

Perception, Abduction, and Foundherentism

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INTRODUCTION

Susan Haack's Foundherentism (1993, 2009) is her best known and deservedly praised contribution to modern epistemology. It is a *dual aspect* theory of epistemic justification that treats both experiential anchoring and explanatory coherence with other beliefs as necessary and only jointly sufficient for the justification of any belief.¹ It is not sufficient that a belief is based on sensory experience in some right sort of way, and there is no class of beliefs that are non-inferentially justified by experience alone (or non-inferentially justified by anything else). Likewise, integration or coherence with other beliefs is insufficient; our beliefs also need to be connected to the world in some right sort of way to be justified to some degree.

Haack does a sufficient job explaining why experiential anchoring and explanatory coherence are necessary for the justification of any belief, though her explanation is more multifaceted than I can recount here. But to offer some motivation: first, as our beliefs are about the world, or about things existing independently of our beliefs about them, whether or not a belief is a *response* to the world, an *effect* of it, would seem to figure into some part of that belief's epistemic status. Even Bonjour (1985) recognizes this with his "observation requirement," which Haack argues shifts his theory toward Foundherentism (1993, 60). Yet, regardless of its connection to the world, it seems that any given belief can be directly supported or opposed by other beliefs that reinforce one another and provide an increasingly comprehensive explanation of the world. One might indeed have a veridical perception of a surreal scene defying all accepted physical law, yet one would seem hardly justified in believing what they saw. Certainly, if we can accommodate both experiential anchoring and explanatory coherence in our account of epistemic justification, it would seem unwise not to do so. And why refer to this combined account by anything other than Haack's portmanteau?

Not surprisingly, Foundherentism seems particularly suited as an account of epistemic justification that can be conjoined with the epistemological views we find in Charles S. Peirce—Haack's "intellectual grandfather."² Writing many decades before Gettier, Peirce was more concerned with accounting for the nature of signification/representation ("speculative grammar"), for different forms of inference ("critic"), and for the norms by which inquiry ought to be conducted ("methodeutic") than he was with accounting for the structure of epistemic justification.³ However, the concerns that modern theories of epistemic justification address can be motivated within the context of Peirce's philosophy.

In particular, I argue that Foundherentism can fill certain lacunae in Peirce's account of perception and, relatedly, in his account of abduction, both key parts of his epistemology. The lacunae concern the *justification* of perception and of abduction, and these are subjects of scholarly controversy. While Peirce appears to reject the idea that uncontrollable processes (like those in perception and, as I argue, in abduction) require any sort of appraisal, there are good reasons to reject this rejection and consider how perceptual judgments can amount to knowledge and how abductive inferences can result in pursuit-worthy hypotheses.

In what follows, I take a critical approach to Peirce, focusing primarily on the accounts of perception and abduction found in his 1903 Harvard lectures on pragmatism (henceforth, *the Lectures*), though I do not limit my textual resources to those lectures, as it is in these lectures that Peirce provides his most sustained single account of knowledge in which both perception and abduction figure prominently. In the first section, I consider his three “cotary” propositions of pragmatism, with emphasis on the third one, and I draw out a number of problems in Peirce's account, particularly with his claim that perceptual judgments are “absolutely beyond criticism.” Having good reasons to reject that claim, we make room in Peirce's account for a notion of perceptual *justification*.

In the second section, I examine the exact ways in which Peirce regards perception and abduction as similar and as different. Here I argue that if he regards perceptual judgments to have, like the conclusions of abductive inferences, the epistemic status of hypotheses (he does not say whether or not he does), then it is unclear how, within Peirce's account, we can have knowledge. If perceptual judgments have the epistemic status of hypothesis, testing a hypothesis against experience would amount to nothing but the generation of more hypotheses. Whether or not this is his view, there is a need to provide an account of perceptual justification, and Foundherentism fits well with Peirce's emphasis on the sensory and on the interpretive aspects of perception. After defending an account of Peircean abduction in section 3, the final section presents more details of Haack's Foundherentist account and applies them to explain not only perceptual justification but also, and analogously, the justification of the selection of the hypothesis in abductive inference.

I. PROBLEMS IN PEIRCE'S ACCOUNT OF PERCEPTION

When Peirce returned to developing his pragmatism after the turn of the (twentieth) century, he also returned to developing his views on perception. An account of perception would become one of the pillars of his later pragmatism, as we find most clearly in the 1903 Harvard lectures (*the Lectures*). There, Peirce claims that, for the pragmatist, perception is one of the “gates” through which the elements of any concept must pass in order for the concept to be “authorized by reason.”⁴ He also defends three propositions concerning perception as “whetstones” for pragmatism, sharpening its meaning. These propositions are:

1. There is no element of any concept that is not first in a perceptual judgment.⁵
2. General elements, or elements of *thirdness*, are directly perceived.⁶
3. Abductive inference shades into perceptual judgment “without any sharp line of demarcation between them,” such that perceptual judgments “are to be regarded as an extreme case of abductive inferences, from which they differ in being *absolutely beyond criticism*.”⁷

These “cotary propositions of pragmatism” have been analyzed by me and others elsewhere.⁸ I draw focus to them here because they present peculiar problems in the later Peirce.

In the third proposition, Peirce claims that perceptual judgments are “absolutely beyond criticism.” If we take this in conjunction with the first proposition, Peirce can be read, not unreasonably, as endorsing an empiricist form of *Foundationalism*, on which perceptual judgments comprise an *in corrigible* set of beliefs from which the rest of our knowledge is derived. Being “absolutely beyond criticism” suggests being incorrigible, for if a judgment were capable of being corrected, then it would also seem capable of being criticized. Perhaps Peirce regards perceptual judgments as first-person appearance reports, such as “there appears to be a yellow chair,” or perhaps he regards the subjects of perception as infallible authorities on

the contents of their own perceptions. Here lies an initial problem: *virtually all Peirce specialists would rebuff such a reading of Peirce*. Even non-specialists would not expect such Cartesianism from a philosopher whom they may know for having repudiated major elements of Cartesian philosophy.⁹

These specialists and non-specialist are vindicated by other passages indicating that Peirce holds perceptual judgments to be corrigible or fallible. For instance, in the same paragraph in which he claims that they are absolutely beyond criticism, he goes on to say that, with perceptual judgments, “the abductive suggestion comes to us like a flash. It is an act of insight, although of extremely *fallible* insight” (5.181, EP2:227; my emphasis). Here he seems to refer, not to abductive inferences generally (on which I will focus later), but to perceptual judgments in particular. However, the problem then becomes explaining how Peirce could plausibly regard perceptual judgments to be beyond criticism. He must be using “criticism” in a sense where something can be subject to correction yet *not* subject to criticism.

I am able to find, in Peirce, three different senses in which perceptual judgments are “absolutely beyond criticism” that have nothing to do with incorrigibility or infallibility. Yet, as I will explain, none of these senses entirely solves the problem.

Another indication that Peirce regards perceptual judgments as fallible or corrigible appears a year earlier, in a draft of what would have been the second chapter of the *Minute Logic*. He claims that “[perceptual judgments] may be downright untrue to the percept.” (2.141, 1902). However, he goes to explain...

... But I have no means whatever of criticizing, correcting or re-comparing them, except that I can collect new perceptual [judgments] relating to new percepts, and on that basis may infer that there must have been some error in the former reports[.]” (Ibid.)¹⁰

A perceptual judgment can be untrue, but whether or not *it is* can be known only by inference from other perceptual judgments. Moreover, *that* we can know perceptual errors only by inference from other perceptions even seems entailed by the first cotary proposition, that judgments can have no conceptual elements that are not derived from perceptual judgments. If that is so, then we cannot “get behind” perceptual judgments altogether to check the veridicality of any perception. We find a similar argument in the 1903 manuscript on perception and telepathy (R 881); Peirce writes:

We know nothing about the percept otherwise than by the perceptual judgment, excepting that we feel the blow of it[.] ... But the moment we fix our minds upon it and think the least thing about the percept, it is the perceptual judgment that tells us what we so “perceive.” (7.643, 1903)

The first sense, then, in which perceptual judgments are “absolutely beyond criticism” though are not incorrigible, is that we have no grounds on which to criticize their accuracy *as a whole class of judgements*. Any such criticism will presuppose the truth of *some* perceptual judgments. This fact entails neither that any given perceptual judgment is true nor that perceptual judgments generally are true.

A second sense is found back in *the Lectures*, where Peirce makes perhaps another surprising claim, that perceptual judgments are not actually *truth-apt*, but instead can only be more or less “veracious” depending on the “effort made” in the act of observation in which the judgment occurs:

In the first place, all our knowledge rests upon perceptual judgments. These are necessarily veracious in greater or less degree according to the effort made, but there is no meaning in saying that they have any other truth than veracity, since a perceptual judgment can never be repeated. At most we can say of a perceptual judgment is that its relation to other perceptual judgments is such as to permit a simple theory of the facts. I may judge that I see a clean white surface. But a moment later I may question whether the surface was really clean, and may look again more sharply. If this second more veracious judgment still asserts that I see a clean surface, the theory of the facts will be simpler than if, at my second look, I discern that the surface is soiled. Still, even in this last

case, I have no right to say that my first percept was that of a soiled surface. I absolutely have no testimony concerning it, except my perceptual judgment, and although that was careless and had no high degree of veracity, still I have to accept the only evidence in my possession. Now consider any other judgment I may make. That is a conclusion of inferences ultimately based on perceptual judgments, and since these are indisputable, all the truth which my judgment can have must consist in the logical correctness of those inferences. ... To say that a proposition is certainly true means simply that it never can be found out to be false, or in other words, that it is derived by logically correct arguments from veracious perceptual judgments. (5.142/EP2:204)

Here we find one of Peirce's epistemic accounts of truth, which although it can be regarded as a version of the "final opinion" account,¹¹ is unique among them for regarding "truth" as applying properly only to propositions *inferred* from perceptual judgments. If veraciousness concerns only the care, focus, or attention of observation with which a perceptual judgment occurs, then perceptual judgments might be "absolutely beyond criticism" in the sense that they are not even truth-apt.

However, perceptual judgments still can be criticized for failing to be veracious, and Peirce only denies that perceptual judgments are truth-apt in the *pragmatic sense* that goes beyond the mere *verbal definition* of "true" (of which he endorses a correspondence formulation at several places in his writings¹²). Moreover, the claim that perceptual judgments are not truth-apt because they are incapable of verification does not seem to appear elsewhere in his writings. As it also seems very implausible, we might consider it a fleeting mistake. The reason he says, in *the Lectures*, that we could never verify a singular perceptual judgment is that perceptual judgments represent only a momentary percept that vanishes the moment we look *again*. However, not only could we infer from our knowledge of anatomy, physics, etc. whether or not one really did perceive what the perceptual judgment represented at that moment, in the 1903 manuscript (R 881) he contradicts this claim where he argues that any given perceptual judgment represents, not only a momentary percept, but also the "ponecept" and the "antecept": the past percept and the future percept (7.648, 1903).

The third and primary sense in which Peirce claims that perceptual judgments are "absolutely beyond criticism" is that they are *uncontrollable*. While we can control *whether* we look, hear, and so on, we cannot control *what we judge* when we do look, hear, etc.. And Peirce regards controllability over a mental process as necessary for rational criticism of the agent in whom that process occurs. He argues that "to criticize" means "to apportion praise or blame" (5.55), where to criticize some action is to praise or blame the person who commits the action. But a person cannot be praised or blamed for actions over which they have no control—e.g., sub-personal cognitive processes. And Peirce repeatedly claims that processes resulting in perceptual judgments are immune to self-control:

It is idle to attempt to criticize by any logic that part of the performance of the intellect which draws that judgment from the percept. 7.198, 1901

All that I can mean by a perceptual judgment is a judgment absolutely forced upon my acceptance, and that by a process which I am utterly unable to control and consequently am unable to criticize." 5.157, 1903

While in the 1903 manuscript Peirce suggests that a perceptual judgment might be controlled indirectly by training (7.647), "for the purposes of logic" he continues to regard perceptual judgments as uncontrollable.

However, Peirce's use of "criticism" as referring to the apportioning of praise or blame also seems implausible, as he generalizes this sense of "criticism" to cover *all forms of evaluation*. Haack (1994) recognizes that Peirce limits the objects of criticism to self-controllable processes; but it is unclear whether she recog-

nizes that, for Peirce, to say anything is *good* or *bad* in any sense is to “criticize” it and to apportion praise or blame:

Now I say that taking the word “criticize” in the sense it bears in philosophy, that or apportioning praise and blame, it is perfectly idle to criticize anything over which you can exercise no sort of control. You may wisely criticize a reasoning, because the reasoner, in light of your criticism, will certainly go over his reasoning again and correct it if your blame of it was just. But to pronounce an involuntary operation of the mind *good* or *bad*, has no more sense than to pronounce the proportion of weights in which hydrogen and chlorine combine, that of 1 to 35.11 to be *good* or *bad*. I said it was idle; but in point of fact ‘nonsensical’ would have been an apter word. (5.55)

As with Peirce’s denial that perceptual judgments are truth-apt, we might also hesitate to accept this claim, that it is “nonsense” to evaluate uncontrollable processes. It is unclear whether, even during his time, “criticize” in philosophy only referred to the apportioning of praise or blame. Moreover, we obviously *can* make sense of pronouncing an involuntary operation good or bad. We often *do* pronounce involuntary operations good or bad; to use one of Peirce’s own examples, we might say that the growth of our hair or fingernails is *bad* when that growth exceeds a certain comfortable limit. Also, if we were to learn that the sun will explode tomorrow, it would be perfectly sensible to pronounce that *bad*, even though it would be uncontrollable.

While such attributions of value to objects or actions must be habitually related to some type of voluntary conduct in order for them to have *pragmatic* meaning, that conduct might be nothing but the willful *resignation* to an inevitable outcome. Thus, contrary to Peirce’s claim in *the Lectures*, we *can* evaluate the process by which perceptual judgments are formed with respect to our epistemic values or standards, despite our having no direct control over that process: it would be bad if these processes tended to result in false perceptual judgments, and it would be good if they tended to result in true perceptual judgments. Furthermore, we might recognize certain features of that process as affecting the *epistemic status* of such judgments. Peirce offers us a starting point here, with his claim that the perceptual process is structurally analogous to *abduction*.

II. ABDUCTION AND PERCEPTION: A FURTHER PROBLEM

Peirce’s concepts of abduction are subjects of on-going scholarly discussion and dispute. I say “concepts” because it is arguable that more than one concept of abduction can be found across Peirce’s writings. For instance, we can distinguish abduction as a *form of inference* and abduction as *step of inquiry*, the latter of which could include conduct not included in the former.¹³ Here, I am mainly interested in abduction as an analogy for the cognitive process resulting in a perceptual judgment, and, as I will explain, this seems particularly related to Peirce’s concept of abduction as an *instinct* for making good guesses. As I read Peirce, this “instinct” is generally coupled with, but could be decoupled from, the making of formal abductive inferences. As I do not think that “abduction” in Peirce must be only one exact type of thing, I do not think that *abduction as an instinct* and *abduction as an inference* are in conflict.¹⁴

Moreover, while I agree with most commentators that Peircean *abductive inference* is not *inference to the best explanation*, as the epistemic status of the abductive conclusion can never amount to knowledge—that is, *without further testing*—abductive inference still involves a selection process that employs *epistemic* criteria, and *not* just, as McKaughan (2008) and others have argued, *practical* criteria. The conclusion of an abductive inference is selected, at least in part, for characteristics related to its likelihood of being true. But regardless of its likelihood of being true, it retains the doxastic and epistemic status of a *hypothesis*: while it does not have sufficient justification to justify belief in it, it has sufficient justification to be accepted for “trial.” However, the selective process is not a *formal* part of the inference that appears in the abductive schema. Rather, the selective process consists in our “guess”—in the use of an instinctive capacity for em-

ploying learned rules or shortcuts to determine the likeliest explanation.¹⁵ This feature may carry over to perception, via the third cotary proposition of pragmatism, which I now turn to examine.

So far as I can tell, four claims regarding the relation between perception and abduction are clear from *the Lectures*:

1. The formation of the perceptual judgment is uncontrollable, while an abductive inference is controllable (Peirce uses “inference” here to refer to certain controllable acts).¹⁶
2. However, abductive inference is distinct from perception only by a matter of degree.¹⁷
3. Abductive inference and perception are both “interpretive”: *what* they represent depends on contextual or background conditions of the perceiver or reasoner.¹⁸
4. Both abductive inference and perception can introduce new “ideas” or conceptions, although the elements of any new conception introduced by an abductive inference must have been first introduced by perception.

Claims 1 and 2 together imply that *controllability* is a matter of degree, although it is likely that Peirce means that perception and abductive inference are separated by degree in other ways too. If degree of controllability were the only difference between them, then the perceptual process would have the same logical form as abductive inference. But Peirce seems to stop short of that claim, and he insists only that “logical analysis” would *represent* the perceptual process as having the form of abductive inference. His analogy to the sophism of Achilles and the tortoise (EP2:227) is supposed to show that, just as movement does not actually require passing through discrete points, so too the perceptual process does not have to pass through discrete abductive inferences. But just as we can represent movement as the passing through discrete points, so we can represent the perceptual process as discrete abductive inferences. Indeed, Peirce says that the perception “does not have to make separate acts of inference but performs its act in one continuous process” (EP2:227). Thus, another gradation between abductive inference and perception ranges from discrete processes (abductive inferences) to continuous processes (perception).

Note that, in describing the perceptual process as continuous, Peirce does not necessarily mean that there are no discrete operations in that process. Rather, he might mean that these discrete operations, including nerve interactions, form such a complex unity that they’re hardly distinguishable, particularly as quasi-abductions, when considering the process as a whole.

Despite Peirce’s taking perception to be an uncontrollable continuous process, while regarding abductive inference as a controllable discrete one, he places them on the same spectrum for at least two reasons. First, he treats both perception and abductive inference as *interpretive processes* (claim 3, above), although in a *narrower* sense of “interpretation” than the sense in which he holds *all* signification or representation is interpretive—namely, with his concept of the *interpretant*, or the “proper significate effect” of a sign.¹⁹ In the narrower sense, the perceptual judgment is significantly co-determined by the perceiving subject’s store of concepts and knowledge. Peirce recognizes that perception involves both bottom-up (sensory to conceptual) and top-down (conceptual to sensory) processing, and he does not explicitly limit the range of concepts that can interact with sensory signals (the percept) to determine the perceptual judgment. In consequence, several people can see the same object at the same time, and from the same angle, and each could still form a different judgment. Abductive inferences are interpretive because people with very different backgrounds will tend to offer different explanations for the same phenomenon. Of course, none of this should be understood as meaning that, for Peirce, the truth of any hypothesis is *relative*. While initial hypotheses can widely differ, there remains one true hypothesis that all inquirers would eventually settle upon.

The main reason that Peirce places abduction and perception on the same spectrum is likely the fourth claim, that each perception and abduction can introduce new “ideas” or conceptions, although the latter does so by drawing from “elements” introduced by perception. The nature of this generative aspect of per-

ception and abduction is likely complex, but I will consider it briefly further on, in relation to their selective aspect.

Of greater epistemological concern is whether or not Peirce regards perceptions to be like abductive inferences also with respect to *the epistemic status of their conclusions*. Is a perceptual judgment just like the conclusion of an abductive inference in having the status of a mere *hypothesis* or a mere *guess*? That is, does Peirce regard perceptual judgments as “suspicions” intended to be tested but surrendered should they fail the tests? Some authors have taken Peirce’s comparison of perception to abduction as showing that he regards perceptual judgments as having the epistemic status of hypotheses.²⁰

However, here we encounter the central problem for Peirce’s account of knowledge in *the Lectures*: if he regards perceptual judgments epistemically as hypotheses, how then can knowledge be obtained from perceptual judgments? If, as Peirce argues, *all* knowledge is based inferentially upon perceptual judgments, then, it seems, that some perceptual judgments must count as knowledge and confer it by valid inference. Otherwise, if perceptual judgments are themselves all mere hypotheses, then the empirical testing of any hypothesis would just be the testing of it against *other* hypotheses (i.e. perceptual judgments). And how can mere hypotheses be verified by other mere hypotheses?

Peirce believes that we have knowledge. He does not suppose our epistemic lives consist of nothing but conjectures or guesses. So, if we read Peirce as regarding perceptual judgments as having the epistemic status of hypotheses, then we must suppose that, for him, the *knowledge-making quality* occurs through inferences themselves—for instance, through *coherence* conditions. However, so far as I can tell, whether he thinks (A) *that perceptual judgments are not mere hypotheses but can themselves count as knowledge* or (B) *that knowledge arises from the right sort of inferential integration of perceptual judgments*, is underdetermined by his actual writings.

Whichever it is, (A) or (B), I believe a Foundherentist model of justification can be successfully employed to explain how there is knowledge within Peirce’s framework. As I argued in section 2, while Peirce broadly rejects normative claims about perception because of its uncontrollability, if some perceptual judgments count as knowledge—option (A)—then the features of the perceptual process that confer knowledge or justify the judgment would consist *both* in its causal-indexical connection to the percept and in the concept/belief-habits that interpret the percept. Alternatively, if perceptual judgments have only the status of hypotheses, and knowledge must somehow be obtained by inference—option (B)—then perceptual judgments as a whole may provide the experiential anchoring (the “clues” in Haack’s crossword analogy) for a given belief, while other beliefs, or the “already-completed entries,” provide the support that is also necessary for the justification of that belief.

If we reject (A), we can still apply Foundherentism both to perception and to our “abductive instinct” to explain each one’s selection process (which coincides with the generative process). The sort of justification involved in perception is not necessarily the sort that suffices for *knowledge*; instead, it might suffice for *worthy hypotheses*. As Haack articulates it, Foundherentism is not necessarily an account of the sort of justification that amounts to *knowledge*. However, if we accept (A), that perception amounts to knowledge, then we still might apply Foundherentism to our “abductive instinct” to justify our guesses: while the degree of justification might result in “knowledge” in the case of perception, it might only result in “acceptable hypotheses” in the case of our abductive instinct.

So, in the remainder of this paper, I will address the justification of abduction generally, and then I will elaborate on the Foundherentist justificatory structure in each of the above cases, where it can be applied to explain *knowledge* as well as *worthy hypotheses* within Peirce’s framework.

III. ABDUCTION: INSTINCT AND INFERENCE

As Peirce holds that, for the purposes of “logic,” perception can be *represented as* an abductive inference, sharing with abduction both an interpretive quality and an ability to originate new “ideas,” I will proceed with the assumption that whichever features make abductive inference or perception “good,” or whatever

“justifies” one or the other’s conclusion, we can identify analogous features in the other that make *it* good or justify *its* conclusion.

What exactly makes an abductive inference good, or what justifies its conclusion as an acceptable hypothesis, depends on the nature of abductive inference, and there has been much disagreement in the literature concerning the nature of abductive inference. Distinguishing between *justificatory* interpretations of abductive inference as “inference to the best explanation” (e.g. Lipton, 2004), which more or less just pay lip service to Peirce, and *generative* interpretations, McKaughan (2008) defends a “pursuitworthiness” interpretation that regards abduction as the selection of hypotheses upon practical/economic but *not* epistemic criteria. Kapitan (2000) argues similarly that abductive inference is a special type of “practical inference,” though he regards its formal structure as deductive.

In one respect, my interpretation is closer to Mohammadian (2019), who argues for a combined generative and pursuitworthiness account, combining abduction *as insight* and abduction *as inference*. This is the correct approach; however, Mohammadian mistakenly views abductive *insight* as merely generative, and he mistakenly views the inference as a type of “hypothesis-ranking” resting only on economic criteria. To the contrary, epistemic or truth-indicative criteria are also employed during abductive insight, and the abductive inference, in itself, has nothing to do with hypothesis ranking. Recognizing that the “logical form” of abductive inference that Peirce presents in *the Lectures* (see further on) does not display any hypothesis ranking, Mohammadian dismisses it, claiming “the logical form of abduction is at best marginal and very probably of no significance in Peirce’s mature theory of abduction” (154). I think this is mistaken.

The justificatory account that McKaughan rejects takes abductive inference to justify a conclusion in the same general way that, on Peirce’s view, induction does—namely, by providing evidence for a hypothesis. It is clear from several passages that Peirce does not take abductive inference to be evidential in this way. However, this is not to say that, on his Peirce’s view, there is nothing analogous to evidential processes that occur in our abductive *insight*. On the purely generative interpretation, an abduction is good or “justified” just so long as it generates some hypothesis or other that gets adopted. Supporting this are a few passages at which Peirce says that abduction *generally* is justified by the fact that it is the only inference that generates any new ideas.²¹ However, we need to be able to distinguish *better or worse* abductive inferences. McKaughan’s pursuitworthiness interpretation attempts to do this, but by excluding truth-indicative criteria it runs afoul of several claims that Peirce makes regarding abduction.

For instance, in *the Lectures*, Peirce remarks: “Think of what trillions of trillions of hypotheses might be made of which only one is true; and yet after two or three or at the very most a dozen guesses, the physicist hits pretty nearly on the correct hypothesis.” (5.172, EP2:217). Peirce’s famous example of an abductive inference, displaying its logical form, is another instance showing that, on his view, abduction involves truth-indicative criteria with the selection of the hypothesis. We find that the conclusion is not that the hypothesis explains the “surprising fact,” but *that we have reason to suspect that the hypothesis is true*:

Premise 1. surprising fact C is observed

Premise 2. if A were true, C would follow;

Conclusion. there’s reason to suspect that A is true.²²

Where does the “reason to suspect” that A is true come from? It cannot come just from the second premise, “if A, then C,” because, as others have observed, we would, then, have reason to suspect many different but absurd explanations are true.²³ A “reason to suspect that A is true” would be an *epistemic* justification to select A over other hypotheses. However, this justification and selection is not transparent in the premises of the abductive inference, and, as others have observed, neither is the *generative* aspect that Peirce clearly holds is essential to abductive inference.

My solution is that the generation and selection of A, or the hypothesis “suspected to be true” in the conclusion, is the product of “abductive insight” or the “abductive instinct” to guess things right—of which Peirce often speaks, especially in *the Lectures*²⁴—which is not itself the abductive inference. They are distinct, however, they are also regularly *conjoined* and complementary. In the *inference*, the minor premise (“surprising fact C”) *asserts* the motivation to engage our abductive instinct to generate a hypothesis, while

the major premise *asserts* that the (generated) hypothesis explains the explanandum; but the *selection* of that hypothesis is *asserted* only in the conclusion. The premises and the conclusion are *key assertions* of the abductive process, where, for Peirce, “to assert that proposition is to make oneself responsible for it” (5.543, 1902).²⁵ That is, the premises and the conclusion are *the points in the abductive process that we voluntarily accept and endorse*: the *motivation*, the *generated hypothesis*, and its *selection*. However, we do *not* control much of the generative and selective processes themselves. We actively seek some insight, but the insight itself is not (directly) up to us. Thus, an “abductive inference” is just the train of the propositions for which we make ourselves responsible during the abductive process, the rest of which occurs at an “instinctive” sub-personal level that is not unlike perception. In theory, the inference and the instinct can come apart, as we can assert propositions that, combined, take the form of the inference but which don’t occur to us through the abductive instinct.

Taking this approach to Peircean abduction, we find that abductive inference and perception *are* on a continuum with respect to controllability, as a controllable abductive inference generally occurs upon uncontrollable “instinctive” generative and selective processes. Thus, the focus here, relating perception and abduction, must be on these instinctive processes.

In *the Lectures*, Peirce abstains from accounting for the reliability of the generative and selective processes in abduction, just as he does with perception:

However man may have acquired his faculty of divining the ways of Nature, it has certainly not been by a self-controlled and critical logic. Even now he cannot give any exact reason for his best guesses. It appears to me that the clearest statement we can make of the logical situation—the freest from all questionable admixture—is to say that man has a certain Insight, not strong enough to be oftener right than wrong, but strong enough not to be overwhelmingly more often wrong than right, into the Thirdnesses, the general elements, of Nature. An Insight, I call it, because it is to be referred to the same general class of operations to which Perceptive Judgments belong. This Faculty is at the same time of the general nature of Instinct, resembling the instincts of the animals in its surpassing the general powers of our reason and for its directing us as if we were in possession of facts that are entirely beyond the reach of our senses. It resembles instinct too in its small liability to error; for though it goes wrong oftener than right, yet the relative frequency with which it is right is on the whole the most wonderful thing in our constitution. (EP2:217-18)

So, how exactly are abduction and perception so relatively reliable? First, note that neither necessarily requires the actual representation and relative weighting of multiple rival hypotheses. The generative mechanisms can coincide with selection mechanisms simply through rules that exclude certain hypotheses from being generated. *Language* certainly excludes many hypotheses, as one will tend not to represent any hypothesis that cannot be represented within one’s repertoire of predicates.²⁶ Very likely, we also employ “rule-based shortcuts” or heuristics by which we do not represent and weigh vast swaths of representable hypotheses. Such rules might include one that automatically excludes *supernatural* or *fantastical* hypotheses, and the belief-habit that *there are no supernatural causes* might suffice as such a rule in actual practice. In fact, there may not be any special mechanisms for the production and weighting of hypotheses other than pathways through which our current belief-habits exert either generative or inhibitive influence. Recall how Peirce regards abduction as *interpretive*: the generation and selection of a hypothesis always occurs within a nexus of belief-habits, and, other than that nexus, hypothesis generation and selection might not require anything besides a cognitive stimulus and special cognitive pathways eliciting acquired belief-habits.

The main difference between perception and abductive insight would lie, then, with the stimulus. In the case of perception, the stimulus is the *percept*, which triggers a certain conceptual response, which response depends on pathways or connections between our (mainly inherited) sensory habits and our (mainly acquired) belief-habits,²⁷ and where the selected response, the perceptual judgment, is co-determined by

both types of habits. Note that these belief-habits are the same ones through which perception is *interpretive*. In the case of abduction, the stimulus is the “surprising fact,” which could be a perceptual judgment or a judgment formed by deduction from perceptual judgments.

Granting both a causal stimulus and a doxastic network form the generative-selection processes in perception and in abductive insight, those processes can be evaluated upon their epistemic qualities. The belief-habits through which a perceptual judgment or hypothesis is generated-selected—and in virtue of which perception and abduction are interpretive—can be understood as providing various degrees of epistemic support (justification or warrant) to that judgment or hypothesis. Further, the process can be evaluated according to its experiential connection via its stimulus or input. While, at the time of *the Lectures*, Peirce opposes evaluations of uncontrollable or sub-personal processes, I have argued that this is based on an implausible analysis of evaluation that takes it to be inseparable from attributions of praise and blame. If we can look past this, then we find that the Foundherentist model fits well with Peirce’s theory.

IV. A CROSSWORD MODEL OF ABDUCTION AND PERCEPTION

On the Foundherentist account, the criteria for justification are truth-indicative and they “rest in part on facts about human capacities” (2009, 266); however, unlike in Reliabilism, a determination of how well a given belief satisfies Foundherentist criteria does not directly entail any particular probability that the belief is true. As Haack argues, while this is a superficial advantage of Reliabilism, Reliabilism has the problem of determining which of the many types of processes instantiated in a token case justifies the resulting belief.²⁸ Foundherentism is an internalist or evidentialist theory, and not an externalist one. While a subject’s “experiential S-evidence” for a belief that *P*—the experiential²⁹ states or processes that causally sustain the belief and provides its “experiential anchoring”—are relevant to the belief’s justification, it is the “experiential C-evidence”—*the propositions expressing that S-evidence*—that count toward the total “C-evidence” for the belief.³⁰ Besides the experiential C-evidence, one’s total C-evidence includes one’s “C-reasons,” which are the same beliefs that causally sustain the belief (the “S-reasons”) but with respect to their *content* (hence, “C-reasons”). For the Foundherentist, the degree to which a belief that *P* is justified depends on (a) the degree of evidential support for the belief that *P* (total C-evidence), (b) the independent security of one’s C-reasons for believing that *P*, and (c) how comprehensive those beliefs are, collectively, about the world.

As explained here, Peirce’s accounts of perception and abduction are suitable for Foundherentist treatment concerning the justification of the perceptual judgment or the abduced hypothesis. First consider perception. The *percept* provides the experiential S-evidence for the perceptual judgment, while the nexus of belief-habits that co-determine the perceptual judgment (and give it its interpretive quality) are the perceptual judgment’s S-reasons. The content of the S-reasons and the propositions expressing the experiential S-evidence amount to the total C-evidence for the perceptual judgment. Beyond this, its justification, then, is a matter of the independent security of the C-reasons as well as their comprehensiveness.

Next, consider abduction, or the instinctual process that generates and selects a hypothesis for testing. While the direct stimulus for an abduction seems to be a doxastic state (the belief in “surprising fact *C*”) rather than an experiential state (a percept of some type), it is likely that memory and other non-doxastic internal states (such as the “irritation of doubt”) are direct causal contributors to the generative and selective processes resulting in the hypothesis. So, some type of experiential S-evidence can be identified for abduced hypothesis. The S-reasons are the belief-habits that enter into the generative and selective process resulting in the hypothesis and sustaining it as the candidate for testing; with respect to their content, the S-reasons are the C-reasons for the hypothesis. Other than this total C-evidence for the hypothesis, its justification, *as a hypothesis worthy of testing*, is a matter of the independent security of the C-reasons as well as their comprehensiveness.

How does this help us with the problem concerning how *knowledge* arises on Peirce’s account? Recall that Peirce’s placing perception on the same continuum with abductive inference suggests that perceptual judgments are themselves nothing but hypotheses that must be tested, where, then, there is nothing to test

a hypothesis *against* other than more hypotheses. One solution I mentioned, (B), is that knowledge might still arise through coherence criteria, where a hypothesis could rise to knowledge with sufficient types and a sufficient amount of inferential support from other hypotheses. However, in that case, no single “test” could be said to refute a hypothesis unless the perceptual judgments (of that test) are shown to have themselves sufficient inferential support.

Since Peirce is clear that abductively inferred hypotheses do not count as knowledge (that is, without further testing), if we go with solution (A), that perceptual judgments *can* count as knowledge (without further testing), then we must justify treating perception and abductive inference differently. Applying Foundherentist criteria, we find that that *the difference in experiential anchoring* might be sufficient to treat them differently with respect to the epistemic status of their products. Perceptual judgments are directly sustained by sensory processes or percepts, while the conclusions of abductive inference are sustained only indirectly by percepts and perhaps by less reliable experiences like memory and introspection. So, the difference in epistemic status between perceptual judgments and abduced hypotheses could be explained as follows: one has much weaker experiential support than the other, so the degree of justification in one allows it to count as knowledge, while the degree of justification in the other allows it to count only as an acceptable hypothesis to test.

Further supporting this solution is the fact that Peirce frames abductive inference in a way that seems to presuppose that perceptual judgments generally have a higher sort of epistemic status than hypotheses. “Surprising fact C,” the motivation for an abductive inference, is generally a perceptual judgment or near inference from perceptual judgements. Peirce’s calling it a “fact” suggests that it is of a higher status than a hypothesis. Moreover, if “C” were itself a mere hypothesis, then “A,” the pursuit-worthy hypothesis for C, should almost always be that *this surprising fact didn’t really occur*. If C conflicts with better tested hypotheses than C itself, then the most likely hypothesis explaining C is that C is in error.

Again, we might suppose that, in Peirce, knowledge arises only through inference; however, as this conflicts with his emphasis on experimental testing, the best solution seems to be the one that treats perceptual judgments, or at least *some* perceptual judgments, as bona fide cases of knowledge. If we can disregard Peirce’s insistence that it is “nonsense” to evaluate uncontrollable processes, then we can use the tools that Haack provides to make sense of how perceptual judgments can be products of processes structurally analogous to those involved in abductive insight and yet not be, like abductive insights, hypotheses worthy only of further testing. In the case of abductive insight, the experiential anchoring condition is barely met, while in perception that condition is met with full force.

Some will insist that Peirce’s rejection of evaluations of uncontrollable events as nonsense simply cannot be disregarded; and nor can other claims that Peirce made which I argued could be dismissed as fleeting mistakes (e.g., his claim that perceptual judgments are not truth-apt). They might see my effort here as a sort of cherry-picking of Peirce in order to fit his views with Haack’s. It is true that the Peirce-Haack hybrid theory I propose here is neither fully Peirce nor fully Haack. But it does not follow, from that, that it is not a good theory. As I see it, the best way for students to honor the intellectual legacies of their teachers is not to embrace *all* that their teachers said or to spend their lives debating what their teachers really meant. It is to move inquiry forward by utilizing the greatest insights from their teachers, and to help weave humanity’s intellectual quilt using various threads of their teachers’ thoughts. In this paper, I hope to have approximated to something like that end.

NOTES

1. Haack's language is in terms of beliefs, but it should be extendable to judgments, claims, theories, etc.
2. See de Waal 2005, 163.
3. EP2:260, 1903.
4. 5.212/EP2:241.
5. "There are no conceptions which are not given to us in perceptual judgments, so that we may say that all our ideas are perceptual ideas" (EP2:223). Also see EP226-227.
6. "[P]erceptual judgments contain elements of generality, so that Thirdness is directly perceived" (EP2:224). "The second is that perceptual judgments contain general elements, so that universal propositions are deducible from them in the manner in which the logic of relations show that particular propositions usually, not to say invariably, allow universal propositions to be necessarily inferred from them" (EP2:227).
7. "[T]he abductive faculty, whereby we divine the secrets of nature, is, we may say, a shading off, a gradation of that which in its highest perception we call perception" (EP2:224). "[A]bductive inference shades into perceptual judgment without any sharp line of demarcation between them[.]" (EP2:227).
8. For instance, see Wilson (2012) and Atkins (2017)
9. While Peirce's most sustained attack on Cartesian philosophy was written over thirty years earlier than the 1903 lectures were delivered, as recently as 1901 Peirce rejected the claim that we know internal states mostly by inference from knowledge of external facts (8.144). See Wilson (2016, 79-89).
10. Note that, in the *Minute Logic*, Peirce uses the term "perceptual fact" instead of "perceptual judgment" to refer our first judgments concerning percepts, and I decided to substitute "fact" with "judgment" to be less confusing to the casual reader. Since Peirce's description of "perceptual fact" aligns very closely with his description of "perceptual judgment," and since "perceptual fact" appears nowhere simultaneously with "perceptual judgment," I regard them to be equivalent terms, notwithstanding some minute differences that might account for Peirce'
11. Most readers are familiar with this account, but see, for instance, 8.12, 1871; 5.407-408, 1878; 5.553, 1906.
12. For instance, see W3:282, 1878 and 5.553/EP2:379-380, 1906.
13. For instance, in "On the Logic of Drawing History from Ancient Documents" (1901), Peirce describes abduction as "the process of choosing a hypothesis", and his subsequent description of abduction suggests that there are many more deliberate steps involved in that process than just an single inference, including consideration of testability and economy, and a hope that we will find the right answer.
14. The view that abduction as an instinct for "guessing thing's right" and abduction as a form of inference are distinct but connected parts of abduction in Peirce can be found already, in various forms, in a number of authors. For instance, see Kapitan (1990, 507), Hoffman (1999), and Tschaepé (2014).
15. As Kapitan (1990) argues: "Peirce's ideas easily allow for discovery being rule-stimulated if not rule-governed" (508).
16. "[J]ust as Achilles does not have to make the series of distinct endeavors which he is represented as making, so this process of forming the perceptual judgment, because it subconscious and not amenable to logical criticism, does not have to make separate acts of inference but performs its act in one continuous process" (EP2:227).
17. "[T]he abductive faculty, whereby we divine the secrets of nature, is, as we my say, a shading off, a gradation of that which in its highest perception we call perception" (EP2:224). Also, "abductive inference shades into perceptual judgment without any sharp line of demarcation between them" (EP2:227).
18. E.g. "I should tire you if I dwelt further on anything so familiar, especially to every psychological student, as the interpretiveness of the perceptual judgment. It is plainly nothing but the extremest case of Abductive Judgment.
19. See, for instance, 5.475, 1905. In Wilson (2016, ch.7), I argue that semeiosis or signification, in Peirce, is an interpretive process generally, such that signs stand for objects only by being so interpreted, but one by which a sign tends toward being interpreted to stand for a fixed object (the "dynamical object").
20. For example, Campos (2010).
21. For instance, 5.171, 1903; 7.219.
22. 5.189/EP2:231.

23. As Kapitan (1992) puts it in regards to this passage: “There are any number of ‘wild’ hypotheses why I am now reading this paper, but that alone does not provide reason to think that any particular one is true” (6). For instance, if the observable universe were being pulled apart by the tentacles of invisible squid a trillion light years across, then we’d observe that the universe is expanding at an accelerated rate. This conditional could be true, and its antecedent might be testable, but we do not have sufficient reason to suspect there’s squid-like monster accelerating the expansion of the universe.
24. For instance, see 5.175-179, 5.181, 6.471, 6.526, and 7.219-20.
25. Also, see R 599:5, 1902; R 454:5, 1903; and 5.30-31, 1903.
26. Our conceptual space may not be limited by our predicate space.
27. There is no firm distinction between concepts and beliefs in Peirce. Concepts are nodes within doxastic-habit network. As Peirce indicates in 1878 “How to Make Our Ideas Clear”, our concept of wine, for instance, is just various predications of wine (5.401). That is, to possess the concept of wine is to believe certain things about wine.
28. Feldman (1998).
29. By “experiential” Haack includes not only sensory experiences but other possible sorts of experiences, such as memories and introspective experiences.
30. Haack claims “[I]t is sentences and propositions, not states of a person, which support or undermine each other” (2009, 124).

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