SOME FIRST STEPS IN OVERCOMING THE DISTANCE BETWEEN ARISTOTLE AND KANT

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The quest for absolutely certain knowledge of the world is as old as philosophy. And though we usually characterize the old as wise and settled, we must admit that the search for certain knowledge, a peculiarly philosophical adventure, although old and and wise is yet unsettled. As far back as Parmenides and Plato the attempts to achieve certainty have done so only at the expense of the world we daily experience and live through. More recently, in spite of the fact that later thinkers such as Descates and Leibniz, had much to say about the world, the certitude they discovered remained apart form the world. It seems true enough, that after taking the time to review and appreciate the arguments of the rationalist/idealist tradition, one may always ask how it all fit the natural world we experience from day to day.

As an alternative to this supposed predicament the empirical school developed and has continued to flourish, most notably in England. The characteristic feature of this school was its reliance on sense experience of the world. Since the empiricists took experience to be the source of our knowledge they were able to speak more persuasively[1] about the world of daily experience. That is to say, rather than speaking of monads and absolute mind, the empiricists spoke of colors and feelings. However, their claims often lacked the certitude so essential to knowledge, and their conclusions often lead to scepticism. This was because certainty could not be directly given in sense experience. The best one could do, for example, was to *assume* the uniformity of nature and judge accordingly that any two events observed to be constantly conjoined would likely continue in such a way. However, since there was no guarantee that nature would continue to be uniform, there could be no guarantee that any two events would continue to be conjoined. Hume was the most thorough-going of the early British empiricists who adhered to such a view. But he was not the last. Hume's echo was heard as late as the middle of the 20th century. Roughly 200 years after Hume published his *Inquiry*, Bertrand Russell published *Human Knowledge* in which similar conclusions were drawn.[2] At any rate, in this repect the empiricists had not done much better than the rationalists since they too had failed to bring certainty into the knowledge of our experience of the natural world.

The insights of the philosophers in each of the traditions mentioned continue to exert a great influence in contemporary schools and so it must not be concluded that the shortcomings of the two traditions are indicative

of their utter senselessness. Contrary to what might have been suggested, the divergent development of each tradition made clear precisely what was needed to give our knowledge of the world the character necessary for it to be considered certain knowledge. The rationalists developed the ingredients of form and certainty in their systems. But the empiricists complained of the lack of content and the arbitrariness of rationalism, and urged a return to the world given to us in sense experience. Both traditions had something to say for themselves; for both were correct to insist on the conditions of knowledge that each was focusing on.

The realization of such needs was nothing new, of course, Even the ways in which each requirement of knowledge was dealt with was not entirely fresh, as the history of philosophy shows. However, throughout that history Aristotle and Kant stand out as two thinkers who not only recognized these requirements, but sought to combine them so as to meet the conditions of knowledge, combining form and content in such a way that the unity of nature was left intact. But given the differences between the two such that we would call one a realist and the other an idealist, it would be natural to ask which is right or at least closer to the truth. However, instead of trying to decide between the two on the basis of certain differences, it seems to me to be more illuminating to exhibit their similarities. My aim, then, is to show how close these two thinkers are on the question of certainty in connection with nature as an object of knowledge.

I shall limit the discussion to the area of perception. It seems rather obvious that perception is the primary source of experience and knowledge of the natural world. Such a claim would be denied by neither Aristotle nor Kant, as I understand them. But where is there a common ground at the level of perception on which, Aristotle the realist and Kant the idealist, may stand together? It is my suggestion that the common ground is to be found at the level of sensibility, and in particular, among those features of sensibility, called "common sensibles" by Aristotle and "forms of intuition" by Kant. However, in order to see what I am driving at we must consider Aristotle's common sensibles in a way that is peculiar but, I hope, acceptable.

Aristotle's account claims that to each sense there corresponds its respective *proper* sensible; e.g., to vision there corresponds color, to hearing there is sound, texture to the sense of touch and so on. But in additon to the proper sensibles there are sensibles that are perceivable by more than one of the senses and are not peculiar to any one. These sensibles are called the common sensibles and are listed as motion, rest, shape, magnitude, number, unity and time.[3] Just to take one example, from a bowling ball we can determine its color and shape by sight, while by touch we can determine its texture and its shape. Clearly, although we cannot discover the color of the ball merely by touch, we can determine its shape. On the other hand,

although we may also be able to determine its shape by vision, clearly we cannot discern the ball's texture. I suppose it could lightly be objected that we can determine the ball's texture to some extent by sight, since we are able to see cracks and dents in the rubber. But by sight alone we could not be sure whether the edges of the crack were sharp or that the supposed dent was not actually a bump or merely the result of the way light reflected off the ball's surface. The point is, however, that *shape* is a common sensible; it was able to be determined by either sight or touch.

As they stand the common sensibles are quite unmanageable for our purposes. I therefore propose a reduction. To my mind, the remarks of Aristotle that follow in his account of the perception of the common sensibles allow for such a reduction. He says, for instance, "What is at rest is perceived by the absence of movement; number by the negation of continuity. . . ."[4] Therefore, let us proceed.

The relations that obtain among the common sensibles are quite interesting. However, it is our intention to "collapse" as many as is possible without undermining Aristotle's theory. Since rest is said to be perceived by the absence of motion, we can, is a sense, put it aside and retain motion. Likewise shape may be subsumed under magnitude as being a "form of magnitude."[5] In considering the remaining three common sensibles (number, unity, and time) the reduction is not so readily suggested in the *De Anima*. At first glance, the most obvious pair between which some connection obtains would be number and unity. However, in the passage we've been citing we are told that we perceive "number by the negation of continuity."[6] We must understand here that Aristotle is not introducing a new common sensible. But, the fact that continuity is involved leads to some interesting results which may be helpful to our project.

Now, we could press on and collapse the relationship between number and unity; but which sensible would remain? Even if we could successfully reduce number to unity or unity to number we would still have time left dangling without a counterpart. This problem, however, is taken care of in Aristotle's *Physics* and *Metaphysics*. The account given in the latter is of central importance for us since therein the connection between unity and continuity is explained.

What we took to be most likely, namely, the relationship between number and unity, is confirmed by Aristotle in Bk. 10 of the *Metaphysics*. There, number is said to be known by unity.[7] Let us add to that what Aristotle says in Bk. 5; "Of those things which are said to be in themselves one (or a unity) some are said to be so in virtue of their continuity."[8] And in regard to continuity he says, "'Continuous' means that whose motion is essentially one, and cannot be otherwise; and motion is one when it is indivisible, i.e., *indivisible in time*."[9] How does this fit into the reduction of the common sensibles? Well, recall that our problem began with an effort to collapse the

relationship between number and unity. To our interest, we discovered that unity involved continuity, both of which were determinable by indivisible motion, the condition for which was time. In this way, I had hoped to show that time was the condition for number, which is strikingly similar to Kant's claim that time, as the form of inner intuition, was the condition for arithmetic.

However, there arises a problem at this point, for the above conclusion implies that time is also the condition for motion, which Aristotle says is the means of perceiving all of the common sensibles.[10] It might be argued that since Aritotle claims that time is perceived by means of motion, then time is dependent on motion and therefore could not be its condition.

But consider the following: It may in fact be the case that we perceive the color of an object in order to be *aware* that the object is extended. But, it is not the fact that the object is red or blue which is the condition of its *being* extended. It is precisely the opposite. Similarly, as far as our *awareness* of time is concerned, it may very well require that we perceive something moving or undergoing change. But this no more precludes time being the condition of motion than does our having to perceive an object's color preclude extension being the condition of an object's *being* colored. This is only to claim that whereas by motion we perceive (and measure) time, the condition of motion (the possibility of a substance being in two different states or places) is time.

What common sensibles has the reduction left us with? If all of the above has been successful, the remaining common sensibles are motion, magnitude and time. But we may take one final step. We may further reduce the remaining by considering motion in the limited sense of change of place. Coupling this with the fact that the conditions for such motion are magnitude and time we are left with these latter two as the essential common sensibles.

At this point we are ready to begin considering some parallels between the positions of Kant and Aristotle. It could have been pointed out in the beginning what each thinkers' position had in common with each other. However, by way of the reduction it was hoped that the resemblance would be more clearly presented. And having just gone through the reductions performed on Aristotle's common sensibles which left us with magnitude and time, the reader may already have guessed what the parallel will involve.

If it is legitimate and acceptable to perform such a reduction on Aristotle's common sensibles, then anyone familiar with Kant would recognize that what corresponds to Aristotle's magnitude and time is what Kant called the forms of intuition, i.e., space and time.

Putting aside the issue over the *origins* of Aristotle's common sensibles and Kant's forms of intuition, the resemblances between the two thinkers may be drawn out as follows.

In book Delta of the *Metaphysics*, Aristotle considers magnitude under the general concept of quantity or quantum. Aristotle's analysis results in the definition that magnitude is "that which is divisible into continuous parts." In addition to this, he claims that "magnitude continuous in one dimension is length, in two breadth, in three depth;" these respectively correspond to the geometric concepts of line, surface and sold.[11]

What this implies is that magnitude is the condition of there being such geometrical constructions. The resemblance to Kant is clear since Kant argues that space, "the form of all external appearances" is the condition for there being the science of geometry.[12] However, this is not to say that Aristotle's notion of magnitude is identical to Kant's form of intuition, but the parallel may be carried out quite a way.

We have said that magnitude as defined by Aristotle was the condition for geometric constructions. To this extent, Aristotle's view is akin to Kant's. However, it is reasonable to question just how magnitude, as a common sensible, is like a form of intuition; it is not enough to claim that each is held to make possible the same science.

We may begin by pointing out that for Aristotle the limited length which constitutes a line is only possible if there is magnitude, "that which is potentially divisible into continuous parts." Similarly, Kant claimed that space as a whole preceded its parts.[13] And concerning the parts or demarcated areas of space as a whole, the "extensive magnitudes," as they are called in the *Critique of Pure Reason*, presuppose space as a whole, space as the form of intuition.

There is another point which if ignored might, in the end, weaken the whole intention of the present essay. What is of greatest importance is that both Aristotle and Kant retained magnitude or space at the level of perception, magnitude being a common sensible and space being a form of sensibility.

This brings us to the second of the two common sensibles to which we allegedly reduced the original list of common sensibles, namely, time. It should be recalled that the steps of our reduction left motion, magnitude, and time as the remaining common sensibles. A subsequent move reduced motion to magnitude and time. We have already dealt with the resemblances of Aristotle and Kant with regard to magnitude. Yet, something more remains to be said about magnitude which involves its connection with time.

Recall that Aristotle claimed that the common sensibles were perceived only through motion. This means that magnitude is, therefore, perceived by motion as were all of the other common sensibles (prior to the reduction). Now, since magnitude is perceived by motion and the condition for motion is time, then our awareness of magnitude is like-conditioned by time.

To carry on the parallel between Kant and Aristotle, then, it is suggested that the conditioning of magnitude by time bears a great resemblance to Kant's view that space is conditioned by time. Kant argues:

> Space, as the pure form of all outer intuition, is so far limited; it serves as the *a priori* condition only of outer appearances. But since all representations, . . . belong as determinations of the mind to our inner state; and since this inner state stands under the formal condition of inner intuition and so belongs to time, time is an a priori condition for all appearance whatsoever.[14]

In Aristotle and in Kant, time comes across as primary to all else at the level of sense. And as we saw in connection with magnitude and space that the science of geometry was made possible by means of them, so time can be seen as that which makes possible number and arithmetic.

In order to make this clear to ourselves, let us begin with Aristotle and what he says about "the continuous." He defines continuous as "that whose motion is essentially one and cannot be otherwise; and motion is one when it is indivisible, i.e., indivisible in time."[15] As we have already considered above when reducing the common sensibles of unity and number, number is perceived "by the negation of continuity."[16] Add to this Aristotle's statement in the *Metaphysics* that "that which is potentially divisible into non-continuous parts" is plurality, which, when limited, is number.[17] We may conclude, then, that since what is indivisible in time is continuous and one, then what is potentially divisible *in time* is noncontinuous and, therefore, a plurality, which, when limited, is number. Time, it can be seen, serves as the condition for number.

Again, to return to Kant, it should be recalled that time as a form of intuition was the condition for number. Granted that there are differences in each philosopher's concept of number, for both, time is the condition for number.

Curiously, we have come down to seeing two similar conceptual developments in two philosophers whose philosophies are usually understood to differ widely. These two similar views are that magnitude or space is the condition for geometry and that time is the condition for arithmetic. In the words of Kant, the forms of intuition, i.e., space and time, are what make possible pure mathematics. Or, alternatively, in terms of Aristotle's thought, the common sensibles of magnitude and time are what make possible the sciences of geometric figure and number.

But what do these two positions accomplish? To answer that question it should be noted that mathematics (at least in part) has been rooted in the level of cognition known as sensibility, or the level of sense. And, in so far as mathematics has been brought down to the level of sense, certainty (a characteristic feature of mathematics) has been re-introduced into our empirical experience of the world. Again, to review for ourselves, the rational/idealist tradition seemed to abound with certainty and yet was hard pressed to "hook up" with the world. On the other hand, the tradition of empirical

philosophers seemed to be very much in the world, but at the expense of having any certain knowledge about that world. But as we have seen, these conditions of knowledge are not separated by either Aristotle or Kant. Yet, because these two philosophers are viewed as being at opposite ends of the philosophic spectrum, if their theories are cogent attempts to preserve the unity of the conditions of knowledge, then it seems profitable to pursue a position that brings them closer together in the hope of finally reconciling the positions represented by each, realism and idealism. It is hoped that the analysis presented above goes some of the distance towards that goal.

NOTES

1. I am speaking with regard to the subject matter of the empiricists rather than their conclusions.
2. Bertrand Russell, *Human Knowledge: Its Scope and Limits*. (New York: Simon & Schuster, 1948), cf. pp. 497 & 507.
3. Aristotle, *De Anima*, 418 a19-20. Also, cf. *De Sensu*, 437 a9, and *De Memoria*, 450 a9.
4. Aristotle, *De Anima*, 425 a20.
5. Ibid.
6. Aristotle, *De Anima*, 425 a 23.
7. Aristotle, *Metaphysics*, 1052 b20.
8. Aristotle, *Metaphysics*, 1016 a 1.
9. Aristotle, *Metaphysics*, 1016 a6.
10. Aristotle, *De Anima*, 425 a17.
11. Aristotle, *Metaphysics*, 1020 a 14-16.
12. Immanuel Kant, *Prolegomena to Any Future Metaphysics*, L.W. Beck ed. (New York: Bobbs-Merrill Co. Inc., 1950), p. 34. Also see Kant's *Critique of Pure Reason*, B41-42.
13. Immanuel Kant, *Prolegomena*, p. 34.
14. Immanuel Kant, *Critique of Pure Reason*, N. Kemp Smith, trans. (New York: St. Martin's Press, 1965). A34, B50-51.
15. Aristotle, *Metaphysics*, 1016 a5.
16. Aristotle, *De Anima*, 425 a23.
17. Aristotle, *Metaphysics*, 1020 a10.