**Habits in Perception: A Diachronic Defence of Hyperinferentialism**

**1. Introduction**

Philosophers have long puzzled over the human capacity to perceive, which from a number of perspectives can appear rather wondrous. How exactly do our finite and frail bodies, manage to absorb so much useful information from our surroundings? Lately, many philosophers have imagined that an obvious naturalistic answer to this question goes something like this: “Perception clearly just consists in some kind of causal impact on the sense-organs. What else could it be?”

 Yet if we take as our paradigm of causation – as have many able philosophers – David Hume’s example of one billiard ball pushing a second into motion, we might argue that there is significantly more going on in perception than such efficient causal action and reaction. Perception appears to be a very special kind of causation (if it even *is* a kind of causation), insofar as it involves *discriminatory conceptual filtering*. For instance, the same visual scene has been notoriously described as presenting to the interested viewer both rabbits and undetached rabbit parts (Quine 1960). Yet in most cases we – who are interested in rabbits, and not so interested in undetached rabbit parts – manage to perceive the rabbit and not the rabbit parts. To use terminology which has recently become influential in certain philosophical circles, we can say that what we perceive appears to consist in not merely a ‘given’, but some kind of ‘taken’. This terminology provides an entry point into certain discussions in Pittsburgh School Philosophy[[1]](#footnote-1) which will feature prominently here.

 One of the most widely-pursued debates concerning perception in modern philosophy pits a view known as *representationalism* or *representationism* against a view known as *relationism*, *presentationism* or *direct realism*. The former claims that perception is mediated by some kind of state which – as the name suggests – ‘*re-presents*’ what we perceive, in a manner we can understand. This state is generally thought to fulfil its representational function through its intrinsic properties. (Much philosophical ink has been spilled over *how* this might occur, which we will bypass for now.) One virtue of representationalism is that the state’s *mediation* of our perception straightforwardly allows for the fact that we sometimes perceive erroneously. As Fred Dretske puts it: ““[t]he world needn’t contain [certain properties] in order to be represented as containing them.” (Dretske 2003: 71). On the other hand, relationism claims that our perception is *immediately* shaped by real-world objects, through being – as the name suggests – somehow directly related to them. Accordingly, this view has trouble accounting for perceptual error. Yet representationalism’s postulated ‘veil’ of representations lying between perceiver and perceived objects risks creating a profound scepticism concerning whether we can really know that our perception corresponds to reality.

 This dispute stretches back at least as far as the early modern period,where John Locke’s representationalism was contested by Thomas Reid’s relationism.[[2]](#footnote-2)A further, related, philosophical trade-off is that whereas representationalism easily accounts for how perception involves *general concepts*, it struggles to provide a robust account of the perception of particular objects, whilst relationism has the reverse problem. Of course, it might seem obvious that a viable philosophy of perception must show how the mind manages to synthesise both general concepts and particular objects into a coherent understanding of immediately present reality. But this synthesis’ exact nature and functioning is still subject to considerable discussion. Yet whilst considerable philosophical energy has been expended on this debate, one assumption held by both sides has gone almost entirely unquestioned[[3]](#footnote-3) – that perception is an affair best understood *synchronically*. In other words: *perceiving should be understood as an* *event*. This assumption arguably relies on a broadly Cartesian picture of perception as some kind of immediate apprehension of so-called ‘external objects’, which will be critically evaluated below.

 Moreover, these perceptual ‘events’ are understood to occur at a distinct, ‘beginning’ stage in cognition. To be more specific, we may reference Pittsburgh School terminology again by stating that perception has been influentially conceptualised as a *language-entry move*, whereby the presence of ‘non-linguistic entities’, such as cats and tables, is encoded in the perceiver’s conceptual scheme for future reference. This move is understood to be followed by some kind of *‘intra-linguistic inference’*, followed by the *language-exit move* that is action (Brandom 2000; Sellars 1954). So, for instance, imagine that I visually perceive a ripe apple. Our Cartesian picture postulates that first my eyes take in a scene containing a red, round object, which I recognise as meriting the predicate “apple” (language-entry move), then I inferentially connect this predication with current feelings of hunger, and my belief that apples are edible and delicious. Eventually, I grasp the apple and eat it (language-exit move).

 By contrast, I shall argue that perception can only be properly understood *diachronically*, as crucially structured and rendered meaningful by certain special kinds of *habit.* There has recently been an upswell of interest by Peirce scholars in his concept of habit, and how it might be mobilised in theorising cognition.[[4]](#footnote-4) But as none of these accounts appear to have explicitly thematized perception[[5]](#footnote-5), it is hoped that this discussion will be useful.

**2. From “Strong” to “Hyper-” Inferentialism in Perception**

In this section I scope out some background to the current discussion in my prior research. I’ve done much philosophical work in pragmatism, focussing particularly on Charles Peirce’s original version. In the mid-2000s, I became interested in Robert Brandom’s contemporary project of *analytic pragmatism*, an important plank of which is a view known as *inferentialism* (Brandom 1994; 2000; 2002; 2006; 2007). Brandom explicates inferentialism by claiming that modern philosophers have viewed *representation* as the most fundamental notion in language and cognition – thus, meaning is understood to ‘bottom out’ in singular terms which pick out objects, and predicates which pick out those objects’ properties and relations. These ‘semantic building blocks’ are then supposed to be combined into truth-apt sentences. (“One then explains what it is for sentential constellations of those representing elements to be true in terms of set-theoretic inclusion relations among the various represented items.” Brandom 2007, 651). Only then is inference explicated as occurring between these antecedently-given sentential representations. Brandom urges that this order should be up-ended, so that *inference* isthe foundational notion:

The idea is to understand propositional contents as what can both serve as and stand in need of reasons, where the notion of a reason is understood in terms of inference. So propositional contentfulness is taken to be a matter of being able to play the role both of premise and of conclusion in inference (Brandom 2007, 654).

What that means in practice is that the entire meaning of a concept such as *cat* should be understood to consist in potential inferences such as, “If this is a cat then it is not a dog” and, “If this is a cat then it grew from a kitten” (Brandom 2000; 2007), rather than any putative reference to ‘feline objects in the world’. Brandom claims that in this way inferentialism beneficially *upholds the place of human agency* *in human meaning-making*, as judging is something that we *do*, which involves holding one another responsible across a range of ‘norms of assertion’ (Brandom 2000; 2006), within a “game of giving and asking for reasons” (Brandom 2007, 655).

Is the representationalism that Brandom here repudiates the same view as the representationalism we just saw defined against direct realism in philosophy of perception?The two might appear to converge for early modern philosophers such as John Locke and David Hume. These thinkers are representationalist in both senses, insofar as they understand cognition, including perception, to be fundamentally composed of *ideas*, which they conceive to be both *mediating* (i.e. non-direct – the first sense of ‘representational’) and *simple* (i.e. non-inferential – Brandom’s second sense of ‘representational’).[[6]](#footnote-6) But the two distinctions can clearly come apart.It is possible to conceive of a perception which is *unmediated but noninferential.* (Perhaps the touch of velvet might be an example.)Conversely, it is possible to conceive of a *‘re-presentation’ which is both mediatory and inferential*, and this appears to be Brandom’s own position on perception (Brandom 1994; 234-5).

 As a Peirce scholar, it struck me that Brandom’s inferentialism had a great deal in common with Peirce’s early pragmatist critique of *intuition* in a series of papers published in the 1860s in the *Journal of Speculative Philosophy*.[[7]](#footnote-7) These are sometimes referred to as Peirce’s “anti-Cartesian papers” (e.g. Haack 1982), because he there sought to scope out his pragmatism through correcting certain wrong turns that he attributed to Descartes at the birth of modern philosophy. More specifically, Peirce claimed that “certain faculties” that Cartesian philosophers “claimed for man”[[8]](#footnote-8) are not actually in us. These faculties are all envisaged to encompass various forms of intuition, and by denying all of them, Peirce sought to draw to a close an entire tradition of epistemology prosecuted through introspection.

 I explored this comparison in a paper entitled “Making it Explicit and Clear” (Legg 2008a). I found the comparison to be fruitful, insofar as Peirce defined the key term ‘‘intuition’’ as ‘‘premiss not itself a conclusion’’ (Peirce 1992, 12) – that is, an uninferred statement. In these early papers, Peirce’s main support for his radical denial that intuition should be granted any role in epistemology lay in establishing that we cannot ‘intuit’ whether a given cognition is delivered via intuition or via inference. He argued for this claim through a combination of phenomenological and naturalistic considerations (Legg 2008a, 113-5), and concluded that every thought is an inference.

 I noted, however, that an apparent sticking point for both Brandom’s inferentialism and Peirce’s early pragmatism lay in their account of *perception* – especially how they theorise simple and apparently primitive sensations such as the colour red. Perceptions of such sensations seem difficult to theorise as inferences, particularly the *first* time they are apprehended. Surely there must have been a first event of ‘learning what it’s like to see red’[[9]](#footnote-9), which must have constituted some kind of noninferential perceptive moment? I dubbed this a *qualia objection to inferentialism* (Legg 2008a, 109-111). Brandom has grappled with this problem. He concedes that there must be a ‘first input moment’ for sensations such as red, and describes our cognition as accordingly constituted not *entirely* by inferential relations. Rather, he claims, the meanings of concepts which refer to so-called ‘primitive sensations’ are established through reliable dispositions to respond differentially to stimuli – “RDRD” for short (Brandom 2000, 48; 2007, 653-4). He describes himself as thereby offering a ‘two-ply’ theory of perception, inspired by his reading of Sellars, which is:

…the product of two distinguishable sorts of abilities: the capacity reliably to discriminate behaviorally between different sorts of stimuli, and the capacity to take up a position in the game of giving and asking for reasons (Brandom 2002, 349).

Steven Levine remarks that Brandom thereby seeks to “epistemically neutralise sense-impressions” (Levine 2012, 134). We shall return to this insight below.

 Brandom does attempt to mitigate this apparent weakening of his inferentialism, however, by claiming that the RDRD-sourced component of our cognition must be ‘‘inferentially articulated’’. He defends a *strong inferentialism*, which holds that inferential articulation is *sufficient* for the existence of conceptual content, whilst the *weak inferentialist* holds that it is merely *necessary*. In other words, the strong inferentialist holds that “there is nothing more to conceptual content than its broadly inferential articulation” (Brandom 1994, 131; 2000**,** 28-9, 2007, 656-7). But Brandom’s use of the qualifier ‘broadly’ is crucial here, as he alsoacknowledges the possibility of a *hyperinferentialism*, lying to the other side of his strong inferentialism, which holds that “the inferential connections among sentences, *narrowly* construed, are sufficient to determine the contents they express” (Brandom 2007, 656, my emphasis; Macbeth 2010, 210). By ‘narrow’, here, he means restricted to the ‘intra-linguistic inference’ outlined above – that is, containing no language-entry or language-exit moves. So, for example, according to this account of hyperinferentialism, the meaning of “This apple is red” would be understood to include a license to infer, “This apple is coloured”, but not to include recognising the apple as red (language-entry move), nor grasping and eating it (language-exit move).

 Brandom deprecateshyperinferentialism, arguing that it only properly applies to logical vocabulary, failing to account for **“**vocabulary that has observational uses that are essential to its meaning….” (Brandom 2007, 658). But in my exploration of Brandom’s strong inferentialism, two things particularly struck me. Firstly, hyperinferentialism seemed attractive insofar as it made the task of accounting for meaning via inferential articulation more consistent and thoroughgoing, *if it could be made to work*. For instance, how is Brandom to integrate RDRD ‘sensory outputs’ into his conceptual space of reasons, when the two are apparently so different from one another?[[10]](#footnote-10) Secondly, I believed I could make a plausible case that *Peirce* held a form of hyperinferentialism. For instance, in the anti-Cartesian papers Peirce appears to argue that even the most basic sensations contain inferential structure, analysing color-perception as a kind of abduction or hypothesis:

A sensation of color depends upon impressions upon the eye following one another in a regular manner and with a certain rapidity…Accordingly, a sensation is a simple predicate taken in place of a complex predicate; in other words, it fulfils the function of a hypothesis. (Peirce 1992, 42, cited in Legg 2008a, 119).

But what about the first thought of red? Where does *it* come from? It seemed that Peirce had an answer to that too, in a creative analogy with an inverted triangle gradually dipped into water, where the triangle point’s entry into the water represents the mind’s beginning to think of red. Peirce notes that, mathematically speaking, there is no ‘first moment’ that the triangle point hits the water, because for any horizontal cross-section of the triangle – representing the mind’s already thinking of red – another horizontal cross-section may be found which is ever so slightly closer to the apex (i.e. earlier):

To say…that ‘‘there must be a first’’ [cognition of a given object] ‘‘is to say that when that triangle is dipped into the water there must be a sectional line made by the surface of the water lower than which no surface line had been made…But draw the horizontal line where you will, as many horizontal lines as you please can be assigned at finite distances below it and below one another. For any such section is at some distance above the apex, or it is not a line. Let this distance be a. Then there have been similar sections at the distances 1/2a, 1/4a, 1/8a…So it is not true that there must be a first’’ (Peirce, 1992, 27, cited in Legg 2008a, 117-8).[[11]](#footnote-11)

 This, then, is the early Peircean view of cognition that I presented in (Legg 2008a); let us call it *Naïve Perceptual Hyperinferentialism*. The view is hyperinferentialist in that it views cognition as entirely comprised of inferences – thus it must alsobe‘narrow’ in Brandom’s sense of not including language-entries or exits. As I presented this view in various philosophical fora, I found it being robustly challenged, both as a successful philosophical account of perception, and as a full account of Peirce’s contributions to the philosophy of perception, given that it is drawn so much from his early work. In the next section, I will examine two challenges to the view itself. After that, I will present an apparently considerably more complex account of perception developed by Peirce around 1902-3. I will consider some challenges to the later view, then defend it by clarifying the role played by *habit* in it – and in Peirce’s understanding of cognition more generally – by embodying all signification that is symbolic, as opposed to iconic or indexical. This will then enable a fuller assessment and defence of hyperinferentialism than I was able to offer in 2008.

**3. Challenges to Naïve Perceptual Hyperinferentialism**

This early Peircean account might seem subject to at least two major objections.First: *it is excessively rationalist.* The success or otherwise of inference would appear to be governed by rational principles. Is reason really the only faculty we wish to award a role in perception? Many philosophers have found it self-evident that the sensorium’s rich variety outruns any possible conceptual understanding, so perception must – at least in part – be *felt* rather than merely *understood*.Accordingly, inferentialist brands of pragmatism have been accused of “an experience problem”[[12]](#footnote-12). For instance, Paul Redding (Redding 2014) imagines a tie which he perceives to be a particular shade of blue and, following McDowell (2005; 2009), he charges that Brandom’s inferentialism cannot do justice to his perception of the tie’s precise blue color, given that our range of blue *concepts* is necessarily finite (“Perceptual experience, it might be said, is more fine-grained than what is actually captured by any general concept…” Redding 2014, 668). Redding goes on to claim that perceptual experiences enjoy a kind of determinacy (‘singularity’ in Kant’s terminology), which supports a “different kind of truth” than can be theorised via Brandomian inferential articulation. He even goes so far as to say that it is this level of determinacy which distinguishes “the actuality of things” (using Kantian terminology again) from a ‘possibility of things’ which is ‘merely propositional’. The distinction is evident, he claims, in the way that actual things support further determination and precisification, whilst merely possible ones do not:

…there seem to be important distinctions to be made between my actual blue tie and its differently coloured possible alternatives. While it makes sense to ask the further question concerning my actual tie as to its particular shade of blue, it does not make sense to ask an analogous question about my possible yellow one (Redding 2014, 15).

Actual things support further determination because they can be directly pointed to or indicated. Redding points out that linguistically we use demonstrative ‘*de re*’ locutions for this purpose – such as ‘that tie’ – whereas possible things may only be referred to, or known, insofar as entire ‘*de dicto*’ propositions are constructed to describe them. So is Peirce’s pragmatism also guilty of such an “experience problem”? One might suspect so from famous quotes such as this:

No present actual thought (which is a mere feeling) has any meaning, any intellectual value; for this lies not in what is actually thought, but in what this thought may be connected with in representation by subsequent thoughts; so that the meaning of a thought is altogether something virtual (Peirce 1992, 42).

 Secondly, it seems that *Naïve Perceptual Hyperinferentialism might plausibly be charged with irrealism.* For instance,McDowell has influentially criticised inferentialism for neglecting the contribution of a world beyond the mind in delivering so-called “empirical content” to cognition, thereby producing an epistemological “frictionless spinning in the void” (McDowell 1994: 11, 18, 42, 50).[[13]](#footnote-13)Redding makes essentially the same point regarding his blue tie and the distinction between *de re* and *de dicto* locutions. He argues that in assimilating *de re* to *de dicto* belief, naïve inferentialism loses a robust sense that a demonstrable world exists beyond the game of giving and asking for reasons (Redding 2014, 9). Analogously, then, when Peirce claims (above) that “the meaning of a thought is altogether something virtual”, how is he not invoking a tissue of inferences in place of a real world?

 Arguments such as these eventually led me to explore Peirce’s later, more complex, theory of perception in a number of papers (Legg 2014b; 2017; 2018). The next section will summarise some of this work.

**4. Peirce’s 1902-3 Theory: Percept, Perceptual Judgment and Percipuum**

Peirce’s later theory of perception is most fully presented in a manuscript from 1902 known as “Perception and Telepathy”, although other sources exist.[[14]](#footnote-14) Peirce’s thought developed a great deal from the late 1860s to this point. Of particular note is that whereas in Peirce’s early career he sought to follow Kant in founding his philosophical system in categories of logic, by 1902-3, he has begun to explore a distinct prior role for phenomenology, expressed in his three categories of *firstness* (quality), *secondness* (reaction) and *thirdness* (mediation).[[15]](#footnote-15)

 The later theory is built around a distinction between a *percept* and a *perceptual judgment*, which are united in a *percipuum*. I will now briefly explain these three elements. Firstly, the *percept* should be understood as entirely non-cognitive. One might wonder how something entirely non-cognitive could intelligibly convey information about the world. Peirce’s answer is that the percept has insistency. “I am forced to confess that it appears”, he claims (Peirce CP 7.620). In order to so compel his thinking, the percept does not need to fulfil any representational function – it simply “obtrudes”:

[The percept] obtrudes itself upon my gaze; but not as a deputy for anything else, not ‘as’ anything. It simply knocks at the portal of my soul and stands there in the doorway (Peirce CP 7.619).

The percept also cannot fulfil any representational function because of its singularity *–* in our earlier Kantian sense. It is an individual which is perfectly determinate in every respect. (“The percept…is so scrupulously specific that it makes this chair different from every other in the world; or rather, it would do so if it indulged in any comparisons.” Peirce CP 7.633). Peirce explicitly links the percept to his phenomenological categories by noting that it partakes of firstness insofar as it forces us to acknowledge a “positive qualitative content” (Peirce CP 7.623), and it partakes in secondness or reaction due to its obtrusive (“vivid”) impact on us, and insofar as relations of duality can be discerned within it (Peirce CP 7.625)**.**

 Moving on, percepts are understood to causally trigger *perceptual judgments*. This is a completely different animal to the percept. For instance, it possesses subject-predicate structure, which the percept lacks (Peirce CP 7.631). Relatedly, by contrast to the singularity of the percept, the perceptual judgment is to at least some degree general. Notably, though, in the first instance this generality takes a special, ‘pictorial’ or ‘iconic’ form, which Peirce likens to a multiply-exposed photograph:

Let us consider, first, the predicate, ‘yellow’ in the judgment that ‘this chair appears yellow.’ This predicate is not the sensation involved in the percept, because it is general. It does not even refer particularly to this percept but to a sort of composite photograph of all the yellows that have been seen (Peirce CP 7.634).

To return to Peirce’s categories, this pictorial or iconic generality corresponds to firstness because it constitutes a kind of *sui generis* quality or appearance, although in fact it has been formed by distilling a range of relevantly similar previous experiences (Hookway 2002). But this pictorial generality also forms the basis for a nascent thirdness, or conceptual generality – we shall learn more about this below.

 The categorial alignments made so far enable us to see some of Peirce’s semiotics at work in his theory of perception. During this period, he advanced a unique theory of propositional (or more broadly, in his own terminology, *dicisign*) structure, as consisting in an icon which is fused to an index in order to enable *something to be said about something*. Iconic and indexical signs may be broadly understood as ‘pictures’ and ‘pointers’, respectively:

[I]t has been found that there are three kinds of signs which are all indispensable in all reasoning; the first is the diagrammatic sign or icon, which exhibits a similarity or analogy to the subject of discourse; the second is the index, which like a pronoun demonstrative or relative, forces the attention to the particular object intended without describing it (Peirce CP 1.369).

We can observe this “particular double structure” (Stjernfelt 2014; 2015; 2016) of icon fused to index in Peirce’s discussion of perceiving the yellow chair above. He claims that the perceptual judgment, “This chair is yellow”, indexes the percept *de re* (a dimension of meaning whose importance we saw Redding noting) through the demonstrative “this chair”, while at the same time affixing an icon of yellowness to it. Thus we can say that the percept in some sense ‘lies in’ the perceptual judgment, but only at the end of an index or pure pointer. We might understand this as a Peircean ‘language-entry move’:

the perceptual judgment which I have translated into "that chair is yellow" would be more accurately represented thus: “☞ is yellow," a pointing index-finger taking the place of the subject (Peirce CP 7.645).

When we examine any given perception purely synchronically, all we see is that a percept causally triggers a perceptual judgment, whilst not providing any of its content because, crucially, the perceptual judgment *indexes* rather than *describing or copying* the percept.[[16]](#footnote-16) But across time, a set of sufficiently similar perceptual judgments may be understood to *interpret* a set of sufficiently similar percepts, through the repetition and growth of the perceptual judgments themselves into a set of stable *habits*, such as habits of identifying objects as ‘having’ certain colours. Peirce’s evolutionary semiotics then explains how these habits are forced to continually grow and develop, under the constant dual pressure of both lived experience and the corrections of a language-using community, until the end-result is a full-blown scheme of general concepts. I previously described this process as follows:

…over time our constant *causal triggers* from percept to perceptual judgment gradually become enmeshed in an ever more smooth and predictable network of *habits of association* between certain kinds of percepts and certain kinds of perceptual judgments. How this occurs is best explicated in the broader framework of Peirce’s pragmatist theory of meaning, whereby belief consists in nothing but habits of expecting certain experiences in certain circumstances, and acting to bring about desired future experiences in that light. (Legg 2018, 129).

 This process of perceptual judgments interpreting percepts by means of diachronic habits of judging – is what Peirce calls the *percipuum* (Peirce CP 7.643). We can now account for this crucial third term in Peirce’s theory of perception within his semiotic theory, as follows. When the secondness of an index and the firstness of an icon fuse into a dicisign, *this fusion itself creates that thirdness known as a symbol*. This symbolic signification is what enables a dicisign or Peircean proposition to transmit *general information*, and as such, to enter the space of reasons. Such is the distinctive role of symbols, as opposed to indices whose role is to force an existential connection with actual worldly objects, and icons which Peirce at times enigmatically refers to as a ‘pure dream’ (Legg 2008b, 226). Returning to our example of perceiving “That chair is yellow”, we may note that the generality of the ‘yellowness’ of the initially affixed icon, that when viewed synchronically counts as merely pictorial, transmutes into the properly conceptual, symbolic generality of the predicate ‘…is yellow’ precisely through the diachronic repetition of sufficiently similar judgments of yellowness across time and space. Thus when Peirce defines the symbol (alongside the definition of icons and indices cited above), he explicitly states that it *consists in nothing but a* *habit of associating ideas*:

…[the symbol] is the general name or description which signifies its object by means of an association of ideas or habitual connection between the name and the character signified (Peirce CP 1.369).

The next section will explicate more of the cognitive architecture which Peirce sees as underlying this crucial identification.

**4. Cognitive Underpinnings of Symbol as Habit**

We’ve just seen Peirce state that the habit which creates a symbol consists entirely in an *association of ideas*. In the case of judgments (including perceptual judgments), this takes the form of associating relevantly similar icons to relevantly similar indices across time. Some valuable further investigation into this process is provided in Aaron Massecar’s paper “Peirce’s Interesting Associations”. Massecar notes that, for Peirce, association is the only power that exists within the intellect (Massecar 2012, 193), but it may be analysed into still more basic components. First comes *interest*, then *attention*, and it is attention that actually drives and shapes the process of idea-association that births habits of further like associations (Massecar 2012, 194).

 Massecar also notes that the process of attention may be understood logically on the model of a *hypothesis* which reduces a certain manifold of experience to unity. A simple example of such a hypothesis would be, “The world contains things which are yellow”. Such a hypothesis creates a habit of noticing yellow things when they appear and, by predicating yellowness of them, associating them with other things which appear to be yellow. In this way, the attention may be understood to subsume a disparate variety of *feelings* under a single *general sign* which should be understood as an active “[rule] for organising and interpreting feelings as representations” (Massecar 2012, 194). This subsumption process is how the abstraction of a general concept from experience actually happens, and how it may be understood to be not a ‘given’ but a ‘taken’ – noted in our introduction as a desideratum in philosophy of perception. Massecar also explains that unpicking this cognitive architecture shows how, although at one level of analysis the many varied instantiations of any general concept are understood to be united by *resemblance*, at a deeper level, resemblance itself can be analysed simply as a brute inner compulsion to associate**:**

To say that two things are alike does not mean that two things have an affinity for one another; rather, to say that two things are alike is to say that we have connected them because of some compulsion to do so (Massecar 2012, 198).

In other words, Peirce ultimately understands that all symbolic thought bottoms out in an “unmediated association between feelings”. In fact, this is exactly what one should expect from ‘unthinking’ habit:

The firstness of a particular experience can call upon the firstness of another experience without mediation or otherness being present. In fact, it is specifically this process of one feeling calling upon another feeling without mediation that constitutes a habit—a habitual connection exists where there is no thinking required (Massecar 2012, 198).

Once established, these associations are understood to spread through cognition (both individual and communal) according to Peirce’s Law of Mind, which is essentially a law of habit-taking. (“Now the generalizing tendency is the great law of mind, the law of association, the law of habit taking”. Peirce CP 7.515, c.1898). It should also be noted that symbols *qua* habits do not merely repeat in more or less identical fashion – rather, they *grow* in a literal evolutionary sense (Nöth 2010; 2014). Thus, for instance, as colour concepts have been repeatedly used by humans, they have been significantly refined and developed. For example, in decorating my kitchen I might endeavour to replicate the “gratitude” which Van Gogh claimed to capture in the three yellow shades he used for his famous sunflower paintings.

 We have noted that once the symbolic level of signification is reached, we achieve generality in the usual ‘philosophical’ or conceptual sense. This means that our perception of the chair as yellow, despite current philosophical intuitions about the primitiveness of ‘qualia’, is not a *de novo* affair. For instance, the fact that we choose to group a dark gold object with a pale lemon one as ‘the same colour’ – rather than with a mustard brown one which is objectively closer on the colour wheel – betrays the presence of human conceptual lineaments entrained in us through education. Properly understanding this entrainment, as I would urge that Peirce shows us how to do, has crucial philosophical implications. One of the most important, in my view, is thatthe supposedly mysterious passage ‘into the space of reasons’ from the causal order – and the corresponding jump in creaturely intelligence from “sentience” to “sapience” (Brandom 2000, 157-8; 1994, 4-6;) – might finally cease to constitute the giant inexplicable gulf that it has across the modern era, along with its attendant mind-body puzzles and anxieties, and its so-called ‘problem of intentionality’ (Nöth 2010).

 In place of mind-bending philosophical mystery, we now have a highly original account of how the unique ‘pictorial’ generality of firstness scaffolds the development of the unique ‘conceptual’ generality of thirdness.[[17]](#footnote-17)Interestingly – particularly given Brandom’s explicit use of Kant to reinforce the reasons-causes schism (Brandom 2006) – Peirce saw his own schism-bridging account as already nascent in Kant’s notion of *schemata*, in the way that a Kantian schema lies Janus-faced between pictorial and conceptual – immediate and predicable – meaning:

…the Iconic Diagram and its Initial Symbolic Interpretant taken together constitute what we shall not too much wrench Kant’s term in calling a Schema, which is on the one side an object capable of being observed, while on the other side it is a general.[[18]](#footnote-18)

 To sum up, then, at first glance this later, more complex, Peircean theory of perception might seem much more satisfactory than Naïve Perceptual Hyperinferentialism. By newly theorising a non-cognitive percept, and relating it to a perceptual judgment which lies inside the space of reasons, the theory might be argued to incorporate an a-rational, phenomenological component to perception, and thereby do proper justice to experience, as philosophers such as Redding require. We might put the point in more Brandomian terms by stating that Peirce’s later theory of perception incorporates not merely concepts and their inferential articulation, but intuitions too. So may we conclude that Peirce has now moved beyond *hyperinferentialism*? This will prove a deeper question than might initially appear. It will be addressed below, but first I will explore some *prima facie* criticism of this later theory by Mats Bergman.

**5. Bergman’s Criticisms of Peirce’s 1902-3 Theory of Perception**

In an exceptionally rich discussion of representationalism and relationism (which he calls *representationism* and *presentationism*) in Peirce’s philosophy of perception, Bergman argues that Peirce slides between these views somewhat incoherently across his career (Bergman 2007).First Bergman argues that in Peirce’s early ‘anti-Cartesian’ period, he clearly held *representationism*, for in this period, Peirce’s hyperinferentialism prevented him from positing direct reference to singular objects. As we saw earlier, Peirce then held that there is no ‘first cognition’ of any external object, only an infinitely dense series of inferences which tend towards an ideal limit of direct engagement. Thus, in this early view, it is *singularity* that should be regarded as ideal, in direct contrast to Redding’s earlier characterisation of it as the key to concrete actuality. (“The singular object, which is construed as the ideal boundary of cognition, is denied immediate reality.” Bergman 2007, 61). In concert with the earlier critique of Naïve Perceptual Hyperinferentialism as irrealist, Bergman concludes that Peirce’s entire early philosophy constitutes a problematic “semiotic idealism”, in which “all realities are nominal, significative, and cognitive (W 2:181 [1868])” (Bergman 2007, 62), which fits with Peirce’s understanding of truth as an ‘idealised’ final end of inquiry.

 Bergman claims this view is problematic because of its profound lack of real secondness – “the direct clash between ego and non-ego”(Bergman 2007, 64).He argues (as have many other scholars) that Peirce later amends this lack, particularly from the mid-1880s, and consequently, by the crucial 1902-3 period, Peirce was closer to *presentationism*.This was particularly evident in a new countenancing of immediate perception (Bergman 2007, 70). At this point, Bergman argues, Peircean percepts should be understood as “objects that are not signs”. Semiotic idealism is thereby repudiated, along with hyperinferentialism:

…I take presentationism to assert that there is an element of bruteness in experience that cannot be known in the proper sense of the word; it must be experienced, and any description of such experience will be false of it. Thus, the presentationist position is nothing more or less than an affirmation of the independence of secondness and a rejection of full-scale inferentialism and intellectualism (Bergman 2007, 82).

But Bergman suggests that Peirce never successfully worked out a consistent version of the new view, which can be seen in a lingering ambivalence in his discussion of the percept – whether it is “of the nature of a sign”, or should be considered identical to the perceived thing itself. Therefore:

Only two paths are possible: either we contend that Peirce’s assertion that the percept is not a sign is confused, or else we must explain how the percept can be said to be both semiotic and non-semiotic (Bergman 2007, 71).

Bergman notes some late quotes where Peirce apparently says that the percept is semiotic after all. Particularly notable is this passage, where Peirce appears to claim that perception consists in ‘representations all the way down’:

…the object of an ordinary proposition is [a] generalization from a group of perceptual facts. It represents those facts. These perceptual facts are themselves abstract representatives, through we know not precisely what intermediaries, of the percepts themselves; and these are themselves viewed, and are,—if the judgment has any truth,—representations, primarily of impressions of sense, ultimately of a dark underlying something, which cannot be specified without its manifesting itself as a sign of something below. There is, we think, and reasonably think, a limit to this, an ultimate reality like a zero of temperature. But in the nature of things, it can only be approached, it can only be represented…(MS 599:36–37 [c. 1902], cited in Bergman 2007, 76).

Bergman deprecates Peirce’s invocation here of a “dark underlying something”, claiming that the percept is more adequately characterised as “the object as it is directly experienced, as in an outward clash” (Bergman 2007, 78).

 To sum up, then, Bergman diagnoses Peirce as holding an early, hyperinferentialist theory of perception which is consistent but problematically idealistic, then shifting to a later, non-hyperinferentialist theory which mitigates the idealism at the cost of theoretical inconsistency. I will now argue that this package can be made more coherent than Bergman suggests, because both the spectre of idealism, and the apparent incoherence he attributes to Peirce’s account of the percept, arise from taking an overly *synchronic* perspective.

**6. The Temporally Structured Percipuum**

Peirce’s triadic semiotics allows for simultaneous presentation *and* representation in perception. To fully understand how this works, we need to study how Peirce theorises a certain temporal structure within perception.

 The presentation side of the equation consists in the percept. Peirce writes:

We know nothing about the percept…excepting that we feel the blow of it, the reaction of it against us, and we see the contents of it arranged into an object…(Peirce CP 7.643).

But the percept triggers the perceptual judgment which, in its affixing of an icon to the percept, may be understood to represent the percept:

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” (Peirce CP 7.643; c.f. also CP 2.141, c 1902).

So far we remain in the synchronic perspective, in which the perceptual judgment simply consists in an icon ‘unthinkingly’ associated to an index which has causally triggered it. At this point, we might seem to simply be theorising ‘a bit of both’ – some presentation and some representation – juxtaposed, as it were, in the percipuum. As such, there might appear to be little difference between this later Peircean theory of perception and Brandom’s strong inferentialism, whereby certain primitive sensory responses are understood to intertwine with conceptual inferential articulation, like threads in a two-ply yarn.However, in Peirce’s view lies significant further epistemological depth. We have already noted that from the diachronic perspective, in the context of stable cognitive habits, the Peircean perceptual judgment can be understood to *interpret* its percept. In fact, this happens in such a manner that the percipuum *unifies percept and perceptual judgment into* *one cognizable thing*.

 This unification is importantly different than Brandom’s mere juxtaposition. It is enabled by a kind of temporal-epistemic structure within the perceptual moment itself, which is analysable as a kind of “moving temporal window”[[19]](#footnote-19), within which each new perception enters at the “front end” in the form of an anticipation (which Peirce calls the *antecipuum*), just as the most recent falls back into memory (which Peirce calls the *ponecipuum*).[[20]](#footnote-20) For example, imagine that I perceive a ball flying through the air. My perception of the ball’s dynamic motion consists in simultaneous: i) prediction of where the ball is heading next (antecipuum), ii) seeing where it is now, and iii) recording where it has just been (ponecipuum) (Peirce CP 7.648).All of this prediction happening alongside direct observation renders perceptual judgments subject to constant just-in-time *correction,* as the predictions are or are not satisfied. Sometimes such correction merely reflects that the things perceived are themselves changing. But over and above this, a kind of *sense-making* is continually taking place within the perceptual moment, which may equally step in and correct the perceptual judgment. Thus, for instance, I might see someone in the distance carrying an object to which my perceptual judgment affixes the iconic schema ‘football’. However I then see the object thrown, and its motion is unexpected, contradicting the ‘composite photograph’ which constitutes my sedimented memory of perceiving footballs fly through the air. I do recall that pattern of motion elsewhere, though. Upon bringing *that* schema to mind, I realise that the object is a frisbee. Henceforth I affix that iconic schema to the object, and my perceptual judgment has changed.

 Here we see how the percept – understood as incoming sensory impressions possessed of both qualitative character and insistency – can correct the perceptual judgment, thereby crystallising a newly unified object in the perceiver’s mind. All of this brings perception out of the classical empiricist realm of brute impression, and into the rationalist realm of sense-making, so that we can now see how perception is not a separate event – a ‘language-entry move’ – but rather is continuous with the rest of cognition. But Peirce astutely points out that perceptual sense-making can also proceed in the reverse direction; *perceptual judgments may equally correct percepts*. He references the well-known example of sitting in a stationary train looking out the window at a train that begins moving, and somehow perceiving that his own train is moving, even though he knows that it is not. He notes how, although his perception of his train’s (apparent) motion might seem entirely sensational, the addition of new information, in the form of a perceptual judgment that the wheels on the train next door are turning, somehow manages to alter the very ‘qualia’, as his mind rationally re-interprets the whole scene:

…that moving train that appears stationary will not move however one may try to force it to do so. Yet if one only looks down and watches the wheels turn, in a very few seconds it will seem to start up (Peirce CP 7.647).

But isn’t it problematic to imagine that we might ‘correct our own percepts’ rationally? Isn’t this abolishing the prospect of a fully mind-independent world, and playing into the hands of semiotic idealism again? Here I believe that it is important to draw a distinction (however apparently hair-splitting) between the *percept* and the *thing perceived*. Although both are ‘non-cognitive, they are not identical; thus, correcting a percept should not be understood to change the thing perceived. Contra Bergman, the percept does not lie ‘inside’ perception, although, as we saw in our earlier discussion of the role of the index in perceptual judgment, neither does it lie entirely outside. Rather, *by means of the percept, the thing perceived ‘hovers on the boundary’ of cognition*. This is in fact just how we should expect perception to function (Hausman 1990). As Peirce remarked, we “feel the blow of” the percept. Although this feeling, due to its insistency, cannot be denied, there is much scope for it to be *reinterpreted* in the context of the entirety of our thinking and feeling, only part of which is spotlighted by our attention at any given time. As such, I submit that the “dark underlying something” descriptor for the percept, which Bergman so deprecated, is a correct description.

 If we return now to the concepts of presentation and representation (and their respective ‘-isms’ in philosophy of perception), we may observe that in Peirce’s theory of perception, presentation does not simply ‘sit alongside’ representation (a la Brandom), but the two are constantly engaged in a process of *mutual correction*, driven by an overall sense-making that is present in the perceptual moment, which unifies them into an intelligible object. But this sense-making process is essentially diachronic, as it draws on the entirety of established habits of judging, and we must hope that over timeit will pull our perceptions ever-closer to reality.

 This new understanding offers another answer to Bergman’s charge of semiotic idealism. In order to avoid the charge, Bergman required that the percept not be “of the nature of a sign” – but what exactly does that mean? If we were to try to understand the percept as a kind of symbol, that would indeed likely produce an epistemic ‘frictionless spinning in the void’. But what if the percept lies at the end of an index? What if it serves as an icon? We might respond that it doesn’t matter if the percept is of the nature of a sign, if that sign participates in a stable feedback loop with some “external permanency…on which our thinking has no effect”, as Peirce elegantly framed the realism question in his early paper “The Fixation of Belief” (Peirce CP 5.384, 1877). The only option Bergman considered other than the percept being of the nature of a sign was the percept being identical with the object perceived. But in that case, we have no account of how we can apparently correct the percept, as noted above. Bergman arguably falls into a false dichotomy here.

**7. Conclusions**

Does Peirce’s mature pragmatist philosophy of perception have an “experience problem”? I submit that it does not. A non-cognitive element is present in the form of the percept, along with a perceptual judgment which lies in the space of reasons, and a principled account of how the two combine and even manage to correct one another. In this way, Peirce’s triadic semiotics allows him to theorise simultaneous presentation and representation in perception, without self-contradiction.

 Habit is crucial to this account, insofar as Peirce understands propositional content to consist in symbolic signs which are identified with general habits of associating certain icons with certain indices.By means of such habits, and the way they ‘sediment’ iconic schemata in working memory, a perceiver’s entire conceptual apparatus is brought to any perceptual moment. This process’ essentially diachronic nature arguably offers a Peircean answer to Sellars’ “Myth of the Given”, which Sellars himself described as an issue with philosophers “tak[ing] givennness to be a fact that presupposes no learning, no forming of associations, no setting up of stimulus-response connections” (Sellars 1997, §6, 20).[[21]](#footnote-21) Of course, Brandom also claims to resolve the Myth of the Given, by means of his inferentialism.But by flinching at hyperinferentialism, and falling back on merely ‘strong’ inferentialism he, asLevine remarks, seeks to “epistemically neutralise sense-impressions”. Although Brandom criticises hyper-inferentialism for its supposed ‘narrow’ reach across merely intra-linguistic inference, and praises his own semantics for also including language-entry and language-exit moves, he theorises both kinds of move as non-inferential. But we have shown how a Peircean hyperinferentialism does include language entry-moves, *qua* indices to percepts. Moreover, the Peircean theory gives these non-cognitive inputs a real epistemic role in both constructing and correcting perceptual judgments, unlike Brandom’s RDRD, which appear to merely sit alongside inferential articulation.[[22]](#footnote-22) In this way we might observe that, ironically, Brandom’s is the ‘narrower’ inferentialism.

Accordingly, we can go further and note that hyperinferentialism is not an impediment to recognising genuine secondness, as Bergman claimed – *but is precisely required by it*.Pace Bergman’s request for percepts to consist in “objects that are not signs”, secondness cannot lie inside cognition; cognition ‘would not know what to do with it’.In other words, secondness cannot be represented symbolically, by definition, insofar as a symbol consists in a stable habit. So if secondness is to have a real epistemic role to play, it must somehow hover at the boundary of cognition and impede its flow of inferences in some noticeable way. In other words, it must ‘obtrude’. This is precisely the role with which Peirce endows the percept. But this insight was arguably already present in Peirce’s early anti-Cartesian papers, for instance in his analogy of the boundary between a descending triangle being in and out of the water as an ideal limit which is essentially unrepresentable, and where he theorised sensation as a “hypothesis” which is substituted for a “complex predicate” (through our own powers of attention, as Massecar noted). As such, I would urge that the difference between Peirce’s early and late theories of perception has been overstated. May I suggest that the name *Mature Perceptual Hyperinferentialism* is available for the later theory, for those who appreciate that Peircean neologisms never win any baby contests.

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1. Here I mainly discuss Robert Brandom. Elsewhere I have traced some implications of debates explored here for the work of Wilfrid Sellars and John McDowell (Legg 2017; 2018). [↑](#footnote-ref-1)
2. For recent defenses of representationalism, see (Harman 1990, Dretske 2003). For recent defences of relationism, see (Martin 2004, Travis 2004, Brewer 2007). [↑](#footnote-ref-2)
3. Husserl is an honorable exception, in his discussion of “retention” and “protention” (Husserl 2014). It would appear that future comparative work between him and Peirce on these matters could be fruitful. [↑](#footnote-ref-3)
4. A noteworthy example is the 2016 edited collection: *Consensus on Peirce’s Concept of Habit: Before and Beyond Consciousness*, ed.s D. West and M. Anderson, Cham, Switzerland: Springer. [↑](#footnote-ref-4)
5. For example, in the edited collection on habit in Peirce cited above, there is no entry for perception in the index, though see (Wilson 2017). [↑](#footnote-ref-5)
6. For instance, see Hume, “When I shut my eyes and think of my chamber, the ideas I form are exact representations of the impressions I felt; nor is there any circumstance of the one, which is not to be found in the other” (Hume 1739-40/1978, 3 – section 1, I, i). [↑](#footnote-ref-6)
7. “Questions Concerning Certain Faculties Claimed for Man”, ‘‘Some Consequences of Four Incapacities’’, and “Grounds of Validity of the Laws of Logic: Further Consequences of Four Incapacities.” From these titles, one can see how the papers form a connected series. [↑](#footnote-ref-7)
8. by which Peirce apparently meant ‘man’ in the sense of ‘human’, nevertheless it is worth interjecting the remark: (sic). [↑](#footnote-ref-8)
9. an issue famously adumbrated in the analytic philosophical tradition in (Jackson 1982). [↑](#footnote-ref-9)
10. Others have asked this. See for instance, “While in action (and perception) normatively governed content and causal response dispositions are somehow coupled, there is a gulf between them that cannot be bridged” (Levine 2012, 129). See also (Levine 2015; McDowell 1997; 2005). [↑](#footnote-ref-10)
11. See also (Bergman 2007, 60-61). [↑](#footnote-ref-11)
12. See also (Koopman 2007), (Levine 2012). [↑](#footnote-ref-12)
13. It’s worth noting the way in which McDowell here assumes that to gain cognitive purport beyond one’s individual mind, one has to go beyond inference, as only there lies “the empirical”. This assumption will be critiqued below. [↑](#footnote-ref-13)
14. For instance, Peirce’s 1903 Harvard public lecture series, reprinted in (Peirce 1997). [↑](#footnote-ref-14)
15. Discussion of the three most basic categories occurs repeatedly in Peirce’s texts. A particularly well-worked out presentation from the current period of discussion (1903) is (Peirce 1998, pages 147, 160 and 271 for Firstness, Secondness and Thirdness respectively). [↑](#footnote-ref-15)
16. I discuss in detail this divergence from classical empiricism, and its philosophical implications, in (Legg 2014b; 2017; 2018). [↑](#footnote-ref-16)
17. Such an account is arguably not entirely unknown elsewhere, for instance in the work of George Lakoff and Mark Johnson on “embodied cognitive structures” that was taken as inspiration by Francisco Varela to develop a so-called *sensorimotor enactivist* account of cognition (Varela 1999, 15). But that is a story for another time. [↑](#footnote-ref-17)
18. The manuscript is one of the drafts for Peirce’s 1906 paper “Prolegomena to an Apology for Pragmaticism”. It is cited in (Stjernfelt 2000, 362). For insightful further discussion of this passage, see the Stjernfelt paper, and also (Rosenthal 1988). For a valuable overall analysis of Peirce’s use of Kantian schemata in his philosophy, see (Hookway 2002). [↑](#footnote-ref-18)
19. This is not a physical, metric structure so much as an analytical one, as pointed out by Sandra Rosenthal (Rosenthal 1994, 53). [↑](#footnote-ref-19)
20. I discussed this temporal structure further in (Legg 2014b) and (Legg 2017). My understanding owes a great deal to (Rosenthal 1994; 1988). [↑](#footnote-ref-20)
21. I discuss this connection further in (Legg 2018, 131). [↑](#footnote-ref-21)
22. The status of language-exit moves in Peirce’s hyperinferentialism is another really interesting question, which this paper has insufficient room to discuss, but for an extended argument that under pragmatism, action does not in fact represent a ‘language-exit’, see (Legg and Black 2020). [↑](#footnote-ref-22)