinterpret what Peirce means by a 'vital matter'. When he refers to vital matters he is not picking out a particular subject matter, rather he is pointing to a certain kind of commitment that is sometimes necessary within the practical attitude. We have already seen, in Section 4.2, that vital matters are those commitments on which an agent's life is risked. Some of these commitments endure over a long period of time. For example, a commitment to the existence of human rights, to the care of your children, or to a particular religious tradition. Others examples are confined to particular moments. We can imagine the captain of a ship, stuck in a storm, and faced with the possibility of being dashed against the rocks (c.f EP2, p. 156). The captain must immediately decide whether to turn hard left or hard right. If he makes the wrong choice he will not survive; his life, and the lives of his crew, are risked on the decision. Further, once the decision has been made he must be absolutely committed it. He cannot decide to turn left having already put the decision to turn right into effect. Upon making this decision, his commitment to turning right is a vital matter.

In the language developed in the previous section, a vital matter is a response to a certain kind of situation that can arise when taking on the practical attitude. In particular, these situations require a decision within a tight time-frame; and

[29] Note that the characterisation of theoretical inquiry offered in Chapter 3 (Section 3.2.1) means that any practice which is not solely devoted to truth is not theoretical inquiry. One might argue that by definition theoretical inquiry cannot be pursued for practical ends. Strictly speaking, this section deals with the consequences of failing to mark this distinction.

once the decision is made there is no further room for doubt.[30]

According to Peirce, we cannot take up theoretical inquiry into vital matters because we are already committed to a particular outcome. In vital matters there is no room for doubt, whereas theoretical inquiry requires us to honestly subject our beliefs to the force of experience. Take, for example, someone who is committed to the belief that the universe was created in seven days. Now, this idea is, presumably, perfectly fine as a hypothesis to be tested. However, in the case of this would-be inquirer, the belief is part of a wider religious commitment by which they hope to attain salvation; it is a belief that they risk their life on. Given that, their attempts at inquiry consist of looking for arguments for their pre-determined conclusion and ignoring evidence to the contrary.[31] As another example, perhaps I have thought a long time that *I* am the person who is going to cure cancer. Being consumed by this idea I find myself, perhaps unconsciously, falsifying my results.

It should now be clear why Misak's attempt to interpret Peirce's comments on vital matters as a challenge to cognitivism is not appropriate.[32] Firstly, we have just seen that vital matters are not a particular kind of subject matter (c.f. Misak, 'C. S. Peirce on Vital Matters', pp. 151–2). A matter is vital relative to a particular agent. Just because I cannot genuinely inquire into some subject about which I am vitally committed does not mean some other inquirer can't.[33] If inquiry is possible into some subject then, on Peircean principles, there might be a truth of the matter about that subject. That is, Peirce's thought on vital matters does not

[30] I will return to this claim when I consider Peirce's argument that our other practices should not be influenced by theoretical inquiry.

[31] Of course, the claim that such a process is going on in someone's work is a serious one. One can even imagine such a charge being made against someone who is, instead, on the cutting edge of science. This does not affect the underlying claim that *if* one has a vital commitment, *then* genuine theoretical inquiry into the subject of that commitment is impossible.

[32] See fn.7 of this chapter.

[33] Peirce also allows that we might be able to inquire into a previously vital matter by means of 'self-abnegation' (EP2, p. 33). That is, if take on a sufficiently detached attitude towards our own life we can take up theoretical inquiry on the matter in question. For example, imagine a cancer researcher who also suffers from the particular cancer that they studying. On Peirce's model this researcher is only a genuine inquirer if they can, when inquiring, put the possibility that this research might solve their own condition out of mind. They must have made their own survival of the cancer, in some sense, no longer vital.

challenge cognitivism.[34]

One might challenge Peirce's claim that we cannot inquire into matters that are vital to us by arguing that inquiry is a group activity that can happily accommodate a few dogmatists within its ranks. For instance, one might think that it is not a problem if someone vitally committed to the truth of some theory and articulates the best possible arguments for it. Surely this person could be seen as making a positive contribution to theoretical inquiry. For instance, we can imagine an astronomer for whom Einstein's general relativity is a vital matter. This person might contribute to the working out of details in the theory, or to articulating current arguments for the theory. Peirce's account does not exclude this kind of case. There are at least two things a Peircean should emphasise though. On one hand, this person's ability to contribute to theoretical inquiry is a result of luck. They have been lucky to hitch themselves to a theory that is considered within the bounds of possibility in the current state of theoretical inquiry. They are not attempting to argue for, say, Ptolemaic astronomy. We should also note that theoretical inquiry could not survive if the majority of investigators behaved in this way. This astronomer's position is parasitic on the existence of genuine inquirers. If there were only dogmatists, then the only possible change in theory over time would be the death of 'theorists' with one set of arbitrary doctrines, and their replacement by younger 'theorists' with some other set of arbitrary doctrines.

One further qualification needs to be made before turning to practical utilities. Peirce is not suggesting that we should not think about our deep commitments, or that we should not consider various options before making major decisions. Peirce's claim is that we cannot genuinely inquire into matters that are *already* vital to us. Before taking up such a commitment we might have a chance to perform some rough-and-ready practical inquiry. For instance, perhaps the captain of the imperilled ship has fifteen seconds to consider which

[34] Further, in the 1898 lectures Peirce explicitly mentions ethics and philosophy of religion as legitimate fields of inquiry (EP2, p. 29).

way to turn.[35]

A 'practical utility' is, as we saw in Section 4.2, something that helps us to achieve one of our desires. Consequently, to inquire for the sake of practical utilities is to seek truth with an ulterior motive. It to be engaged in what Peirce later called the practical sciences.[36] Peirce's acknowledgement of these as forms of inquiry shows that he doesn't think the are necessarily bad. But it is clear that he thinks there are major risks to the integrity of theoretical inquiry if one misses the distinction between the theoretical and practical sciences.[37]

In the language of the previous section practical inquiry is a way of taking up the practical attitude. Consequently, to let practical utilities affect the course of theoretical inquiry is to risk introducing external time-constraints, undue reliance on instinct, and insufficient openness to doubt. These risks can be illustrated by considering the objects that we will choose to study when attempting to create practical utilities. For instance, if I am investigating practical uses of chemistry I might focus on substances like iron. But if I am looking for deep and general knowledge of the behaviour of chemicals for its own sake, I might investigate a rarer element like erbium (c.f. CP, 1.45). In the theoretical case I generalise my beliefs about chemical elements and so open myself up to a wider range of experiential clashes. In other words, in theoretical inquiry if I stick to the particular objects that I think might be useful I am insufficiently open to doubt. This can

[35]In correspondence with William James, Peirce agrees with James that theoretical inquiry is not an appropriate way to determine whether to marry a particular person or not. This is, once the decision has been made, a vital matter. However, he holds that in the time available before a decision is needed it is wise to gain as much relevant information as one can (cited in Skagestad, *The Road of Inquiry*, pp. 209–10).

[36]I introduced the practical sciences in Section 3.2.1.

[37]It would be misleading for me to pass by Peirce's occasionally disdainful remarks about the practical sciences. In some places he appears to say that inquiring for the sake of practical utilities is an ethical failure (e.g. EP2, p. 29). These remarks can be, in part, chalked up to Peirce's historical context. Skagestad has clearly detailed the historical reason's for Peirce's emphasis on the importance of pure theoretical inquiry. Peirce was reacting against 'those who would make science subservient either to religious dogma or to technological or political goals' (Skagestad, *The Road of Inquiry*, p. 200). There were many such thinkers active in 19$^{th}$ century intellectual life. One striking example is the eugenics movement, which was popular at the time. In this connection Peirce explicitly challenged one of its most prominent figures, Karl Pearson, who argued that the only true purpose of inquiry is 'social stability' (EP2, pp. 57–8). Peirce held that such an aim is not general enough be maintained as an 'ultimate end' (EP2, p. 60). However, Peirce's opposition to those thinkers down not imply he wants to abolish the practical sciences.

be thought of in terms of time-constraints as well. Lets say that I have taken up inquiry into the properties of iron with the desire to make train tracks. In order to achieve that desire I must cease inquiry and act on my beliefs within some finite time. To hold off on my plan of action so that I can investigate whether some property of iron also holds for erbium would likely be to ignore these constraints and put my track-building at risk.[38]

Peirce holds that the people of his time would know a great deal more about chemistry if the most practically useful compounds had not received as much attention as they had, and a great deal less if the rare elements and compounds had not been investigated (EP2, p. 24). As a general principle there is no reason to expect that the objects that we antecedently expect will be practically useful are the same as the objects that are likely to lead to the most valuable theoretical results in the long run. That is, the purposes of pure theoretical inquiry, and of the practical sciences, diverge.

On this account working towards a cure for cancer can be acknowledged as a valuable task. If you succeed you will help a lot of people and you will probably learn a lot of new truths. However, there is no reason to think that these will be the deepest and most theoretically fruitful truths that you could have discovered. You might have saved lives, but you were not the theorist you might have been. In so far as Peirce thinks that theoretical inquiry is the most worthwhile human occupation, it would be a tragedy if all inquiry was of this form.[39]

Peirce holds that our other practices should not be directly influenced by theoretical inquiry. His argument for this concerns the distinct roles of instinct in theory and our other practices. When taking the practical attitude we develop habits which will allow us to achieve some set of goals within a relevant set of

[38] Perhaps, on the other hand, I will '[receive] a deep impression of the majesty of truth, as that to which, sooner or later, every knee must bow' (EP2, p. 58). In which case I will give up my desire to make train tracks and become a genuine theoretical inquirer.

[39] As I noted in the introduction to this thesis, one of the limitations of this study is that it cannot consider Peirce's account of the value of theoretical inquiry. That he thinks theoretical inquiry is the most worthwhile human occupation is clear from comments like: 'and what is man's proper function if it be not to embody general ideas in art-creations, in utilities, and above all in theoretical cognition' (EP2, p. 443).

circumstances. In this project instinct, and, more generally, our background attunement with the world, is highly valuable. We can rely on these background habits since they are the result of long experience, both ours and the experience of our forebears, in the kind of environment in which we need to act. In other words, they embody a great deal of 'virtual reasoning' (CP, 2.176).[40] For instance, a bassoon teacher will have, in the course of learning the bassoon themselves, and of teaching it to others, made their habits subject to a vast amount of non-deliberate habit development. She will probably be unaware of all the reasons that her thought that a particular intervention would help a student is appropriate. On Peirce's model much of what she is doing will be outside of her deliberate control, but she is wise to rely on her background habits. Since habits of this sort enable us to achieve our practical goals our reliance on them requires no further defense.

There are at least two related reasons why theoretical inquiry cannot rely on instinct in the same way. Firstly, theoretical inquiry attempts to bring everything it can into the foreground. That is, in theoretical inquiry we constantly push for more control over our beliefs; we want to know why we should believe what we do believe. For this reason appeals to instinct without the promise of further testing are not appropriate in theoretical inquiry. Secondly, in theoretical inquiry we test our beliefs in regions of experience alien to those in which the bulk of our instincts have developed. We do not, for instance, have a great deal of practical experience in the world of quantum mechanics. Peirce holds that there is no reason to trust our instincts outside of the circumstances in which they developed (EP2, p. 349). Consequently, if we directly apply theoretical results in our other practices we unnecessarily disconnect ourselves from our instincts.[41]

Where our other practices rely primarily on instinct, theoretical inquiry re-

[40] That is, the large amount of habit development embodied in our background attunement with the world makes it as though we have done a great deal of reasoning already.

[41] It is important to emphasise again that theoretical science depends on instinct. As argued in Section 4.4.1, theory and our other practices have distinct relationships with instinct. It is not the case that theory does not depend on instinct while our other practices do.

lies primarily on reason. According to Peirce it is very easy to overemphasise the latter, and very easy to underemphasise the former (EP2, p. 31). Reason is 'superficial and fallible', whereas instinct is 'deep and sure' (EP2, p. 40). Theoretical inquiry overcomes the fallibility of reason by being a long-run practice. We expect that we will make many mistakes, but that if we continue inquiring they will be corrected. If we miss the fact that theoretical inquiry is a long-run practice, or think that we have already reached the 'end of inquiry', we might miss this fallibility. For example, if I think some newly-developed ethical theory is the last word on the topic I will have no compunction about applying it at the expense of my instinctive inclinations. I will be convinced that if they disagree with the theory they must be false.[42]

None of this implies that we should never apply the results of theoretical inquiry in our other practices.[43] Peirce holds that once a theoretical result has been stable for awhile, it can be relied upon when taking up the practical attitude (EP2, pp. 55–6). However, he insists that this is not itself a theoretical judgement (EP2, p. 55).[44] The judgement that some theoretical result is applicable, and of how it should be applied is as much an instinct-guided practical action as any other. The ability to make such judgements appropriately is well described as 'wisdom'. To directly apply theoretical results to our practical life would be a failure of this wisdom (EP2, p. 34).

Returning to the example of the bassoon teacher, we can see that, on Peirce's model, the 'virtual reasoning' embodied in her teaching practice has more to recommend it in her particular circumstance than would a freshly developed theory of bassoon teaching. The theory will not take into account the long, non-

[42]These thoughts can be related to the tradition of 20th century intellectual conservatism. In particular, the worry about theoretical inquirers thinking that they have already reached the end of inquiry is echoed in a more abstract form in Voegelin's famous warning against 'immanentising the eschaton' (c.f. *The New Science of Politics*, p. 120). The affinities between Peirce and this tradition have been touched on by Short ('The Conservative Pragmatism of Charles Peirce').

[43]Peirce is conservative about his conservatism (EP2, p. 32).

[44]Ayim and Kent have both suggested that Peirce's 'sciences of review', briefly mentioned in the last chapter, function as a bridge between theoretical results and practical applications (Ayim, 'Theory, Practice…', pp. 51–3; Kent, *Charles S. Peirce*, p. 188).

deliberate, processes of habit development by which the bassoon teacher's teaching practice have developed. Perhaps the theory offers single path which all students should be expected to follow, or perhaps it offers a single method for developing manual dexterity. Let's imagine that directly applying this theory would radically reform the teacher's methods, and thus cut the teacher off from their long-developed background attunement with the task. As we have seen, Peirce would reject such a move. However, there is no reason that the teacher should not consider the new theory, and the experiments by which it has been developed, and incorporate certain results from it. She might cull those aspects which she thinks are valuable, test them, and reject those which deeply conflict with her own experience. If successful, we can describe her success in this task as reflective of practical wisdom.

Finally, we are now in a position to see why Stuhr's worries about relying on instinct in practice are misplaced. Peirce's refusal to directly apply the results of theoretical inquiry in practice, and his suggestion that we rely on instinct, need not result in 'ignorance, prejudice, absolutism, isolation, frustration, and conflict' (Stuhr, 'Rendering…', p. 11). One on hand, this is because Peirce thinks of instinct as dynamic. On Peirce's view our instincts develop in response to surprising experience. So, to follow instinct is not necessarily to be stuck with whatever prejudices you have now. Moreover, Peirce does not restrict us from inquiring in practical cases.[45] He restricts us from *directly* applying the results of *theoretical* inquiry. Practical inquiry does not detach us from instinct in the same way that theoretical inquiry does. For example, In Chapter 2 I introduced the case of a previously-homophobic father being confronted by the fact that his son in gay. The father is put into a state of doubt; his beliefs have clashed with experience. He considers his deepest commitments, and whether they are compatible with the hatred of his son. He concludes that they are not. But these deep commitments will not be the result of theoretical inquiry. For instance, the father's

[45] Stuhr suggests the contrary by contrasting his position that 'reason must regularly and richly reconstruct practice' with Peirce's (Stuhr, 'Rendering…', p. 12).

commitment to love his children, and his belief that his son is a decent person. The father's reasoning is not theoretical inquiry, but it isn't blind adherence to whatever prejudices he began with either. Stuhr's image of the ignorant instinct-governed absolutist does not match Peirce's image of the instinct-guided practical inquirer.

## 4.5 Conclusion: Theory and Practice in the Long Run

I conclude by, first, showing the extent to which theory and our other practices are autonomous. Second, I introduce some suggestive remarks about their long-run interrelations.

According to the model developed in this thesis, theoretical inquiry is continuous with our other practices. This is made clear, at a highly abstract level, when we note that all of our practices operate according to the cycle of habit development. It is also clear in a more down-to-earth way, when we recall the specific dependencies of theoretical inquiry on our background attunement with the world. Theoretical inquiry is a task taken up by agents embedded in, and attuned to, a particular environment. Peirce combines this with an understanding of theoretical inquiry a highly autonomous practice. We have seen that genuine theoretical inquiry does not take its marching orders from our other practices. It selects its own subject matter, and carries out its own experiments, with one aim: ultimate harmony between our beliefs and the world.

On this model our other practices are also free from direct influence from theoretical inquiry. In these practices we can rely on our long-developed background attunement with our environment. That is, in the wide sense, we can trust our instincts. We need not have an articulate understanding of what we are doing, or a theoretical framework in which it all fits. We trust instinct, in this broad sense, because it is the result of long-experience within the environment in which we seek after our everyday purposes.

However, this autonomy is a short-run phenomenon. In the 1898 lectures

Peirce offers some highly suggestive comments about the long-run interrelations between theory and our other practices. While they seem to lead us in different directions in in the short run, Peirce expects that they will be unified in the long run. This is clear in his claim that there is no distinction between 'practical truth' and 'theoretical truth'. That is, even if there are distinct ways of 'holding for true', there is only one truth (EP2, p. 56). In the short run we can tolerate tension between our action-guiding beliefs and the results of theoretical inquiry, but in the long run all of our beliefs must be tested against experience in theoretical inquiry.[46]

Peirce makes some even more interesting claims about the development of the background as a result of our engagement in theoretical inquiry. One of the main claims in Chapter 2 was that the background is constantly developing in response to experience. The experience of engaging in theoretical inquiry is no exception. This development occurs to a small degree in the life of an individual inquirer, but Peirce speculates that it will be clearly visible in the long-run development of the community of inquiry. As we discover more and more of the truth in theoretical inquiry, our conduct will be, without any deliberate effort on our part, transformed. Understanding what Peirce envisions as the result of this development, and evaluating its plausibility, would require a great deal more labour. However, this thesis has covered much of the necessary groundwork for such a project.

I conclude by quoting one of Peirce's more poetic expressions of this vision in full. Having suggested the theoretical sciences are becoming more and more mathematical, and that pure mathematics is attempting to discover the 'real potential world', of which our universe is 'an arbitrary locus' (EP2, p. 40), he continues:

> '*But such ideas are only suitable to regulate another life than this. Here we are in this workaday world, little creatures, mere cells in a so-*

[46] This is also noted by Skagestad (*The Road of Inquiry*, pp. 210–13) and Potter (*Charles S. Peirce on Norms and Ideals*, p. 125.

*cial organism itself a poor and little thing enough, and we must look to see what little and definite task circumstances have set before our little strength to do. The performance of that task will require us to draw upon all our powers, reason included. And in the doing of it we should chiefly depend not upon that department of the soul which is most superficial and fallible,—I mean our reason,—but upon that department that is deep and sure,—which is instinct. Instinct is capable of development and growth,—though by a movement which is slow in the proportion in which it is vital; and this development takes place upon lines which are altogether parallel to those of reasoning. And just as reasoning springs from experience, so the development of sentiment arises from the soul's inward and outward experiences. Not only is it of the same nature as the development of cognition; but it chiefly takes places through the instrumentality of cognition. The soul's deeper parts can only be reached through its surface. In this way the eternal forms that mathematics and philosophy and the other sciences make us acquainted with will by slow percolation gradually reach the very core of one's being, and will come to influence our lives; and this they will do, not because they involve truths of merely vital importance, but because the [are] ideal and eternal verities.*' (EP2, pp. 40–41).

# Abbreviations

AT René Descartes. *Oeuvres De Descartes*. Ed. by Charles Adam and Paul Tannery. 8 vols. Paris: Librairie Philosophique J. Vrin, 1983.

CP Charles Sanders Peirce. *Collected Papers of Charles Sanders Peirce*. Ed. by Paul Weiss, Charles Hartshorne and Arthur W. Burks. 8 vols. Cambridge: Harvard University Press, 1931–60.

EP1 Charles Sanders Peirce. *The Essential Peirce: Selected Philosophical Writings*. Ed. by Nathan Houser and Christian Kloesel. Vol. 1 (1867–1893). Bloomington: Indiana University Press, 1992.

EP2 Charles Sanders Peirce. *The Essential Peirce: Selected Philosophical Writings*. Ed. by The Peirce Edition Project. Vol. 2 (1893–1913). Bloomington: Indiana University Press, 1998.

HCP Vincent Colapietro. 'Habit, Competence, and Purpose: How to Make the Grades of Clarity Clearer'. In: *Transactions of the Charles S. Peirce Society* 45.3 (2009), pp. 348–377.

NM4 Charles Sanders Peirce. *The New Elements of Mathematics*. Ed. by Carolyn Eisele. Vol. 4. The Hague: Mouton, 1976.

PM Charles Sanders Peirce. *Philosophy of Mathematics: Selected Writings*. Ed. by Matthew E. Moore. Bloomington: Indiana University Press, 2010.

R Richard Robin. *Annotated Catalogue of the Papers of Charles S. Peirce*. 1967. URL: `http://www.iupui.edu/~peirce/robin/robin.htm`.

RLT Charles Sanders Peirce. *Reasoning and the Logic of Things: The Cambridge Conferences Lectures of 1898*. Ed. by Kenneth Laine Ketner. Cambridge: Harvard University Press, 1992.

TRP Christopher Hookway. *Truth, Rationality, and Pragmatism: Themes From Peirce*. Oxford: Oxford University Press, 2000.

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