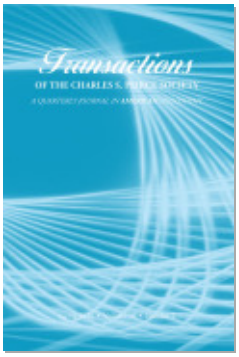
What is Wrong with Intuitions?: An Assessment of a Peircean Criticism of Kant



Gabriele Gava

Transactions of the Charles S. Peirce Society: A Quarterly Journal in American Philosophy, Volume 50, Number 3, Summer 2014, pp. 340-359 (Article)

Published by Indiana University Press

What is Wrong with Intuitions? An Assessment of a Peircean Criticism of Kant

Gabriele Gava[1]

Abstract
In his 1868 'Questions Concerning Certain Faculties Claimed for Man' and 'Some Consequences of Four Incapacities' Peirce famously rejected the possibility of having intuitions. He defined an intuition as 'a cognition not determined by a previous cognition of the same object' or as a 'premiss not itself a conclusion.' The rejection of intuitive knowledge can thus be seen as an expression of Peirce's enduring conviction that our knowledge is by nature inferential. Even though the main polemical target of these papers is surely Descartes, Peirce specifies in a footnote that he nearly uses the word intuitive 'as the opposite of discursive cognition,' and that this 'is also nearly the sense in which Kant uses it.' Peirce's position seems thus to be quite radical in his rejection of the Kantian distinction between intuitive and discursive cognition, between intuitions and concepts. I show that Peirce, despite this opposition to the Kantian distinction in his early writings, retained and developed in a totally new way some of its essential features in his mature semiotic. In fact, Peirce's famous distinction between icons, indices, and symbols can be read as having functions similar to those reserved by Kant for the distinction between intuitions and concepts. In this framework, the tasks that Kant attributed to intuitions are performed by indices and icons.

Keywords: Immanuel Kant, Charles S. Peirce, intuition, index, icon, reference

1. Introduction

Among Peirce scholars it is normally assumed that Peirce definitively rejected the Kantian distinction between concepts and

intuitions, between discursive and sensible cognition. In this respect, Kelly Parker paradigmatically stresses that 'Peirce agreed with Kant that all phenomena are representations, but denied that we have any intuitions' (Parker 1998: 19). According to this widespread reading, Peirce's rejection of the distinction between concepts and intuitions is part of a broader attitude that Peirce held against Kant's supposed obsession with drawing sharp distinctions, as for example the distinction between theoretical and practical cognition.[2] It is so argued that these sharp distinctions are incompatible with Peirce's insistence on continuity as a general characteristic of the world and of our cognition.[3] It is my view that this common interpretation displays some prejudices that prevent a proper understanding of the extent of Peirce's criticism of Kant. If we consider the functions that Peirce's distinction between symbols, icons and indices plays in his mature philosophy, we would discover that Peirce considered the Kantian distinction between intuitions and concepts as introducing some relevant insights, even though Kant was not able to give an accurate account of the issue, due to his flawed logic.

Of course we should not forget that Peirce did present a criticism of intuitions. Peirce's longer and more detailed attack is contained in the so-called 'cognition series.' Between 1868 and 1869 Peirce published in the *Journal of Speculative Philosophy* a series of three papers dedicated to the study of human cognition. These papers were respectively entitled 'Questions Concerning Certain Faculties Claimed for Man' (W 2:193–211, hereafter 'Questions'),[4] 'Some Consequences of Four Incapacities' (W 2:211–42, hereafter 'Consequences'), and 'Grounds of Validity of the Laws of Logic' (W 2:242–72). Peirce dedicates the first two articles to the refutation of a Cartesian account of cognition, a refutation that resulted in four denials: '1. we have no power of Introspection . . ., 2. we have no power of Intuition . . ., 3. we have no power of thinking without signs 4. we have no conception of the absolutely incognizable' (W 2:213).

Even though the target of these denials is certainly Descartes, Peirce thought that at least two of them had consequences for a Kantian perspective in philosophy. The denials in question are the second and the fourth—that is, the denials that we have a power of intuition and that we possess a conception of the absolutely incognizable. Peirce thought that the thesis that we have intuitions and the assumption of an incognizable object were strongly interrelated in Kant. The reason for this was that Peirce read Kant as stressing that the thing-in-itself is the incognizable cause of our intuitions (W 2:193–4, 238–9).[5] That being said, in this paper I will focus on the second and the third denial, and on their relationship with one another.

Peirce's criticism of intuitions in 'Questions' and 'Consequences' are not limited to Descartes' or Kant's views,[6] but Kant seems certainly one of the main targets. Accordingly, in a footnote to 'Questions' Peirce

stresses that he nearly uses the term intuition 'as the opposite of discursive cognition' and that 'this is also nearly the sense in which Kant uses it' (W 2:193n). In this respect, Peirce's criticisms of Kant must be interpreted as addressing the idea that we can have in our cognition some content that is not the result of inferences and that is not determined by previous cognitions.[7] Accordingly, Peirce will later stress that a perceptual judgment, that is the judgment that provides the most basic content in our cognition, is 'plainly nothing but the extremest case of Abductive Judgment' (EP 2:229). The first data in our perception are thus the result of inferential and synthetic procedures.

To put the question in Kantian terminology, it seems that Peirce is stressing against Kant that we cannot have sensible cognitions that are not somehow dependent on the contribution of conceptual elements. Accordingly, in a fragment written in 1885 Peirce writes that Kant "drew too hard a line between the operations of observation and of ratiocination. He allows himself to fall into the habit of thinking that the latter only begins after the former is complete' (W 5:258). The independence of intuitions from concepts is still a matter of discussion among Kant scholars and there are many that would deny that this is actually Kant's point of view.[8]

However, I will not address the question whether Peirce's interpretation of the relationship between intuitions and concepts in Kant is accurate or not. I will remain neutral on whether Kant considered sensible cognition dependent or independent from conceptual cognition. Rather I will point out how the same Peirce, later in his life, attributed to indices and icons some functions that can be considered in continuity with some features of intuitions according to Kant. I will begin by presenting in section 2 the semiotic presuppositions that lie at the basis of 'Questions' and 'Consequences.' Then in section 3 I will introduce Peirce's rejection of intuition in 'Questions.' In section 4 I will illustrate Kant's account of intuitions and, to finish, section 5 and 6 will be dedicated to the relationships and similarities between Kantian intuitions and, respectively, indices and icons.

2. Peirce's Semiotic in 'Questions' and 'Consequences'

Peirce, at the beginning of 'Questions,' defines intuitions as follows:

> Throughout this paper, the term *intuition* will be taken as signifying a cognition not determined by a previous cognition of the same object, and therefore so determined by something out of the consciousness. . . . *Intuition* here will be nearly the same as 'premise not itself a conclusion' (W 2:193).[9]

Intuitions are so mental representations that gain their representational content by means of their direct relationship with the object they represent. In 1868, Peirce's rejection of this kind of representation was based

on his semiotic account of thought. The third denial we introduced in the previous section stated that 'we have no power of thinking without signs' (W 2:213), and at this time for Peirce a sign was able to represent an object only by interpreting a previous sign which represented the same object.

> [A]s the thought is determined by a previous thought of the same object, it only refers to the thing through denoting this previous thought. Let us suppose, for example, that Toussaint is thought of, and first thought of as a *Negro*, but not distinctly as a man. If this distinctness is afterward added, it is through the thought that a *Negro* is a *man*; that is to say, the subsequent thought, *man*, refers to the outward thing by being predicated of that previous thought, *Negro*, which has been had of that thing. . . . And so in every case the subsequent thought denotes what was thought in the previous thought (W 2:224).

Here Peirce presents what we might call an inferentialist account of thought and sign processes: every thought or sign representing an object results from a process of thinking involving at least another sign referring to the same object. But here Peirce is not only saying that the content of my representation of an object depends on other signs representing that object, but he also stresses that my capacity to *denote* an object must be determined by previous thoughts or signs of the same object. Peirce seems to derive this conclusion from an assumption of his early semiotic: the idea that every sign, in order to be a sign, must be the interpretant of a previous sign and must be interpreted by a following sign (see Short 2007a: 34). In 'Questions' Peirce accordingly states that '[t]here is no exception, therefore, to the law that every thought-sign is translated or interpreted in a subsequent one' (W 2:224).

Here a little clarification is required. From early on Peirce attributes to signs a triadic structure. In his later formulations he will describe this triadic structure by saying that a sign relates an object with an interpretant, by virtue of a representational element it possesses (this representational element is sometimes called the ground, cf. CP 2:228). In 1868 Peirce considers the interpretant of a sign another sign of the same object. Thus, even though Peirce does not use this exact terminology in 'Questions' and 'Consequences,' he seems to be proposing an argument of this kind: since every sign needs an interpretant to be a sign (this follows from the necessary triadic structure of a sign) and every interpretant is a sign, then, there is a continuous process of sign interpretation with no final end. In other words we cannot have an interpretant which, being a sign, is not also interpreted by another sign.[10] He seems then to add the further premise that every sign is an interpretant of a previous sign and to conclude that no sign can be first of the series, since in that case it would not be also an interpretant. This

seems to be the kind of reasoning that lies at the basis of Peirce's claim that denotative references to objects must rest on previous signs of the same object.[11] Peirce's denial of intuitions in 'Questions' and 'Consequences' follows directly from this account of semiotic processes. Intuitions would be signs that are not, at the same time, interpretants of previous signs.

But why does Peirce think that a sign must be an interpretant of a previous sign? In 1868 Peirce thought that every sign was general, meaning by that that it could not determine its object in every respect. The fact that the sign is indeterminate in some respect shows that it is the result of processes involving abstraction and inferences, or at least Peirce so thought. We consider the object only in a certain respect and we attribute to it some characters as a result of reasoning of which we might not be aware. This seems to be the kind of reasoning that lies at the basis of Peirce's idea that every sign is also an interpretant of a previous sign.

Peirce thought that the rejection of intuition directly followed from the application of this account of signs to cognition. We can only have cognitions in signs. Moreover, we cannot but represent objects by means of signs. From these premises Peirce draws two consequences. The first consequence is that we cannot have cognitions that are not general. Even visual perception, which seems to be the best candidate for determinate cognition, is not at all completely determinate according to Peirce. On the contrary, it is necessarily indeterminate in some respects.[12] Accordingly, in a manuscript written slightly before 'Questions' he writes: 'every cognition we are in possession of is a judgment both whose subject and predicate are general terms' (W 2:180, 1868). Since intuitions are described as completely determinate cognitions (think for example at the empiricist account of impressions, which was surely a target of Peirce's paper), then we cannot have any intuition. The second consequence is that completely determinate objects do not exist. This follows from the fact that we cannot have a conception of the completely incognizable, (W 2:208–9, 238–9) and since we cannot cognize individuals, that is completely determinate objects, then individuals cannot exist (W 2: 233, cf. W3: 235, 1877).[13]

I have thus briefly sketched the semiotic theory that lay at the basis of Peirce's rejection of intuitions in 1868. I will now introduce the arguments against intuitions that Peirce presented in 'Questions.'

3. Peirce's Rejection of Intuitions in 'Questions'

Besides the semiotic reasons just listed, Peirce presents three arguments for the rejection of intuitions in 'Questions.' He argues that we have strong reasons to reject that: 1) we have an intuitive power of distinguishing between intuitions and other cognitions (W 2:193–200), 2) we have an intuitive self-knowledge (W 2:200–4), and 3) we have

an intuitive capacity of distinguishing between the subjective elements of different cognitions (W 2:204–5).

To introduce some reasons to doubt the first claim, Peirce relies on a variety of empirical examples, which show that many cognitions which we consider immediate perceptions of external objects are in fact results of inferential processes. One example that Peirce uses concerns the blind spot on the retina. Peirce argues that it is experimentally verifiable (even by a simple experiment anybody could perform) that there is a blind spot in our visual field. Thus, even though we regard the sight of a continuous space as an immediate cognition, it is instead a result of inference (W 2:197). Peirce's argument here seems to be basically the following: if there are many instances of cognition which we think we can intuitively recognize as intuitions, but in fact they result from inferences, then we have strong reasons to doubt that we can intuitively distinguish intuitive cognitions from others.

Even though we cannot use our strong feeling that a cognition is intuitive as a basis to claim it is actually so, there are some cognitions that we hardly regard as based on inferential processes. These cognitions are for example our self-consciousness and our capacity to distinguish between dreams and experiences, or between beliefs and conceptions. These are respectively the second and the third claim on intuitions that Peirce challenges in 'Questions.' He disputes the first claim by arguing that young children do not seem to possess self-consciousness and they appear to form a conception of the self by inference from the experience of ignorance and error (W 2:203). By contrast, the need of a capacity to directly intuit if a cognition is a dream, an experience, or an image is rejected by means of an appeal to the characters of the cognitions themselves. Since dreams, experiences and products of the imagination are evidently different, we do not need an intuitive power to distinguish among them (W 2:204–5).[14]

These considerations gave Peirce another reason to sustain what was implied by his 1868 semiotic: there is no cognition not determined by a previous cognition, or, to put it in semiotic terms, there is no sign that is not an interpretant of a previous sign. The argument based on the rejection of intuitions runs as follow: since it is not possible to know intuitively that a cognition is an intuition, the only way to determine if it is so would be by means of hypothetic inferences. However, we can only explain how a cognition has been determined by showing from which cognitions it has been derived. Adducing a totally external object as the origin of its determination would be equal to making the determination of that cognition absolutely inexplicable. Peirce concludes by saying that assuming a completely inexplicable fact as the origin of our cognition would be a hypothesis which would not perform its task, that is providing an explanation for the problem under consideration (W 2:209).

Both the argument based on semiotic and the one based on the analysis on intuitions rest on the fact that signs and cognitions are inevitably general and inferential. I will now briefly sketch Kant's description of intuitions. I will later compare Kantian intuitions to Peirce's indices and icons and consider whether Peirce changed his views on intuitive cognitions later in his life.

4. Kant's Account of Intuitions

The most usual way in which Kant distinguishes between intuitions and concepts presents the former as singular representations referring to individual objects and the latter as general representations applicable to more than one object.

An intuition is a singular [*einzelne*] representation (*repraesentatio singularis*), a concept a universal (*repraesentatio per notas communes*) or reflected representation (*repraesentatio discursiva*). . . . A concept is opposed to intuition, for it is a universal representation, or a representation of what is common to several objects, hence a representation insofar as it can be contained in various ones (9: 91).[15]

We should now recall that in 'Questions' and 'Consequences' Peirce claimed that signs and cognitions are inevitably general and that, since we cannot represent completely determinate objects, then individuals cannot exist. It is sufficient to focus on these statements to see that Peirce's 1868 semiotic could not allow room for the Kantian notion of intuition.[16] However, I shall now briefly list some features of Kantian intuitions which will be relevant for our discussion in the next sections. In fact, if it is true that Peirce in 1868 rejects the possibility of having representations possessing the most part of these features, his revised semiotic will actually demand some kinds of signs able to perform the tasks that Kant attributed to intuitions.

First of all, it must be kept in mind that Kant distinguishes between sensible and intellectual intuitions (Cf. B 72). Sensible intuitions identify the only way in which an object can be given to us in sensibility, whereas intellectual intuitions recognize the possibility of an intellect able to create its objects by means of an original act of thought. In the following I will focus on sensible intuitions, that is, on the only kind of intuitions that are possible for human beings. The latter seem also to be the main target of Peirce's criticisms. Thus, for our purposes it is important to bear in mind that intuitions:

a) are singular representations referring to individual objects,
b) instantiate an immediate non-descriptive relationship with an object,
c) have a sensible content, in which we can distinguish an a priori form and an a posteriori matter.[17]

Characteristic a) was already expressed in the last quote and I have remarked that it is in direct opposition with Peirce's 1868 account of

cognition. Characteristic b) also marks a difference with Peirce's position in 'Questions' and 'Consequences.' In these papers Peirce claimed that we cannot form a sign or cognition which is in a direct representational or denotative relationship with an object. Every sign and every cognition can represent or denote its object only by interpreting a previous sign or cognition of the same object. By contrast Kant claims: '[i]n whatever way and through whatever means a cognition may relate to objects, that through which it relates immediately to them . . . is intuition. This, however, takes place only insofar as the object is given to us; but this in turn, is possible only if it affects the mind in a certain way' (A 19 B 33). This description of intuition is in direct opposition to Peirce's denial that we can have cognitions that are the immediate result of an affection from external objects.[18]

According to characteristic c), 'all intuition that is possible for us is sensible' (B 146).

Peirce of course would not deny that we have certain representations that are sensible in character. However, according to his 1868 papers on cognition, he would claim that these sensible cognitions cannot but be the result of inferential processes. As I have already noticed in the introduction, it is not clear whether this claim would amount to a complete rejection of a Kantian perspective. Of course Kant claims that intuitions establish an immediate relationship with an object, but he also claims that we perform intuitive syntheses and that intuitions without concepts are blind (A 51 B 75). Since the discussion of this issue would require much more then a single section, I do not want to take a position here on whether Kant allows the possibility of non-conceptual content or not. I might just suggest that it would be possible to interpret Kant as stressing that intuitions allow us to have an immediate denotative reference to objects, while the content of intuitions depends on synthetic procedures (I will avoid here considering the extent in which these syntheses must depend on conceptual elements or not). As for the distinction between an a priori form and a posteriori matter of sensible representations, Kant argues that 'sensible intuition is either pure intuition (space and time) or empirical intuition of that which, through sensation, is immediately represented as real in space and time' (B 146–7). Peirce explicitly denies that we can distinguish between an a priori form and an a posteriori matter of sensibility and he rejects Kant's account of space and time as early as 1866–7.[19]

We can conclude that Peirce's account of cognition in 1868 is opposed to Kant's characterization of intuitions in many respects. First of all, Peirce does not recognize the possibility to have singular representations that represent individual objects and he does not allow room for representations that can denote an object by simply enjoying an immediate relationship with it. Moreover, Peirce's account of sensibility rejects a basic element of Kant's position, that is, the identification of space and time with the a priori forms of intuition. We should

now inquire whether Peirce will later defend a position more charitable to Kant.

5. Intuitions and Indices

In section 2 I pointed out how Peirce argued in 1868 that the denotation of an object always depends on an interpretation of previous signs referring to the same object. Peirce abandons this view in the 1880's, when he develops, independently from Frege, a new account of quantification and indexicality with his student Oscar H. Mitchell. According to this new account of quantification and indexicality, a logical predicate cannot be attributed to objects in the existing world unless we specify how we have to pick up those objects: quantification and indices have exactly this function in logic:

> After the whole Boolian school had for thirty years been puzzling over the problem of how to take account of this distinction [the distinction between some and all, *my note*] in their notation, without any satisfactory result, Mr. Mitchell, by a wonderfully clear intuition, points out that what is needed is to enclose the whole Boolian expression in brackets, and to indicate to what proportion of the universe it refers by exterior signs. Denoting by A any expression such as we have hitherto considered, we might write ΠA to signify that A is true of every individual of the universe, and ΣA to mean that it is true of some individual of the universe (W 5:114, 1884).

Peirce thought that quantification theory made evident that in logic the objects to which a proposition refers need to be identified by means of non-descriptive signs. This logical discovery, which caused an important revision in his semiotic,[20] had also consequences on Peirce's theory of cognition. Accordingly, in the 1880's he began to claim that in cognition reference to objects cannot be secured by means of descriptive signs, but only through indices. Indices have the capacity to denote an object without providing any information on its properties. 'The index asserts nothing; it only says 'There!' It takes hold of our eyes, as it were, and forcibly directs them to a particular object, and there it stops. Demonstrative and relative pronouns are nearly pure indices, because they denote things without describing them' (W 5:163, 1885). Thus, indices can immediately denote an object without the need of interpreting previous signs of the same object.

This new account of indexicality was followed by a revaluation of Kant's distinction between concepts and intuitions. Accordingly, in a fragment written in 1885 Peirce stresses:

> [Kant] gives the name of logic to the greater part of his *Critic of Pure Reason*, and it is a result of the great fault of his logical theory that he does not extend that name to the whole work. This greatest fault was at the same time the greatest merit of his doctrine: it lay in his

> sharp discrimination of the intuitive and the discursive processes of the mind. . . . Kant saw far more clearly than any predecessor had done the whole philosophical import of this distinction. . . . It was . . . what enabled him to see that no general description of existence is possible, which is perhaps the most valuable proposition that the Critic contains (W 5:258).

In this passage Peirce explicitly recognizes that intuitions play for Kant a role that is similar to the one he attributes to indices in his semiotic and theory of cognition. However, Kant's error was that of failing to see that indices, as signs, should be considered within a theory of logic, that is within semiotic, which was equivalent to logic according to Peirce.[21]

We should now consider how far the analogy between indices and Kantian intuitions goes. If we do that, we see that Peirce's indices instantiate what I have classified as characteristics a) and b) of Kantian intuitions. According to characteristic a), intuitions are singular representations referring to individual objects. We saw that in 1868 Peirce thought that every sign was general and that no individual existed, because we did not possess any sign that could refer to the latter. After his new account of indexicality Peirce began to contrast indices to general signs. He thus stresses: '[t]hat a word cannot in strictness of speech be an index is evident from this, that a word is general . . . while an index is essentially an affair of here and now, its office being to bring the thought to a particular experience' (CP 4:56, 1893). Moreover, indices are able to provide a way to refer to individuals. Peirce claims that indices 'refer to individuals, single units, single collections of units, or single continua' (CP 2:306, 1901). Peirce seems thus to attribute to his revised account of indices characteristic a) of Kantian intuitions.

According to characteristic b) Kantian intuitions instantiate an immediate non-descriptive relationship with their object. As we saw, in1868 Peirce rejected the possibility of a sign which denoted its object without interpreting previous thought on the same object. In 1886, he describes an index as a sign 'which stands for its object in consequence of having a real connection with it.' Thus, the index 'does not depend on a mental association, but upon a real reaction between the mind and the external world at the moment when the index acts' (W 5:379).

To be fair, Peirce identified a class of sign named indices quite early in his career and in 'Consequences' he recognized a 'pure denotative application' of a sign, which he described as 'a real, physical connection of a sign with its object' (W 2:225). However, he claims that these denotative signs must be interpreted as signs in order to be such. Insofar as in 'Consequences' he also argues that no sign can denote an object without interpreting a previous sign of the same object, he probably means that in order to interpret this denotative sign as denoting an object, we should interpret previous thoughts in which a similar sign referred to the same object. Thus, we cannot really identify an

immediate non-inferential relationship between a sign and its object.[22] A weathercock may well be in a direct relationship with the wind, but if I do not interpret it as providing a sign of the direction of the wind, an interpretation which ultimately depends on my previous knowledge of the effects of the wind on weathercocks, that weathercock would not be a sign of the direction of the wind. This seems to be a plausible reading of Peirce's position in 'Consequences.'[23]

After Peirce's revision of indexicality, indices do not need to be part of an inferential process of interpretation in order to be considered signs. Accordingly, in 1903 Peirce stresses that an index 'is a real thing or fact which is a sign of its object by virtue of being connected with it as a matter of fact and by also forcibly intruding upon the mind, quite regardless of its being interpreted as a sign' (CP 4:447).[24] An index is thus capable of being a sign just by means of its direct relationship with its object.[25] Indices perform for Peirce the functions that I have identified as characteristics a) and b) of Kantian intuitions. They are singular representations referring to individual objects, and they instantiate an immediate non-descriptive relationship with an object.

This convergence between intuitions and indices with respect to their denotative function is further confirmed by Kant's and Peirce's statements on Leibniz's principle of the identity of indiscernibles. Leibniz claimed that two objects with the same exact properties cannot but be one and the same object. Both Kant and Peirce reacted to this statement by arguing that two objects which are identical in their properties can well be identified as two different entities if we can locate them in two different portions of space. According to Kant we need intuitions to do that, while for Peirce we need indices. Thus Kant claims: 'in the case of two drops of water one can completely abstract from all inner difference (of quality and quantity), and it is enough that they be intuited in different places at the same time in order for them to be held to be numerically different' (A 263–4 B 319–20). Peirce seems to express the same thought when he argues: "No admittance except on business,' over a door is a general proposition; but it relates to that door which may have no qualities different from those of some other door in some other planet or in some other tridimensional space. . . . But the hanging of the sign over this door indicates that this is the one referred to' (W 4:402, 1883).

Since indices display at least some similarities with characteristics a) and b) of Kantian intuitions, we should now consider if icons can have some elements of continuity with characteristic c).

6. Intuitions and Icons

According to characteristic c), Kantian intuitions have a sensible content, in which we can distinguish an a priori form and an a posteriori matter. I have already noticed how Peirce rejected the distinction

between a pure form and an empirical matter of sensibility. Concerning the sensible character of intuitions, Peirce of course never denied that we could have sensible representations. He just denied that in perception we can identify a sensible content that is totally independent from inferential processes. This was clearly his position in 1868, but it seems to be confirmed in his later writings. Accordingly, in a series of lectures he gave at Harvard in 1903 Peirce developed an account of perception in which he claimed that perceptual judgments are essentially inferential. Peirce describes a perceptual judgment as 'the first judgment of a person as to what is before his senses' (EP 2:191) and in the last lecture of the series he lists three 'cotary propositions' that are essential to his pragmatism. The second of these propositions states that 'perceptual judgments contain general elements' whereas the third asserts that 'abductive inference shades into perceptual judgment without any sharp line of demarcation between them' (EP 2: 227).

If thus Peirce changed his mind on indices, recognizing the possibility to have signs directly denoting their objects, he did not modify his position concerning the possibility to attribute any property to those objects, or to connote them. Representing an object as having some sensible qualities involves always inferential processes for Peirce.[26] As I have already noticed, the inferential or synthetic character that Peirce attributes to perception is not necessarily in contrast to Kant's doctrine of intuitions. But I do not want to discuss this issue further. I wish rather to point out how Peirce himself recognizes an important heuristic function to the distinction between conceptual or symbolic and sensible representations in his distinction between symbols and icons.

In the previous section we saw that indices are signs that have an immediate denotative relationship with their objects. Indices belong to a triadic classification of signs, which distinguishes them by means of the way in which they refer to their objects.[27] Beside indices, this classification includes symbols and icons. A symbol 'is a sign which refers to the Object that it denotes by virtue of a law, usually an association of general ideas, which operates to cause the Symbol to be interpreted as referring to that Object' (EP 2:292, 1903). Symbols are thus signs that refer to their objects in virtue of a general rule, usually fixed by convention, which teaches us to interpret the sign in a determinate way. By contrast, an icon 'stands for something merely because it resembles it' (W 5:163, 1885).[28] Icons are, at least in the majority of cases,[29] signs that gain their representative power in virtue of some sensible quality they possess. Peirce accordingly stresses: '[a]n icon is a representamen of what it represents and for the mind that interprets it as such, by virtue of its being an immediate image, that is to say by virtue of characters which belong to it in itself as a sensible object' (CP 4:447, 1903).

Icons, as signs providing a sensible representation that resembles their object, have an essential heuristic function for Peirce. They allow

us to cognize aspects of their objects that were not immediately evident in the symbolic representations of the same objects. Accordingly, Peirce maintains that 'a great distinguishing property of the icon is that by the direct observation of it other truths concerning its object can be discovered than those which suffice to determine its construction' (CP 2:279, c.1895).

This essential capacity of icons is evident in Peirce's account of theorematic deductions.[30] The latter are for Peirce deductions where the conclusions of an argument can only be drawn after we construct a diagram of the symbolic premises and then introduce some changes in the diagram itself. He accordingly claims that: '[a] *theorem*, as I shall use the world, is an inference obtained by constructing a diagram according to a general precept, and after modifying it as ingenuity may dictate, observing in it certain relations, and showing that they must subsist in every case, retranslating the proposition into general terms' (EP 2:303, 1904). Peirce sometimes extends this iconic moment to all kinds of deductions and he adds the quite implausible claim that every deduction is necessarily diagrammatic (cf. CP 5:162, 1903). Accordingly, he occasionally describes corollarial deductions, that is the other kind of deduction he identifies, as follows: '[a] Corollarial Deduction is one which represents the conditions of the conclusion in a diagram and finds from the observation of this diagram, as it is, the truth of the conclusion' (EP 2:298, 1903). Corollarial deductions would thus be equally diagrammatic as theorematic deductions, but they would not require experimentation on the diagram to derive their conclusions.[31] However, I do not want to discuss corollarial deductions further. I have only mentioned Peirce's claim that all deductions are diagrammatic in order to point out how iconic representations are important for him, but I will now focus on theorematic reasoning. If it is true that Peirce does not always describe corollaries as diagrammatic, (cf. EP 2:96, 1901, EP 2:302, 1904) theorems are instead necessarily so, insofar as they need to experiment on the diagram in order to draw conclusions that cannot be derived from the simple symbolic representation of the premises. The experimentation on the iconic representation of the premises makes thus possible the discovery of non-trivial truths (cf. NEM 4:38, 1902). Peirce sometimes refers to geometrical proofs based on diagrams in order to give an example of theorematic deductions (cf. NEM 4:49, 1902).

Diagrams have for Peirce this essential heuristic function because they are able to represent general relationships in an observable way. They are thus able to visually present the general relationships represented by a symbol. Peirce accordingly stresses: '[g]iven a conventional or other general sign of an object, to deduce any other truth than that which it explicitly signifies, it is necessary, in all cases, to replace that sign by an icon' (CP 2:279, c.1895). It is striking how this description of the

construction of diagrams, and of their capacity to display generality in sensibility, is similar to Kant's account of mathematical constructions.[32] In the *Transcendental Doctrine of Method*, Kant distinguishes philosophy and mathematics because the first provides rational cognition from concepts, while the latter rational cognition from the construction of concepts. For Kant, to construct a concept means being able to exhibit in intuitions the general relationships involved in the concept itself.

> For the construction of a concept, therefore, a nonempirical intuition is required, which consequently, as intuition, is an individual object, but that must nevertheless, as the construction of a concept (of a general representation), express in the representation universal validity for all possible intuitions that belong under the same concept (A 713 B 741).

Peirce himself seems to notice some continuity between his account of diagram construction and Kant's thought. However, he does not refer to Kant's concept of mathematical constructions, but to his concept of schema.

> Meantime, the Diagram remains in the field of perception or imagination; and so 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 capable of being observed while on the other side it is General (NEM 4:318, c.1906).

Both Peirce's diagram and Kant's mathematical constructions are thus able to provide a sensible representation of a general concept or sign. This similarity notwithstanding, we should not avoid considering the many respects in which Peirce criticizes Kant's account of mathematical reasoning. First of all, he did not accept Kant's claim that all mathematical reasoning is synthetic and, using Peirce's own terminology, he claimed that only some of the arguments preformed in mathematics are theorematic, whereas some of them are corollarial. In a Kantian terminology this would be equal to saying that some mathematical proofs are not dependent on the construction of concepts. More generally, he claimed that the Kantian distinction between synthetic and analytic judgments was ambiguous, due to Kant's ignorance of the logic of relatives (cf. NEM 4:58–9). Kant's claim that mathematics proceeds by means of the construction of concepts is immediately related to the idea that mathematical and geometrical knowledge depends on our a priori intuitions of space and time and Peirce rejected also this claim (cf. PMSW 5–7). Moreover, Peirce does not limit the applicability of diagrammatic inferences to mathematics, but as his existential graphs show, they find an application in logic as well.

Thus, even though there are certainly similarities between Peirce's diagrammatic account of theorematic reasoning and Kant's description of the construction of concepts in mathematics, Peirce is eager to distinguish his position from Kant's one. His main criticism seems to be concerned with the way in which Kant explains the capacity of mathematics to be synthetic through constructions. For Peirce, we do not need to assume space and time as a priori forms of intuition, and to strongly distinguish between the domain of logic and mathematics. Nonetheless, he recognizes the fruitfulness of a distinction between general and sensible representations.

If we recall characteristic c) of Kantian intuitions, according to which they have a sensible content, in which we can distinguish an a priori form and an a posteriori matter, it is easy to see that for Peirce having non-symbolic representations with a sensible content was extremely important. However, he never accepted Kant's claim that in these sensible representations there is an a priori form due to our pure intuitions of space and time. Nonetheless, he agreed with Kant on the kind of things these sensible representations allow us to do, that is, drawing non-trivial conclusions thanks to an exhibition of the premises in sensible signs. Of course he had a different explanation of this capacity of diagrams, which rested on his semiotic.

7. Conclusion

I have argued that Peirce's rejection of intuitions in 'Questions' and 'Consequences' was based on his view that no sign or cognition could either connote or denote an object without interpreting a previous sign or cognition of the same object. Peirce partially modified this view when he developed with his student Oscar H. Mitchell a new account of quantification and indexicality. He then maintained that indices could immediately denote their objects, even though they cannot provide any information on the properties of those objects. That is to say, indices can immediately identify an individual object, but in order to attribute some properties to it, we still depend on the interpretation of previous signs that we now connect to this object.

I suggested that the pure denotative function of the index performs the role of characteristics a) and b) of Kantian intuitions, that is indices are singular representations referring to individual objects and instantiate an immediate non-descriptive relationship with an object. Peirce claims that this immediate relationship with an object is not able to provide any sensible content that is not also dependent on some kind of inferential process. I have noticed how it is not clear if Kant thought that we can have some sensible content in intuition which is independent of processes of syntheses and reasoning.

The importance of a distinction between sensible and conceptual or symbolic representations is relevant in Peirce's account of theorematic

reasoning, where an iconic diagram is necessary to draw conclusions, which were not derivable from the simple symbolical representation of the premises. This function of the diagram is comparable to Kant's account of the construction of concepts in mathematics. Kant uses characteristic c) of intuitions, that is the claim that they have a sensible content, in which we can distinguish an a priori form and an a posteriori matter, in order to explain the capacity of mathematics to draw conclusions by means of the construction of concepts. It is because mathematics depends on the pure intuition of space and time that we can for example draw necessary conclusions from a geometrical diagram. We saw that Peirce rejected this Kantian move and denied that mathematics rested on the a priori intuitions of space and time.

In the case of both the pure indexical reference to an object and the iconic representation of general relationships, Peirce recognizes some merits to Kant's views and he explicitly refers to the distinction between concepts and intuitions with reference to indexicality. However, if Peirce recognizes some insights into these matters to Kant, he is also eager to criticize Kant for his flawed logic and for his fault to see that both indexical and iconic representations are part of the field of study of semiotic and are thus able to be considered from a logical point of view.[33] The latter claim gave him the possibility to avoid an inescapable division between icons, indices and symbols, and to recognize the existence of signs where different elements are combined with one another.[34]

If it is thus certainly true that Peirce criticized the Kantian distinction between concepts and intuitions in many respects, it is also easy to see how Peirce attributed to Kant's distinction some insights on indexical reference and iconic representations. Therefore, Peirce's criticism of the Kantian distinction between concepts and intuitions should not be seen as a total refutation of Kant's views, but rather as an elaboration of some Kantian insights within what Peirce considered an improved logical framework.

Goethe-Universität Frankfurt am Main
gabriele.gava@gmail.com

REFERENCES

Allison, H. (2004), *Kant's Transcendental Idealism: An Interpretation and Defense*, revised and enlarged edition. New Heaven: Yale University Press.

Bird, G. (2006) *The Revolutionary Kant: A Commentary on the Critique of Pure Reason*. La Salle: Open Court.

Di Leo, J. (1991), 'Peirce's Haecceitism,' *Transactions of the Charles S. Peirce Society* 27: 79–109.

Forest, M. (2007), 'Peirce and Semiotic Foundationalism,' *Transactions of the Charles S. Peirce Society* 43: 728–44.

Hanna, R. (2004), *Kant and the Foundations of Analytic Philosophy*. Oxford: Oxford University Press.

Hausmann, C. (1993), *Charles S. Peirce's Evolutionary Philosophy*. Cambridge: Cambridge University Press.

Hookway, C. (2000), *Truth, Rationality, and Pragmatism*. Oxford: Oxford University Press.

———. (2012), *The Pragmatic Maxim*. Oxford: Oxford University Press.

Kant, I. (1900–), *Kants gesammelte Schriften*. Berlin: De Gruyter, Reimer. Translations in English are given according to: P. Guyer & A. W. Wood (eds.), *The Cambridge Edition of the Works of Immanuel Kant*. Cambridge: Cambridge University Press, 1992–.

Lane, R. (2011a), 'The Final Incapacity: Peirce on Intuition and the Continuity of Mind and Matter (Part I),' *Cognitio* 12: 105–19.

———. (2011b), 'The Final Incapacity: Peirce on Intuition and the Continuity of Mind and Matter (Part II),' *Cognitio* 12: 237–56.

Longuenesse, B. (1998), *Kant and the Capacity to Judge*. Princeton: Princeton University Press.

McDowell, J. (1994), *Mind and World*. Cambridge: Harvard University Press.

Michael, E. (1974), 'Peirce on Individuals,' *Transactions of the Charles S. Peirce Society* 12: 321–9.

Murphey, M. (1961), *The Development of Peirce's Philosophy*. Cambridge: Harvard University Press.

Parker, K. A. (1998), *The Continuity of Peirce's Thought*. Nashville: Vanderbilt University Press.

Peirce, C. S. (1931–58), *Collected Papers of Charles Sanders Peirce*, edited by C. Hartshorne, P. Weiss (volumes 1–6), and A. Burks (volumes 7–8). Cambridge: Harvard University Press. Quoted as CP, followed by volume and paragraph number.

———. (1976), *The New Elements of Mathematics by Charles S. Peirce*, edited by C. Eisele. The Hague: Mouton. Quoted as NEM, followed by volume and page number.

———. (1982–), *Writings of Charles S. Peirce: A Chronological Edition*, edited by the Peirce Edition Project. Bloomington: Indiana University Press. Quoted as W, followed by volume and page number.

———. (1992–8), *The Essential Peirce*, edited by the Peirce Edition Project. Bloomington: Indiana University Press. Quoted as EP, followed by volume and page number.

———. (1993), '[Hypothesis of Space and Time: A Response to Kant] Appendix No. 2,' edited by A. De Tienne, *Transactions of the Charles S. Peirce Society* 29: 637–73.

———. (2010), *Philosophy of Mathematics: Selected Writings*, edited by M. E. Moore. Bloomington: Indiana University Press. Quoted as PMSW.

Prauss, G. (1974), *Kant und das Problem der Dinge an sich*. Bonn: Bouvier.

Roberts, D. (1973), *The Existential Graphs of Charles S. Peirce*. The Hague: Mouton.

Shin, S. J. (2002), *The Iconic Logic of Peirce's Graph*. Cambridge: MIT Press.

Short, T. L. (2007a), *Peirce's Theory of Signs*. Cambridge: Cambridge University Press.

———. (2007b), 'Response,' *Transactions of the Charles S. Peirce Society* 43: 663–93.
Stjernfelt, F. (2007), *Diagrammatology*. Dordrecht: Springer.

NOTES

1. I would like to thank Vincent Colapietro, Robert Stern, Martin Sticker, Kenneth Westphal and Marcus Willaschek for useful comments on previous versions of this paper. I have profited from discussing the paper at workshops and conferences in Sheffield, Frankfurt, Chicago and Denver. I also thank the Peirce Society for having given me the honor of awarding to this article its Essay Prize, and the Humboldt Foundation for supporting the research at the basis of this paper.

2. To be fair, the fact that Peirce's mature semeiotic inherits some insights of the Kantian distinction between concepts and intuitions is sometimes acknowledged in the literature (see for example Murphey 1961: 310). However, this is not at all a widespread view on Peirce's relationship with the Kantian distinction. Moreover the import of this Kantian legacy has not been investigated in detail.

3. For an analysis of Peirce's rejection of intuitions that directly links it to the doctrine of continuity see: Lane 2011a, 2011b.

4. I will quote collections of Peirce's writings using the customary abbreviations. For a guide to the abbreviations see the reference list.

5. This view has been challenged by some scholars, who propose what is named the 'two aspects,' or the 'two points of view,' reading of the distinction between appearances and things in themselves. They have challenged the idea that the thing-in-itself should be considered as the incognizable object which causes appearances. See for example: Prauss 1974: ch. 1, Allison 2004: 64ff., Bird 2006: ch. 23.

6. The empiricists' concept of sense impression is also a target. Accordingly, Murray Murphey stresses: '[t]he denial of intuition is Peirce's boldest stroke against the British school, for Locke, Berkeley, and Hume all require the existence of intuition as an axiom' (Murphey 1961: 109). For Peirce's criticism of Descartes' notion of intuition see: Forest 2007.

7. It should be kept in mind that Kant uses the German word *Anschauung* in order to refer to intuitions. This word could be seen as not necessarily referring to the kind of intuitions Peirce criticizes (that is, non-discursive immediate cognitions). However, Kant describes *Anschauungen* exactly in this way and he labels cognition through *Anschauungen* as *intuitiv*, meaning by *intuitiv* exactly what Peirce criticizes.

8. John McDowell (1994) is the most famous advocate of a 'conceptualist' reading of the first *Critique*. An alternative position is held by Béatrice Longuenesse (1998: part 3), who argues that intuitive syntheses are dependent on the understanding, even though they also enjoy a relative independence, insofar as they do not need a direct application of the categories or other concepts in a judgment. A non-conceptualist reading, which stresses that we can have an intuitive content that does not depend at all on conceptual structures, is defended by Robert Hanna (2004: ch. 4).

9. Carl Hausmann (1993: 61) points out that Peirce uses at least two different understandings of intuitions: intuitions as knowledge of the present as present,

and intuitions as cognitions that are not determined by previous cognitions of the same object. He argues that Peirce only rejects the latter understanding of intuitions. In this paper I will limit my attention to the second account of intuitions, which is the main target of Peirce's 1868 papers.

10. Later Peirce will claim that a sign needs just to be potentially interpretable to be a sign.

11. Peirce recognizes denotative signs quite early in his career, but for example in 1865 (W 1:308) he claims that these denotative signs could only be assigned by convention, that is, as a result of processes of sign interpretation.

12. '[T]hat perceptions are not absolutely determinate and singular is obvious from the fact that each sense is an abstracting mechanism. Sight by itself informs us only of colors and forms. No one can pretend that the images of sight are determinate in reference to taste. They are, therefore, so far general that they are neither sweet nor non-sweet, bitter nor non-bitter, having savor or insipid' (W 2:236).

13. Peirce denied the existence of individuals, but he argued for the existence of singulars, which are generals, and so not determinate in every respect, that can be only in one place at one time. On this issue see: Michael 1976, Di Leo 1991.

14. I avoid here to analyse Peirce's argument against the existence of a power of intuition which allows us to distinguish between belief and cognition (W 2:205). The argument sounds at least partially obscure to me and it is not relevant for our discussion.

15. References to Kant will be given according to Kant's standard edition (1900–). References to the *Critique of Pure Reason* will be given according to the first (A) and second (B) original editions. The translations are from: P. Guyer & A. W. Wood (eds.), *The Cambridge Edition of the Works of Immanuel Kant*. Cambridge: Cambridge University Press, 1992–.

16. It is true that Peirce recognizes the existence of singulars. However singulars identify something more similar to Kant's notion of the singular use of concepts (9: 91). Kant claims that concepts are by definition general, but they can be used to identify singular objects. In this case though, reference is fixed by means of descriptions and not by means of a direct denotative reference.

17. This distinction is of course only possible from the standpoint of a philosophical reflection on our cognitions.

18. We should recall here that Peirce interprets Kant as stressing that intuitions are caused by an uncognizable thing in itself.

19. Cf. De Tienne's edition of Peirce's manuscript 'Appendix No. 2' (Peirce 1993).

20. On this point see: Murphey 1961: 298–300, Short 2007a: 46–53.

21. Peirce identified logic in a broader sense with his semiotic. Logic in a narrower sense was equated with his 'critical logic,' which is a division of his semiotic. See for example: CP 2:299, c.1897).

22. In a related way, Hookway (2000: 130) argued that in 1868 signs can only have a denotative relationship with other signs.

23. This appears to be confirmed by Peirce's claim in 1865 that denotative signs are decided by convention (W 1:308).

24. This formulation and its reference to a perceiving mind raises the question about whether a cognition of an object through an index necessarily involves some form of awareness and if yes of which kind. A related question would then apply

to the kind of awareness (or lack thereof) necessarily involved in Kant's intuitive cognitions. These questions complicate the picture about the relationship between Kant and Peirce on indices and intuitions, but I think they can be left aside. It is so because both Kant and Peirce, when they are considering human cognition, can be read as stressing either that intuitive and indexical representations are a particular kind of cognitions we are normally aware of, or that they are essential elements in our cognition recognized by a second order inquiry.

25. Peirce recognizes also impure indices, like proper names, which are able to denote individuals even though they are not in a direct causal relationship with their objects.

26. For a similar point see: Short 2007a: 49, 2007b: 679.

27. In Peirce's later classifications of signs, the distinction between symbols, indices and icons identifies the ways in which the sign may relate to its *dynamical* object.

28. Later Peirce stresses that a pure icon does not depend on a relation of resemblance, but simply presents a pure quality. It is impure icons, sometimes called hypoicons, that represent by means of a resemblance with their objects. See for example EP 2:273–4, 1903.

29. Peirce stresses that anything, including laws, can be an icon of something else (EP 2:291, 1903). Keeping this statement in mind, we should also notice how in the majority of cases Peirce's examples of icons identify signs that represent in virtue of a sensible quality they possess.

30. Icons are also essential in abduction (cf. EP 2:287, 1903). They allow us to find new connections between surprising phenomena and general rules. For an analysis of the essential role of icons in perception see Hookway's analysis of the concept of 'composite photographs': Hookway 2012: ch. 7.

31. An explanation for Peirce's implausible claim that all deductions are diagrammatic can be found in the fact that, starting from 1897–8, he was working on an iconic logic which he called the system of existential graphs (see: Shin 2002, Roberts 1973). Since the existential graphs provided a diagrammatic representation of logical relations, they could lie at the basis of Peirce's claim that every deduction involves an element of observation.

32. Also Stjernfelt (2007: 334) notices this similarity.

33. I have already remarked that Peirce identified semiotic with logic in a broad sense.

34. The possibility to have the combination of different elements in one sign is evident if we consider together Peirce's more complex classifications of signs. However, this task lies outside of the scope of this article.