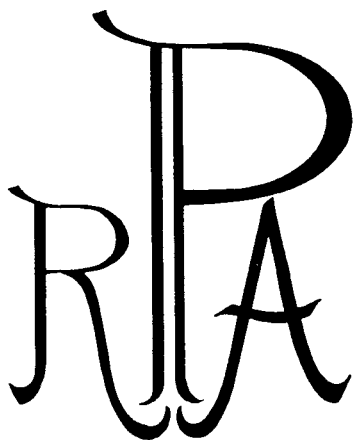


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## 17. NICHOLAS OF CUSA AND MAN'S KNOWLEDGE OF GOD

JOHN L. LONGEWAY

University of Wisconsin at Parkside

**ABSTRACT:** I argue that Nicholas of Cusa agrees with Thomas Aquinas on the metaphysics of analogy in God, but differs on epistemology, taking a Platonic position against Aquinas' Aristotelianism. As a result Cusa has to rethink Thomas' solution to the problem of discourse about God. In *De docta ignorantia* he uses the mathematics of the infinite as a clue to the relations between a thing and its Measure and this allows him, he thinks, to adapt Aquinas' approach to the problem of his own epistemology. The resulting approach, I maintain, is coherent and reasonable if the metaphysical views behind it are.

Religious believers commonly suppose God to be unlike His creation in a fundamental way that makes Him incomparably greater than creatures. Yet they also suppose men can conceive God through acquaintance with creatures. This raises a problem, for how can both views be true at the same time? We need to steer clear of twin dangers: We must not make God too much like creatures, belittling His greatness and reducing Him to an unsuitable object of religious awe. But, also, we must not make God so distant from creatures as to lose all grasp of his goodness and wisdom, leaving a conceptual blank as the object of worship.

This paper discusses the contribution of Nicholas of Cusa's *De docta ignorantia* to this issue, for his use there of the mathematics of the infinite has been insufficiently understood and somewhat undervalued. Cusa shares a typically medieval, and strongly neo-Platonic, metaphysics of God and His creation with St. Thomas Aquinas.<sup>1</sup> His notions about our knowledge of God differ from Thomas' but this is not because of his metaphysics of God. The root of the difference lies instead in his Platonic disagreement with Thomas' Aristotelian epistemology and in connected disagreements with his metaphysics of creatures.<sup>2</sup> Cusa's dissident epistemological views at first seem to disable Thomas' solution of the problem just stated, but I shall suggest that Cusa's consideration of the infinite measures of mathematical entities reinstates Thomas' approach in all essentials. In particular, Cusa's epistemological intransigence does not affect his acceptance of the analogy of being as it is applied to God. Cusa's originality in *DI* rests on his use of mathematics, as he himself recognized. My account of his work will make it clear why he thinks mathematics provides the solution to the difficulties in the Platonic position he has taken against the Aristotelians.<sup>3</sup>

## I

Central in Aquinas' account of the likeness of God to creatures, and implicit in all that Cusa says, is the metaphysical principle that what is is convertible with what is good.<sup>4</sup> The principle holds that all that is is good insofar as it is, and is insofar as it is good. All that is an evil is somehow not, inasmuch as it is evil, and all that is not is evil or imperfect insofar as it is not. Thus the real referent of any statement describing an evil is the absence or lack of some reality. It matters, then, whether we give an affirmative or negative expression to a fact. If one says a man is blind, the grammar of what he says can mislead us if we take it to indicate the real structure of the fact reported, for it might cause us to take an absence of reality for a reality. The reality is more accurately reported if one says the man lacks sight.<sup>5</sup> Ideally, we could say only what is in the world, and still report all the facts, including the negative ones, for saying that something is not is tantamount to referring to all that is and announcing that it is not there among those things that are. If we could only describe all that is in the world, then stop (with the understanding that we are done), *ipso facto* we would have already said what is not.<sup>6</sup> And everything described in such an ideal account of the world would be good considered precisely as it is described.

Now the blind man, the reality, is good insofar as he is real, that is, insofar as he is a man, and all the various properties and accidents he really possesses (those things he is) are good, so that to the extent that he is he suffers no evil. But his lack of sight is an evil, for such a lack is nothing real, only a privation of what he ought, by nature, to have. Not all lack of being is evil, though, for his inability to fly is not an evil, but an imperfection or incompleteness in his being (though not in his proper or natural being, the being of a man, for it is no privation of what a man is by nature). Every limitation of a finite being involves a lack of some being, but not every such limitation is, naturally speaking, an evil. Indeed, such limitation is necessary for the very existence of nature, for every natural thing is necessarily limited in virtue of its nature. So being a lion is inconsistent with being rational, with being a tree, and so on. Thus we have an explanation of one sort of limitation or non-being in the world, even given an all-powerful, omniscient, and beneficent creator.<sup>7</sup>

But to press this point may seem to endanger the principle of convertibility. If the essential limitations of a good substance considered as such (say, of lions considered as lions) are not evils, taken in themselves, then, surely, since they are essential for the existence of a good thing, they are good. So how can it be that no negation or limitation of being is good? One could reply, I suppose, that such limitations are neither good nor evil in themselves, but are good instrumentally. Cusa and Thomas, however, think they are shortcomings even in themselves. The reason is that one species can be more noble than another, as animals are more noble than plants, and plants than stones. This must be, by the convertibility principle, because one species has more being than another. (So in our examples plants have everything that stones have, plus life, and animals have not only life but also sensation.) Leo's failure to be rational may not be a misfortune for him, or a natural evil, and it may be essential for his existence as Leo, and so an instrumental good, but nonetheless it is a lack of being in him and is in itself, if not

evil, at least an absence of a possible good. It is the reason why Leo is less noble than a man, and in itself a loss rather than a benefit. So it is a necessary evil, not simply an instrumental good.

Now one might suppose all of this, including interspecific gradations of being and nobility, without supposing that anything can have every sort of being at once. The being of a lion and the being of an antelope seem mutually exclusive, even if we are willing to grant that both these animals have more being than any mineral, and so nothing could have all the being found in both of them. Indeed, it is hard to see how, even if they have more being overall, either the lion or the antelope could have all the being of a given mineral. There are some things that calcium carbonate is that an antelope is not, even if there is much more that an antelope is that calcium carbonate is not. But Cusa and Aquinas, on neo-Platonic grounds, suppose that there can, and must, be a God that actually has all the reality that is possible in any creature, including apparently contradictory sorts of being.<sup>8</sup> So the being of every individual created thing (but not the individual thing itself, of course) is but the being of God in part (and also, as Cusa points out, the whole being of God, since God is simple), communicated to it from God through creation. Finitude is somehow a necessary consequence of creaturehood, and so God made a unified universe of creatures, expressing His infinite perfection of being and goodness in various incomplete ways in various creatures. In this way the whole, containing a view of God's perfection, as it were, in every possible finite aspect, is as perfect a created expression as possible of God's perfect being.

DI I 13 provides a clue to how Cusa (and Thomas) thought a coincidence of opposites in God possible. Cusa argues there that straightness and curvedness are coincident in the infinite Measure of a line.<sup>9</sup> It is noteworthy that he makes the infinite Measure a *straight* line. Why not curved? Probably because any consistent curvature would eventually bring the line back on itself and prevent its being infinite. Cusa's thought seems to be that curvedness is a deviation from the reality of straightness. Curvedness limits the possible length, that is, the possible reality, of the line. (Cusa identifies the rectitude of a line with the rectitude = reality discussed by Anselm in *De casu Diaboli*,<sup>10</sup> but in the absence of some such argument as I have suggested, this is no better than a pun.) Thus curvedness is a certain lack of being (though no privation in, say, a circle), and as a curved line gains more and more being (that is, greater length while maintaining its shape) its curvature becomes less and less. Thus the measure of a curved line, which contains only the limitations of line *per se*, and none of the limitations proper to specific figures, is in itself straight. Cusa intends that all opposites which coincide in a single measure follow the same pattern.<sup>11</sup> So the contradictory essences of creatures, such as lionhood and treehood, will, insofar as they are contradictories, differ only in what they lack, not in what they are. One may have real being the other lacks, but then this real being will not be contradictory to what is real in the other, though it may be impossible for any individual of the other species to have it due to the inherent limitations of the species. God, of course, is not of the species of any creature, and so is not subject to any such creaturely limitations; thus He can embrace all that is real in any creature in His own being.

To get a good grasp of all this as it occurs in Cusa we must note that Cusa regards God, because He is perfect being, as the Measure or Form of all things. Consider the Form of a given species, say of horses. If we are to know a particular created horse, which only imperfectly realizes the Form of horse, we must have some grasp what it would be if it were completely what it is, that is, a perfect horse. One may test his knowledge of horses by seeing if he can spot the imperfections in a particular horse. But he cannot recognize the horse's imperfections by comparing it to any other particular, and hence still imperfect, horse. He must compare it to the perfect horse, that is, to the Form of horse,<sup>12</sup> and, of course, some men, the good judges of horses, can do this. Now both Cusa and Thomas would attribute the particular animal's imperfection not to the imperfection in its Form but to inevitable disturbing influences on the form's ability to control and shape its matter. (But for Cusa the Form of each creature is God, the Maximum, taken in some respect, it is not an individual substantial form along Aristotelian lines. The particular creature, considered as an individual, is necessarily imperfect, and if there were any such Aristotelian substantial forms, they also would be imperfect.<sup>13</sup>) These disturbing influences arise from the presence of the composite of matter and form in a world where it competes with many other individuals for resources and favorable conditions of growth. (Cusa would point out their inevitability once God's unitary being has been fragmented into the particulars.<sup>14</sup>) For Aquinas, one's grasp of the Form of horse is obtained through abstraction, which somehow ignores the outward imperfections and gets at the perfect, though limited, individual substantial forms behind the imperfectly realized composites of matter and form, the particulars that we know through the senses. In principle, one's grasp of the Form could be complete, and unerring, for the substantial form itself, freed of its particularity, enters the intellect through abstraction.<sup>15</sup> For Cusa, on the other hand, one's grasp of the Form of horse is a matter of an imperfect guess or conjecture, influenced and aided by the Exemplary Form in the mind of God (which is God Himself), but not by any direct Aristotelian presence of substantial form in the intellect, whether it be the individual substantial forms of particulars or the Exemplary Forms in God. So our grasp of an idea is always imperfect and incomplete.<sup>16</sup> But for both men, to account for our ability to conceive and speak about the substances in the world we must presuppose their perfect Forms, which we are able somehow to grasp, though perhaps incompletely.

For Cusa these Forms, Ideas or Measures (I shall think of them chiefly as Measures henceforth) are more perfect than the things they measure. They are perfect examples of one or another sort of being by which all other examples of that sort of being can be judged. A Measure may have to be of infinite being in some respect to be a perfect example of the being of a thing, for it must embrace all the possible being proper to that sort of thing, and in some cases, for instance, a line, the being of which is length, the possible being in question is unlimited. (A line can be indefinitely long, even if no particular line can be of infinite length.)<sup>17</sup> Note that the Measure is, in Cusa's opinion, the perfect being of a sort of thing, not a perfect example of something of that sort. It has being, but without the individuality or particularity that would make it an instance of its kind, for such particularity is itself a limitation or lack of being, and the Measure in no ways lacks being. Also note that a Measure need not, without further argument, be assumed to have any except mental being. It need not be a real universal.<sup>18</sup>

But Cusa thinks that a Measure of something with real being must have being in God's mind, not merely in human minds. A Measure is the maximal being of the sort it measures. The Measure is also, according to Cusa, the cause of all it measures,<sup>19</sup> for how else should the thing measured by it be correctly viewed as though it were striving to conform on it, or were in some way ruled by it? We can only justly view something as falling under a Measure, and so as imperfect in its being, if the thing itself somehow recognizes, as it were, its duty of conformity to the measure. The standards we impose here must not be merely our own, but the world's.<sup>20</sup> This can only occur if a Measure somehow operates to pull things into line. For another thing, if we say the thing only accidentally resembles its Measure, it will seem rather improbable that anything should come to resemble the measure without the Measure's having anything to do with it. But more than this, if the being of the thing is not from the Measure, then surely it would be a mistake to name it after the Measure even if it does resemble it. A natural bridge is only accidentally a bridge, and that is as much as to say it's not really a bridge at all, isn't it? (It can, of course, be used as one, but it wasn't intended that way. A bridge has to be intended.)

At first the Measures of things may seem to have merely conceptual being, then, but we are driven by the logic of these views to allow them a great deal more than that. If they are to explain our knowledge of the world they must be perfect in their being, and in a position to rule the real world. If, as Cusa maintains, our own concepts are quite inadequate to what they represent, we are forced to place the Ideas outside our own minds. If a Measure is to be a casual agent actually governing the world, we must again place it outside our own minds, and in the mind of God. So, the Measures of things are their Exemplary Causes in the mind of God, and that means that each such Measure is God inasmuch as God is simple and contains all the possible being of the things He measures. The Measures of things are the perfect being of each thing as it is (in) God.<sup>21</sup>

## II

The metaphysical side of Aquinas on analogy of being can be summarized in this way: It is true enough that God is, for instance, good, and His goodness is in itself perfectly similar to the goodness of creatures, except in degree.<sup>22</sup> God differs from creatures only in the manner in which He is good, not in goodness itself, and the infinitude of His goodness is a direct consequence of this manner alone.<sup>23</sup> When a creature is good it is so by *having* goodness, whereas God is good by *being* (identical to) his goodness. Having goodness guarantees that one can never be perfectly good, and that (barring special grace from God) one can become less good than he is. God's simplicity, which involves, among other things, His being His own goodness, guarantees that He is perfectly good and can never possibly be otherwise.<sup>24</sup>

So God and creatures fail to be good univocally because the manner of being is not the same in the two cases, not because the goodness differs. When we say a creature is good, we mean it *has* goodness, and is not itself its own goodness. When we say God is good, we ought to mean that God *is* goodness. The sense in which God is good and the sense in which a creature is good are not univocal, then, but since we are speaking of the same goodness in both cases they are analogical,

and not simply equivocal.<sup>25</sup> I want to propose, with Haubst, that Aquinas and Cusa do not differ on any of this. Cusa does avoid the word "analogy", probably to avoid involvement in the sterile disputes of the schools, but he seems never to deny the doctrine, for the only analogy between God and creatures he denies is that of numerical proportion, which Aquinas also denies in claiming that God is infinitely better than creatures.<sup>26</sup>

Where Aquinas and Cusa differ is over the question how God is known by us. Aquinas holds we can have adequate concepts of creatures as they are in themselves, for abstraction enables us to get a nature itself into our intellects in such a way that the resulting concept differs only in the manner of its being from the nature known through it.<sup>27</sup> So God is goodness as we understand goodness from our acquaintance with creatures, but He is not good in the way that we understand a creature to be good. And God's goodness is incomparably greater than any creature's precisely because He differs from creatures in His manner of being good. (Cusa would agree, for he says God is good by being the Measure of goodness, but that means He must contain all possible goodness, and so be infinitely good.) Now although we can, in a way, understand God's goodness and see that it is the same goodness that is in creatures, still, since we can only abstract goodness from creatures (only they are proportioned to our intellect), we can only conceive goodness as finite, as being in things in the manner in which it is in creatures.<sup>28</sup> Thus God is inconceivable, for although we have, as it were, instructions for conceiving God, and enough grasp of the terms of the instructions to understand them, we cannot carry them out. This seems to provide a satisfactory resolution to the problem posed in the initial paragraph of this paper, preserving both God's supernatural greatness and something close enough to conceivability to permit rational theology. That is, it does so if we can buy Aquinas' metaphysics of God and his epistemology. Cusa's problem is that he doesn't buy the epistemology.

Klaus Iacobi raises the problem in the following way: Even if Cusa admitted (as he does not) that the individual substantial forms of creatures are perfect after their kind, he rejects the Aristotelian epistemology that would allow him access to these forms. How, then, can Cusa allow for knowledge of natural things without requiring that we first know the separated Forms in the mind of God? But we have at best an uncertain and limited knowledge of the Forms, based on mere conjectures. So Cusa allows no natural knowledge at all (at least in the Aristotelian sense). But then how are we to rise to a knowledge of God from our knowledge of creatures? Rather it seems we must attain to a knowledge of creatures from a knowledge of God.<sup>29</sup>

The problem is not the same as the one broached at the beginning of this paper. It is not that God is so distant from creatures that a perfect knowledge of creatures would get us nowhere. If we knew even one creature perfectly, in its essence, we would know its Measure, God, who is that creature's essence. It is not that we can gain entry at the level of creatures but cannot advance onward to God because of His transcendence. Rather, we cannot even gain the initial entry, though further advance would not be so hard, now that Aquinas has shown the way, if we could.

So the reason there is a problem with our conceiving God in Cusa is that he rejects the Aristotelian account of abstraction. For Cusa, con-

cepts are mind-formed guesses. They are based on nothing analogous to the operation of sight, on no intellectual vision or contact with the thing conceived, whether mediated by the senses or not. The nature is never in the mind as a sensible quality is in the sense-organ, it is not even in the mind imperfectly or inadequately. Thus our concepts of natural things fall short of them, for to know a nature one must know a natural thing as it functions in the totality, and so one must know both the totality and the source goodness, one aspect of which the natural thing attempts to exemplify.<sup>30</sup> That is, to know the nature of a thing one must know God, for the nature of the thing is but an aspect of God's being and not to be understood except as such.<sup>31</sup>

This skeptical denial of our knowledge of real natures seems to remove the only positive element in Aquinas' account of our knowledge of God. Surely it leads to a complete denial of any possibility of conceiving God, then? But Cusa did not think so, and as long as we can refer to a thing, and know something about it through its effects without knowing its essence, perhaps he is right. Even if we have no adequate concepts of the natures of creatures, we know they have natures, that they are beings of some sort. We know they are ordered, so that one creature is more this or that than another. We also know creatures are good insofar as they are. This will be sufficient for conceiving God, for instance, we can conceive God to be the Measure of all goodness in creatures, and of the creatures themselves, if we can know that natural things do have a Measure. But perhaps our imperfect knowledge of creatures cannot provide us with that last requirement, for surely we need to know at least one nature as it is in itself, and somehow compare it to its Measure, if we are even to conceive the relation between a thing and its Measure.

But as it happens, we do know some things (though not natural things) as they are in themselves, namely mathematical entities. These entities are purely mental, with no real being, and it is precisely because they are purely mental productions, subject to mind-created rules and standards alone, that we can know them as we cannot know the real natures of finite substances. Thus we have exact knowledge in mathematics, even if this is impossible in the natural sciences.<sup>32</sup> This means we can obtain some understanding what the measures of numbers and geometrical figures are like, and how they are related to what they measure.<sup>33</sup> Thus, we can learn how the measures of things are infinite, standing in no proportion to the measured, how they include and reconcile all opposites in themselves, and so on. Cusa thinks we can learn enough for our purposes, and given that we can be sure there must be Measures of actually existing creatures, which, since the Measures must include all that is in the measured, have real and not merely mental being,<sup>34</sup> we can arrive at a conception of God, who is everything that creatures are *absolute*, and everything they can be, and so infinitely more than they are, and, unlike universals, which would also have absolute being, is real. Thus, given what we do know, according to Cusa, we can put together a plausible picture of our knowledge and conception of God without resorting to an Aristotelian epistemology. Moreover, this account preserves the metaphysical part of Aquinas. It can justly be called a Platonic application of his doctrine of analogy to God.

But objections can still be raised. Hopkins argues that Cusa has not solved the problems with talk about God at all. "If affirmative theology terminates in likenesses that are infinitely remote from Divine Being

and if negative theology conceives of God as Inconceivable Infinity, what entitles Nicholas to refer to creatures as a reflection of the image of god . . .?"<sup>35</sup> We must note here that Cusa claims we can know (in an everyday sense, not as in an Aristotelian science) that God is the Measure of things and has their being, and infinitely more. So, since we can at least know that things have being, and know something about that being (but again, no precise knowledge of essence occurs here), we can get some notion, though an inadequate one, of God. Essentially, this is Aquinas's view with one alteration--Cusa denies Aristotelian scientific knowledge of creatures. What bothers Hopkins is the *infinite* gulf between God and creatures; Cusa holds that God stands in no finite proportion to creatures, and Hopkins takes that to be tantamount to no proportion at all, and hence no resemblance at all. In fact, Cusa intends that creatures are infinitesimally like God, and so in an infinitesimal proportion to Him, and takes this to be enough for his purposes.

But Hopkins objects, ". . . we might understand it <the principle of *nulla proportio*> merely to mean that there is no fully adequate likeness between God and creation . . . But . . . this latter thesis does not square with the texts". Let me begin with the meaning of the principle of *nulla proportio*. Both a 100 foot line and 1 foot line are infinitely shorter than, and stand in no proportion to, the infinite straight line that measures them. But nonetheless the 100 foot line has more reality than the 1 foot line, and seeing this enables us to see as well as we may, though inadequately, what the infinite line is. From within the finite order the 100 foot line is closer to the length of the Measure, though from the point of view of the infinite both lines are infinitely distant. Again, standing at the 1 foot mark one must look to and beyond the 100 foot mark to look in the right direction and see the whole infinite line. Of course, one cannot see far enough to see more than an infinitesimal part of it, but he knows the direction to look in and what the problem is--it's that he can't see far enough. This ignorance of the infinite line is not ignorance without qualification, then, but learned ignorance, and knowledge in the ordinary sense of the word, though only partial knowledge.

For all this, see especially *De docta ignorantia* I 24.78-79, where Cusa says "the affirmative names we ascribe to God befit him only infinitesimally. For such are ascribed to Him in accordance with something found in created things . . . Therefore, if affirmative names befit God, they befit Him only in relation to created things--not that created things are the cause of [these names'] befitting Him, for the Maximum can have nothing from created things; rather, [I mean that these names] befit Him on the basis of His infinite power in relation to created things". That is, his power establishes the relation to finite things that enables us to say He is greater than they, and infinitely so, and to say what aspects of finite things participate more adequately, but still infinitesimally, in God's being. Again, in *De posset* 10, creaturely beauty is said to be a "disproportionate likeness" to the Beauty of God. A disproportionate likeness is an infinitesimal likeness, but still a likeness. Perhaps Hopkins thinks there is something wrong with the notion of an infinitesimal, that it is somehow self-contradictory that something should be of infinitesimal magnitude, or that one infinitesimal should be greater than another. If he does, he is wrong. Non-standard Analysis has shown us that infinitesimals need not be analyzed out of existence as self-contradictory beings, as nineteenth-century mathematicians thought. There is no contradiction in the notion of an infinitesimal, so it can be used in

a model of the relation of God to creatures.<sup>36</sup> That is, as long as we allow degrees of numerically measurable degrees of likeness, there is no contradiction in infinitesimal degrees of likeness. It may be objected that we don't know what an infinitesimal degree of likeness is, never having been acquainted with two things alike, but only to an infinitesimal degree, but Cusa is quite aware of this fact. To undermine his position we should have to undermine his arguments for the existence of an absolute Maximum, that is, for the existence of God, a project that would probably have amused him, given that the existence of God was not seriously questioned in his day. Or else we should have to undermine his Platonic theory of knowledge, which, if we are given the theistic viewpoint and restricted to an Aristotelian alternative, would be hard to do at all decisively. For his time, Cusa's notions about the knowledge of God seem perfectly competent, and a brilliant alternative to Aquinas's, and even for modern theists they seem to open up possibilities that should be taken seriously.

But what of the texts this won't square with? Hopkins refers us especially to *De possest*, and in his translation of that work he seems especially impressed by the peroration.<sup>37</sup> This isn't the best place to look for someone as given to rhetorical over-statement as Cusa, but when we do look I don't think we find it too damaging to my thesis. Cusa is advancing the claims of a non-intellectual, mystical vision of God, and so, of course, he emphasizes how it is that God is darkness to the intellect. But although he says that God "remains completely unknown to all those who seek Him by way of reason and intellect", and that He "surpasses all understanding",<sup>38</sup> he has just explained what he means by this with a little less hyperbole. "God is encountered . . . ignorantly . . . where it is not known what substance, what thing or what being He is . . . as a thing where opposites coincide . . . not as two but as above duality and otherness".<sup>39</sup> Again, in *DP* 15 Cusa says that when one ascends beyond reason he realizes he does not have "any greater access to the invisible God, who remains invisible to him. (For God is not seen by means of any light from the seeker's own reason.)" Surely all this has been explained. We cannot know God because we cannot know his essence, nor, indeed, even form a conjecture of it, that is, an inexact notion of what it is in itself, as we can with creatures. We can only form a relative notion of God as that to which the being of creatures (which is also unknown in itself) is infinitesimal.

Hopkins argues that "if all of these symbolisms and illustrations are infinitely distant from Infinite Reality, then in accordance with Nicholas' own example of an infinite line, a "fitting" symbolism will be no closer to reality than an "unfitting" one."<sup>40</sup> This is true from the standpoint of the infinite, just as from the standpoint of the real numbers one infinitesimal is no greater than another, since any real number will exceed both by the same (real) magnitude. But the standpoint of the infinite is not our standpoint, the standpoint of the infinitesimal is. The one symbolism is, truly, though infinitesimally, more fitting than the other, and we can see that it is, for we can see the infinitesimal. We are infinitesimal. We cannot see the infinite, just as one cannot arrive at real numbers by operating with infinitesimals if he is not allowed an infinite number of operations. We can only see that it is there, and how it is related to the infinitesimal. We know what direction to look in, and we know what things are closer to our finite horizon as we look in the right direction, but we cannot see far enough to make out the infinite itself.

## III

Cusa's solution to Iacobi's problem depends on finding an understanding of the relations between finite, created things and God in relations between finite mathematical entities and their Measures. (*DI* I c.12) He wants to establish that: (1) A genus of finite things requires an infinite Measure. Thus, given creatures, an infinite god may be assumed to exist (*DI* I cc. 16-18). (2) Qualities that are opposed and mutually exclusive within a genus of finite things are found coexisting in its infinite measure. This establishes the coincidence of opposites in God (*DI* I cc. 13-16). (3) The infinite Measure of a genus of finite things is entirely contained in each of them. Thus he shows how God is present in each creature as its goodness and reality (*DI* I cc. 17-18). (4) Relations which establish a distinction between particular individuals within a genus of finite things do not do so in the infinite Measure of that genus. this is the foundation of Cusa's treatment of the Trinity (*DI* I cc. 19-20). There are other points made in *DI* I, but these are some of the chief ones, and will illustrate the method nicely. I will take them up in order.

(1) A set of finite things may require an infinite Measure: Take the set of straight lines. To understand the nature of a straight line, we must understand that it can always be extended, so that it can be of any finite length, however great. To have a Measure of finite lines, we must have a line that contains all that is real in any possible line. The reality of a line is its length, so the Measure must be of infinite length.<sup>41</sup> Cusa grants that no mental image of a particular line can actually be infinite.<sup>42</sup> He also grants that none of the approximate lines found in the real world are infinite, and that there is a maximum finite "real" line.<sup>43</sup> But the Measure of a line must contain more than the reality of its actual participants--it must provide for all possible linear reality. (The particular 3 inches of line AB is not in the maximum line, of course, for the Measure only contains the being of what it measures absolute, that is, considered only as being, not in its particularity. So 3 inches is contained in the measure, as well as every other length, but not that particular 3 inches, nor line AB itself, save absolute.) The crucial point in all of this is that even if no actually infinite line exists, to understand what a line is we must presuppose an infinite Measure for it.

The Measure is not a line segment to be laid along a line repeatedly end to end. Cusa does not conceive a yardstick as a true Measure. At first one may wonder why not. Can Cusa deny that an operation with the Measure may produce the measured? After all, he does allow that an infinite line is a Measure both of a circle and a sphere precisely because rotating the line about a point, and the resulting circle about its diameter, produces infinite figures that are Measures of these finite figures (*DI* I c. 13). But I suspect Cusa thinks a Measure must be the maximum in the species, so that the being of finite things is contained in the Measure in a way that rules out producing the measured by an operation on the Measure. This is not inconsistent with allowing that several Measures of different species can be "contained in" a single maximum via productive operations, and Cusa thinks he must allow that, a more literal sense of containment being impossible here, in order to meet the neo-Platonic requirement that the many be somehow unified. In the case at hand, the maximum line measures everything that the maxima

reduced to it, the circle and sphere, do, but it does not measure these maxima themselves. Rather, Cusa says it is "coincident with" these maxima. (Coincidence here is not conceived as inconsistent with the priority of the producing Measure.) Thus productive operations will establish that one Measure is coincident with another Measure, and guarantee that what is measured by the produced Measure is measured by the producing measure, but they cannot be used to establish an unmediated relation between Measure and measured.

(2) A "coincidence of opposites" is required in an infinite Measure: Cusa gives a number of arguments that a coincidence of opposites occurs in the Measures of geometrical entities. In *DI I c. 13* he suggests that a straight line of infinite length is coincident with a circle of infinite radius tangential to it. Coincident geometrical figures are, of course, one and the same figure (at least in finite figures), so an infinite circle "is" an infinite line. There is another argument in *DI I c. 14*, making an infinite line coincident with an infinite triangle. (The triangle is infinite in the length of its base. As Cusa sets up the series of which the triangle is a limit, the triangle's altitude approaches zero as the base increases without limit.) There are other cases aplenty, but these give the spirit of the enterprise. If he is right he has clearly shown that opposites in the finite realm, such as curved-straight and triangle-line, can "coexist in" (that is, have) one infinite measure.

If it is objected that the opposites surely do not "exist in" the measure, it can perhaps be said that their measures are coincident, being produced by a single prior Measure, and this is what is meant by the opposites' "existing in" that prior Measure. They coexist in the Measure *virtually*, then, that is, the Measure has the power to produce both out of itself. But the objection can be driven home, one might think, if one concentrates on the thoroughly *ad hoc* nature of the productive relations between Measures. Even here, though, Cusa could make a stand. He can point out that we don't understand measures as they are in themselves, and so we don't understand their relationships to one another beyond this, that they must somehow all coincide in one Measure in the end, since the universe is unified and organized, and the best way we can understand this is to think of the relation between prior and posterior Measures as productive. If we could know the real relationship, as it is in itself, between prior and posterior measures, we would not find it at all *ad hoc*, but we must work with a distant image of the real relationship.

(3) The infinite Measure may be contained in every finite thing it measures: A finite line is divisible, of course, but is an infinite line? No, Cusa argues, for it has no parts, since: (a) No finite segment of it is a part, for a finite segment stands in no proportion at all to the whole. A finite segment is to the infinite line as a point is to a finite line. (b) No infinite segment of the infinite line is part of it, for every infinite segment is equal (in length) to the whole!<sup>44</sup> Cusa goes on to conclude that, since a finite line is indivisible in its essence, that is, every part of it has the entire essence, the infinite line must be its essence. The idea seems to be that the essence must be indivisible, else it would be divided up when the finite line is, and it must be length, but the only indivisible length is an infinite length.<sup>45</sup> Thus, Cusa has argued that: (1) the Measure, that is, the infinite line, is a Platonic form satisfying the self-predication requirement, since it is long and a line, and the re-

quirement of perfect being, since it contains all possible length; (2) the Measure is a Neo-Platonic form, joined to and existing in each particular line; (3) the Measure is length considered as such, *absolute*, or considered as an essence. Note how the last point supports the analogy of being in God.

His point might be made another way. Like the infinite line's length, the length of the finite line (its essence) has no parts (though the line has parts in virtue of having a length, of course). Moreover, this length is not any particular finite length, such as 3 inches, if one considers it as it is the essence of the line. It is of the essence of a line to have length, but not to have any particular length. So it makes no sense to say that the essence of the finite line is, *absolute* and *qua* essence, even an infinitesimal "part" of an infinite line, as though we were speaking of one line segment being a part of another. It does not stand in a part-whole relation at all. Of course, to move from this to the assertion that it is thus the same as an infinite line is bad reasoning, and to say that a longer line has more being in virtue of its greater length may now seem absurd, as well as saying that the Measure of a line, to contain all possible linear being, must be an infinite line. It is not hard to see, then, why Cusa gives the argument he does rather than this one. It is harder to see how Cusa can handle the issues raised by my suggestion. But I expect he would argue that I have illegitimately equated essence and being, the essence of a line providing only potential being limited to length, and the being of a particular line being the actually realized part of the potential being established by its essence. Thus different lines would have different amounts of actual being, but the same essence and potential being. Then he could point out that my argument only establishes that the essence of a line coincides with the Measure, while his argument is needed to establish the coincidence of being with the measure, since a particular length, considered *absolute*, is the infinite Measure.

(4) Relations distinguishing individuals in the finite realm may not do so in the infinite realm: This is argued from the mathematical examples in *DI* I c. 19, where Cusa points out that the maximum line, the Measure of all lines, is a maximum triangle, and there are three lines in a triangle, so in the one Maximum line there are three lines. The relation between the sides of a finite triangle make them distinct individual lines, but in an infinite triangle the same relations fail to do this. Contemplating the example we can begin to attain an obscure understanding of the Trinity in God. The distinction between the Persons in God do not make them separate individuals, though in the finite realm such distinctions would do this.

The general pattern, then, is this. First Cusa examines mathematical examples to see how figures are related to their maxima, or Measures, and how these Measures differ from the finite figures they measure. This can be done, since mathematical figures are themselves mind-dependent and so knowable by us in their essence. Cusa then extends these relations to the real world, positing a real maximum Measure of every creature, God, and shows us how it is in some cases possible, and in others necessary, that God be related to creatures as mathematical Measures are to mathematical entities. Although we cannot conceive God in Himself, but only as the Measure of creation, and though we do not even know created things in their natures, nonetheless we are left with

a knowledge of God sufficient to claim a learned ignorance concerning Him, and verify the truths of the Christian faith.

It is to be noted that the mathematical Measures are no more known directly than is God. The maximum line, maximum circle and the like are known, not by drawing and analyzing figures in which they occur, for no such figures can be drawn or imagined, but by working with finite figures. What we do is to examine a progression of finite figures to get a notion of what it will be like at the end of the infinite process. We presuppose the Maximum line at the end of the process, rather than holding that the process itself is all there is, and we do this, of course, for Platonic metaphysical reasons. The process itself is a clue to the nature of the Maximum at its end, but we never deal with the Maximum directly any more than we learn of God by direct awareness of Him. The Measure is only knowable through our knowledge of the measured, and God is knowable only at an additional remove, since we do not even know the realities He measures as they are in themselves. But we can know Him through a certain learned ignorance, and Cusa's *De docta ignorantia* is an exposition of the way to this knowledge.

#### ENDNOTES

<sup>1</sup> I follow Rudolf Haubst, "Nikolaus von Kues und die Analogia Entis", in Paul Wilpert ed., *Die Metaphysik im Mittelalter: Ihr Ursprung und ihre Bedeutung* (Miscellanea Mediaevalia II, Vorträge des II Internationalen Kongresses für Mittelalterliches Philosophie, Köln 31 August - 6 September 1961) (Berlin: De Gruyter, 1963), 686 ff.

<sup>2</sup> I am using a suggestion made in response to Haubst by Klaus Iacobi, *Die Methode der Cusanische Philosophie* (Munich: K. Alber, 1969), 214 ff, and again in "Ontologie aus dem Geist 'belehrten Nichtwissens'", in *Nikolaus von Kues. Einführung in sein philosophisches Denken*, ed. Klaus Iacobi (Munich: K. Alber, 1979).

<sup>3</sup> In *DI*'s letter of dedication Cusa speaks of the insight received on his trip home from Greece, by which he learned to "embrace--in learned ignorance and through a transcending of the incorruptible truths which are humanly knowable--incomprehensible things incomprehensibly". Mathematical truths are for Cusa the only incorruptible truths that are humanly knowable. The point of *DI* is to follow out this insight. See Book I cc. 11, 12. The project is Platonic, of course, and Augustinian, in the spirit of *De libero arbitrio* II. (I will use Jasper Hopkins fine translation, *Nicholas of Cusa on Learned Ignorance: A Translation and Appraisal of De Docta Ignorantia* (Minneapolis: Arthur J. Banning, 1981), throughout this paper. The present citation is from p. 158.)

<sup>4</sup> S.Th. Ia. 5, 1. "I reply that it must be held that goodness and being are the same in reality (*secundum rem*), and they differ in formula (*ratio*) alone. That this is so is clear, for the formula of good consists in this, that something is desirable. Hence the Philosopher says that "the good is that which all desire". It is obvious that each thing is desirable insofar as it is perfect, for all things desire their own perfection. But insofar as each thing is perfect, to that extent it exists (*est in actu*). Hence it is obvious that insofar as something is good it is a being (*ens*); for to be is the actuality of every reality . . ." "And it is replied in

the same way to the third objection, that good is called greater or less with reference to a supervening act, for instance, with reference to knowledge or virtue". (I have translated the citations from Thomas myself.) So Aquinas specifies that to be good is really the same as to exist. However, to exist without qualification is to attain to some degree of actuality, however slight. Thus there are degrees of goodness but not of existence, for one either has some degree of actuality or not, and that's the end of it. To be good without qualification is to attain to complete actuality. So to exist, full stop, is to be good to some extent or other, but not necessarily to be completely good in all respects. Cusa also subscribes to the principle, although he doesn't mention it explicitly anywhere I've looked. He states very few metaphysical principles explicitly, preferring to talk about God rather than metaphysics in the abstract.

<sup>5</sup> S.Th. Ia 5, 3 ad 2. "In response to the second objection it must be maintained that no being is called bad inasmuch as it is a being, but inasmuch as it lacks being; for instance, a man is called bad inasmuch as he lacks virtue, and an eye is called bad inasmuch as it lacks clarity of vision." S.Th. Ia 5, 5 ad 3 and ad 4. "In response to the third objection, it must be maintained that every being is in accord with some form. Hence, in accord with every being of a reality, there follows upon it measure, species, and order. Thus a man has a species, measure and order insofar as he is a man, and in the same way insofar as he is white, and insofar as he is virtuous, and insofar as he is a knower, and in accord with all things that are said about him. But an evil removes (*privat*) a certain being, as blindness removes the being of sight. Hence it does not destroy every measure, species and order, but only that measure, species and order that follow upon the good it removes, for instance, in the case of blindness, the being of vision".

<sup>6</sup> For this linguistic approach to the issue, see St. Anselm, *De casu diaboli*. According to Thomas, God knows the world in the ideal way described, for He has no ideas of evil things, but knows the evil through the good. S.Th. Ia 15, 3 ad 1: "In response to the first objection it must be maintained that evil is cognized by God not through its own proper form (*proprium rationem*) but through the form of the good. And therefore there is no idea of evil in God, neither considered as the idea is an exemplar nor considered as it is a form". (Cf. ad 3 on God's knowledge of matter.)

<sup>7</sup> For the employment of this line of argument in response to the problem of evil, see Aquinas, S.C.G. II 39-45. Cusa, *DI* II 1.96-97, argues that "Since neither an ascent to the unqualifiedly Maximum nor a descent to the unqualifiedly Minimum is possible, and thus (as is evident regarding number and regarding the division of the continuum) no transition is made to the infinite: clearly there must always be positable a greater and a lesser--whether in quantity or virtue or perfection, etc.--than any given finite thing, since the unqualifiedly Maximum and Minimum is not positable in [finite] things . . . Therefore, only the absolutely Maximum is negatively infinite. Hence, it alone is whatever there can at all possibly be". (Citations from Cusa are taken from the translations of Jasper Hopkins, with the occasional omission of a word Hopkins marks as supplied, or addition of supplied words by myself. Supplied words are contained in square brackets.) Notice the typical use of the mathematical example to give a clue to what is true generally about being. It appears from *DI* II 1.104 that there is no evil or worldly imperfection in the necessary limitation of a finite being in virtue of its

being the sort of thing it is: ". . . every created thing *qua* created thing is perfect—even if it seems less perfect in comparison [speaking absolutely] with some other [created thing] . . . Since He imparts without difference and envy and since [what is imparted] is received in such a way that contingency does not allow it to be received otherwise to a greater degree: every created being finds satisfaction in its own perfection . . . It does not desire to be another created thing". (The emphasis is mine.)

<sup>8</sup> S.Th. Ia 4, 2. "I reply that it must be held that in God are the perfections of all things. Hence He is called universally perfect, for there is not lacking in him any nobility that is to be found in any genus, as the Commentator says". The reply to the first objection asserts the coincidence of opposites in God: "In reply to the first objection it must be maintained that it is just like the Sun, as Dionysius says: this one existent by uniformly illuminating receives uniformly in itself beforehand many different substances and qualities of sensible things, and so to a much greater degree it is necessary for all things to exist beforehand in a natural union in the cause of all things. And thus those which are diverse and opposed in themselves exist beforehand in God as one, without detriment to His simplicity". The reply to the third objection asserts the identification of perfection and perfect being, including all that is real in any creature. "In reply to the third objection it must be maintained that just as the same Dionysius says, although being itself is more perfect than life itself, and life itself than wisdom itself, if they are considered as they are distinct in form, still a living thing is more perfect than what merely is, since a living thing is also a being, and a wise thing is also alive. Therefore, even though a being does not include in itself living and being wise, since it is not necessary that what participates in being should participate in every mode of being, still the being itself of God includes in itself life and wisdom, for none of the perfections of being can be lacking in him who is being itself subsisting." It may well be that Aquinas sees some difficulties in these Neo-Platonic notions, for in his determination he gives an account of the way in which God contains the being of all things that could be intended to disarm the metaphor of the inherence of every sort of being in God. ". . . whatever perfection is in the effect, it is necessary that it be found in the efficient cause either in accord with the same form, if it is an univocal agent, as for instance a man is who generates a man, or in a higher manner (*eminentiori modo*), if it is an equivocal agent, as for instance, in the Sun there is a similitude of those which are generated through the power of the Sun. For it is obvious that the effect preexists in the power that is in the acting cause. But preexisting in the power of the acting cause is not preexisting in a more imperfect manner, but rather in a more perfect, even though preexisting in the capacity of a material cause is preexisting in a more imperfect manner, for matter, as such, is imperfect, but an agent, as such, is perfect. Since, then, God is a first efficient cause of things, it is necessary that the perfections of all things exist beforehand in God in a higher manner. And Dionysius touches on this line of reasoning (*hanc rationem*), remarking about God, 'not indeed that this is, rather it is not, but it is all things as the cause of all things'. Christian Neo-Platonists, of course, cannot take the inclusion of all being in God quite as literally as Plotinus might have taken it, since they cannot be Pantheists, but must put a gulf between God and His creation. But some Christian thinkers took the metaphor more seriously than others, and it

seems likely that Cusa the Platonist took it more seriously than did Thomas the Aristotelian.

<sup>9</sup> See Section II of this paper for further discussion of *DI* I 13.35-36. The argument runs as follows in Paragraph 35: "I maintain, therefore, that if there were an infinite line, it would be a straight line, a triangle, a circle, and a sphere. And likewise, if there were an infinite sphere, it would be a circle, a triangle, and a line. And the same thing must be said about an infinite triangle and an infinite circle". "First of all, it is evident that an infinite line would be a straight line: The diameter of a circle is a straight line, and the circumference is a curved line which is greater than the diameter. So if the curved line becomes less curved in proportion to the increased circumference of the circle, then the circumference of the maximum circle, which cannot be greater, is minimally curved and therefore maximally straight. Hence the minimum



coincides with the maximum. Not even a scruple of doubt about this can remain when we see in the figure here at the side that arc CD of the larger circle is less curved than arc EF of the smaller circle, and that arc EF is less curved than arc GH of the still smaller circle. Hence the straight line AB will be the arc of the maximum circle, which cannot be greater . . . Indeed, in the maximum line curvature is straightness . . ." Note, first of all, that a maximum circle here is not one which is maximally circular, but the largest circle, or to be more precise, one so great that no greater is possible. (The reader will, of course, note the echo of St. Anselm's description of God in his ontological proof.) This maximum circle is the Measure of circle, according to Cusa. In Cusa's geometrical analogy to being, the Measure of a figure is not merely one which perfectly possesses all the properties of that sort of figure, for every figure of

that sort is like that. In the second place, note that Cusa does not think this greatest possible circle is to be found in God, though the Maxima of created things are found there. Rather, mathematics are of purely human invention, and the Maxima of mathematical are to be found nowhere except in the human mind. This second point and its significance will be developed in the next section of the paper.

<sup>10</sup> In *DI* II 4.115-116 it is argued, first, that "the Absolute Quiddity of the Sun is not other than the Absolute Quiddity of the Moon (since [this] is God himself, who is the Absolute Being and Absolute Quiddity of all things); but the contracted quiddity of the Sun is other than the contracted quiddity of the Moon (for as the Absolute Quiddity of a thing is not the thing, so the contracted [quiddity of a thing] is none other than the thing". Now "the whole universe sprang into existence by a simple emanation of the contracted maximum from the Absolute Maximum", and "hence, just as the abstract is in the concrete, so we consider the Absolute Maximum to be antecedently in the contracted maximum, so that it is subsequently in all particulars because it is present absolutely in that which is contracted in all things. For God is the Absolute Quiddity of the world, or universe". (The contracted maximum is the universe, which is infinite privatively, that is, only because there does not happen to be anything greater than it (among contracted beings) not because there cannot be anything greater (*DI* I 14.97).) So there is only one (Absolute) Quiddity of all things in reality, though God can be con-

sidered as He provides the being of this or that genus, and so distinctions can be drawn among the different divine ideas. This is Thomas' view, too, as far as the divine ideas go, but he inserts the substantial forms in things as intermediaries, for which see Notes 21 and 13.

<sup>11</sup> *DI I* 12.33, which states the program for the whole enterprise: "But since from the preceding it is evident that the unqualifiedly Maximum cannot be any of the things which we either know or conceive: when we set out to investigate the Maximum symbolically, we must leap beyond simple likeness. For since all mathematical are finite and otherwise could not even be imagined: if we want to use finite things as a way for ascending to the unqualifiedly Maximum, we must first consider finite mathematical figures together with their characteristics and relations. Next, apply these relations, in a transformed way, to corresponding infinite mathematical figures. Thirdly, thereafter in a still more highly transformed way, apply the relations of these infinite figures to the simple Infinite, which is altogether independent even of all figure. At this point our ignorance will be taught incomprehensibly how we are to think more correctly and truly about the Most High as we grope by means of a symbolism". There are two stages to the enterprise. In the first one works with mathematical (geometrical) figures alone, relying only on relations proper among such figures, to discover their maximums. These maximums will, it turns out, be maximal in magnitude, for degrees of that mathematical quality correspond to degrees of being. In the second stage we examine the relations between the mathematical maxima, noting, for instance how they all coincide. In the third, we draw the analogy between the system formed by finite figures and these mathematical maxima, and the system formed by the universe of finite beings and their Absolute Maximum, which is God.

<sup>12</sup> In *DI II* 1.91 Cusa argues concerning motions: "nor can one motion be the measure of another, since, necessarily, the measure and the thing measured differ." The point is that the measure cannot be at the same ontological level as the measured, it must be, as it were, the perfection of the measured, its Form. He goes on: "Although these points will be of use to you regarding an infinite number of things, nevertheless if you transfer them to astronomy, you will recognize that the art of calculating lacks precision, since it presupposes that the motion of all the other planets can be measured by reference to the motion of the Sun. Even the ordering of the heavens . . . is not precisely knowable". The motion of the Sun cannot be the true measure of the motions of the other planets, then, presumably because it is not an "infinite" motion. We make do with it in our human science because the true measure of motion in God is not accessible to our intellects. In subsequent paragraphs he gives a similar analysis of the nature of music, arithmetic, medicine, alchemy and all the other human arts. They all rely on the use of a measure that is at the same ontological level as the measured, and so none of them arrives at precision or can discover true equalities. *S.Th. Ia.* 13, 6. ". . . it was shown above that such names [names not used metaphorically of God] are not only said of God causally, but also essentially. For when it is said "God is good", or "God is wise", it is not only signified that He is the cause of wisdom or goodness, but that these exist in him beforehand in a higher way. Hence, in accord with this, as regards the reality signified by the name, they are said first (*per prius*) of God rather than of creatures, for such perfections flow from God into creatures. But as far as the imposition of the name is concerned, it is imposed by us first concerning creatures, for we cognize creatures first". If Thomas

intends that we learn of the existence of such perfections, but not their natures as they are in themselves, from creatures first, he comes very close to the position I want to attribute to Cusa in section II of this paper. But the point in the present context is that the recognition of the perfections in creatures requires that we presuppose the Measures of those perfections. Compare also *S.Th.* Ia 2, 3, the "fourth way".

<sup>13</sup> See McTighe, "Nicholas of Cusa's Theory of Science and its Metaphysical Background", in *Niccolo Cusano agli inizi del mondo moderno* (Florence: Sansoni, 1970), 317-38, especially part II. As McTighe points out, Cusa says that humanity in Socrates is Socrates (*DI* II 4), not Socrates substantial form. There is no metaphysical structure within the individual for Cusa. W.H. Hay, "Nicolaus Cusanus: Structure of his Philosophy", *Philosophical Review* 61 (1952), 14-25, suggests that no finite creature can have total being of any sort, for total being even of a restricted sort is infinite. So to have the quality of heat completely would entail being infinitely hot, and nothing infinite occurs in nature. (Pp. 20-21. Hay mistakenly takes the opposed qualities of heat and coldness to be both of them positive realities.) Perhaps it is for a like reason that no creature is perfect in its species.

<sup>14</sup> *DI* II 2.99. ". . . A created thing has from God the fact that it is one, distinct and united to the universe . . . However, it does not have from God (nor from any other positive cause . . .) the fact that its oneness exists in plurality, its distinctness in confusion, and its union in discord". In II 1.97 he argues that the universe exists in the best way it can, but can only exist in a contracted state (that is, as particulars). This failing is on the part of the universe, which cannot receive goodness = being except in that way. It is not a failure of God's power.

<sup>15</sup> *S.Th.* Ia. 16, 2; 84, 1; 84, 6. Thomas refers to the concept as a "similitude" in these places.

<sup>16</sup> Aquinas, of course, does not think that the concepts that actually occur in human science are infallible, or that a perfect adequation (or identity) of concept to substantial form actually occurs (at least, outside of mathematics, logic, and perhaps, some areas of metaphysics). The identity of concept to substantial form is for the most part an ideal that is not achieved, but Aquinas does think of it as the defining ideal for human knowledge, and presumably thinks it a possible ideal in theory, even if it is very difficult, or even impossible, to attain to it in practice in natural science. Cusa is more a skeptic, denying even the theoretical possibility of Aquinas's ideal of knowledge, for which see Note 12, and *DI* I 3.9, where he argues: "It is self-evident that there is no comparative relation of the infinite to the finite. Therefore, it is most clear that where we find comparative degrees of greatness, we do not arrive at the unqualifiedly Maximum; for things which are comparatively greater and lesser are finite; but, necessarily, such a Maximum is infinite. Therefore, if anything is posited which is not the unqualifiedly Maximum, it is evident that something greater can be posited. And since we find degrees of equality (so that one thing is more equal to a second thing than to a third, in accordance with generic, specific, spatial, causal, and temporal agreement and difference among similar things), obviously we cannot find two or more things which are so similar and equal that they could not be progressively more similar ad infinitum. Hence, the measure and the measured--however equal they are--will always remain different. Therefore, it is not the case that by means of likenesses a finite intel-

lect can precisely attain the truth about things". Cusa argues here that one cannot attain to the truth about natural things by means of "similitudes". His argument is too compressed to grasp easily. The point is that the quiddities of things are Maxima in their genera, and these quiddities are the truth of things, that is, we must know the quiddities to have real knowledge of these things. But being Maxima, the quiddities are not knowable by us, for whatever concept the intellect forms is a similitude of the quiddity, not the quiddity itself, and so it is capable of greater similarity, no matter how great its similarity is. (Hay, op. cit. p. 24, points out that perfect similitude is infinite similitude, and so impossible in a finite creature. I suppose that is where Thomas would object, claiming that perfect similitude and a perfect substantial form are neither of them infinite or impossible to creatures.) The intellect, then, can only form a concept of some finite degree of being in the appropriate genus, a concept only similar to the nature of the thing up to a point, and then attempt to increase that being (its similarity to the quiddity) until it reaches a precise concept of the Maximum. Of course, it can never reach the infinite Maximum in this way, no matter how long it keeps it up, for it can increase being only by finite proportions. (These limitations apply to all finite beings. In *De posset* 42 Cusa asserts that only God has precise knowledge of anything. After all, God is the essences of things, so He would know them.) Aquinas's reply to all this would have to claim that a quiddity is not infinite in such a way as to be inconceivable in itself, but that God is infinite in this way. Aquinas does say that God in no way resembles creatures, though creatures resemble God, just as the portrait resembles a man but not vice versa. *S.Th. Ia. 4, 3 ad 4*. That is exactly what Cusa wants for Forms in general. No doubt Aquinas would deny it to him on the Aristotelian ground that the Form of a creature is the creature, and is not the Exemplary Form in God. Cusa would insist either that the only form which is the creature is the Exemplary Form, denying Aristotelian individual substantial forms, or else claim that the individual substantial form which is the creature is an imperfect similitude of the Exemplary Form. In neither case is there any room made for human knowledge of an Aristotelian sort.

<sup>17</sup> In *DI I c. 13* Cusa begins his discussion of mathematical examples by saying that "if there were" infinite lines etc., then they would have to be of such a character. At the end of c. 14 he says, "Hence, by means of this hypothesis, you can be helped in ascending to nonquantitative things; that which is impossible for quantitative things, you see to be altogether necessary for nonquantitative things". I think he wants to say that the infinite line does not even have mental existence. Compare *S.Th. Ia. 7, 3*: "Whether there can be anything actually infinite in magnitude". Thomas concludes that there cannot, but more (in the reply to the first objection), that mathematicians do not ever actually consider infinite lines, because "the geometer does not need to assume any line that is actually infinite, rather he needs to take some line that is finite in act, which can be extended as far as necessary (*a qua possit subtrahi quantum necesse est*), and he names this an infinite line". In connection with Cusa it is especially interesting when Thomas, in the reply to the second objection, says "although the infinite is not contrary to the form of magnitude in general, it is nonetheless contrary to the form of every one of its species, that is, contrary to the form of a two-cubit [magnitude], a three-cubit [magnitude], circular [magnitude], or triangular magnitude, etc. But it is not possible in the being of the genus, because it is [possible] in no species. Hence it is not possible for any

magnitude to be infinite, since no species of magnitude is infinite". Cusa might have agreed with the argument in the last two sentences, regarding the genus or Measure of magnitudes as something not real, though he did think of it as something one could intelligibly talk about. But the corresponding Measure of Being that is God would be real, and so there infinitude is possible, even though it is impossible in every contracted being.

<sup>18</sup> A real universal would be in things, but for Cusa things are images of their Measure. The Measure is a Platonic Form, not an Aristotelian universal. It is not in things as their substance, i.e., as individual substantial forms, but only through its power. Cusa is a Platonist, not a moderate realist. There are, of course, grave difficulties in Cusa's version of theory of Forms, as well as Thomas' theory of substantial forms and universals. But I don't think a historical paper is the place to discuss difficulties that did not exercise the minds of the authors it discusses. Moreover, though there are difficulties to be raised (the possibility of value having a real causal role in the world, and how creation and exemplary causation can occur, but not according to any sort of natural law, are the two points that seem most difficult to me), I do not think that these difficulties reveal any kind of logical or conceptual incoherence, or force the respondent to go any further than taking some intuitively implausible positions. I realize that it has sometimes been the fashion to criticize philosophical views with the remark that one unfortunately finds it impossible to understand what they mean, but such pointed ignorance has begun to fall out of fashion of late. So have the theories of meaning that once backed up one's ignorance by showing that it was not the fault of lack of sympathy, or of lack of skill as an intellectual historian, but the fault of the theory itself.

<sup>19</sup> *DI* II 2.99. "An infinite line is infinite straightness, which is the cause of all linear being. Now, with respect to being a line, a curved line is from the infinite line; but with respect to being curved, it is not from the infinite line. Rather the curvature follows upon finitude, since a line is curved because it is not the maximum line". The point here is made clear by looking back to I 13.35, where the example of the Maximum line is first introduced. The Maximum line is conceived there as the limit approached by a circle whose diameter grows ever larger. It is only a circle that is not of infinite circumference that will fail to coincide with the Maximum, that is, the line tangential to it. The point is applied to God and his creatures next, following the program of Book I chapter 12, cited above, so that "similarly with things: since they cannot be the Maximum, it happens that they are diminished, other, distinct, and the like--none of which have a cause . . .", for "it does not have from God (nor from any positive cause but [only] contingently) the fact that its oneness exists in plurality, its distinctness in confusion, and its union in discord". Compare *DI* I 18.52, where Cusa tells us that "A curve, which admits of more or less, cannot be a maximum or a minimum. Nor is a curve, qua curve, anything--since it is a deficiency of what is straight. Therefore, the being which is in a curve derives from participation in straightness, since a curve, considered maximally and minimally, is only something straight".

<sup>20</sup> I am reminded of Kant's ethics. If ethical standards are to be objectively obligatory on men, then there must be something in their nature as men that makes them recognize the obligation.

<sup>21</sup> DI II 2.102. "The being of a curved line is from an infinite straight line, though the infinite straight line does not inform the curved line as a form but rather as a cause and an essence". In a similar way God informs every created thing, and (2.104) "all things are the image of that one, Infinite Form and are different contingently . . . For the Infinite Form is only received finitely, so that every created thing is, as it were, a finite infinity or a created god". Compare Aquinas, *S.Th.* Ia, 15, 2, the last part of the reply: "Hence as many ideas are in the divine mind, as are understood by it. Which can be seen in this way. He cognizes his own essence perfectly. Hence he cognizes it in accord with every mode in which it is cognizable. But it can be cognized not only as it is in itself, but also as it can be shared in (*est participabilis*) by creatures according to some mode of similitude. But each creature has its own species, in accord with which in some way it shares in a similitude of the divine essence. Thus, inasmuch as God cognizes his essence as it is imitable by such a creature, He cognizes it as the proper form and idea of that creature . . ."

<sup>22</sup> So in *De potentia* VII 7 ad 2, Aquinas says that there is no similitude of God to creatures for two reasons: First, God has His form essentially, so that He is like heat itself in comparison to the hot, not like something hotter. In the second place, God is an equivocal cause of the being, goodness, etc. in creatures, as the Sun is the equivocal cause of a hot thing. That is, the Sun causes things to have heat, but not the self-sustaining essential heat it has itself, rather a merely accidental, dependent similitude of that essential heat. *S.Th.* Ia. 13, 2, makes it clear that God is an equivocal cause of goodness in creatures because He causes them to have goodness rather than being goodness, as He Himself is. Thus His lack of similarity to creatures does not entail that His goodness is unlike the goodness in creatures. Aquinas insists that when we speak, say, of the living God, we do not mean merely that God is the cause of life, nor only that he differs from a lifeless body, but such words say what God is. So when we say that God is good we mean that what we call "goodness" in creatures pre-exists in God. God is not called good merely because He causes goodness, rather, it is because He is good that goodness comes from Him. So to say God is good is to signify what He is, but imperfectly, for He is good in a higher way than we conceive. Again, see *S.Th.* Ia. 6, 4.

<sup>23</sup> Again, *De potentia* VII 7, ad 4, and *Super librum Boethii de Trinitate* q. 1, a. 2 ad 3., where Aquinas specifies that no creature is similar to God because every creature is incomparably less than God in the way that the caused is less than its cause. He then says the deficiency is not to be understood according to participated quantity but in the two ways already mentioned in note 21. This means that creatures are not less than God by an numerical proportion. *S.Th.* Ia. 13, 5 ad 3 makes God the measure of all things, but denies that He is proportionate to what is measured, so that He and creatures do not belong to the same order. That God's infinity is a direct consequence of His manner of being, is asserted in *S.Th.* Ia. 7, 1 ad 3. That God is greater than creatures is asserted in *S.Th.* Ia. 6, 2 ad 2.

<sup>24</sup> *S.Th.* Ia. 6, 2; 6, 3.

<sup>25</sup> *S.Th.* Ia. 13, 5.

<sup>26</sup> See Haubst, *op. cit.*

<sup>27</sup> Notoriously, Aquinas holds that we have knowledge of God qua cause of the creatures we know. See *S.Th.* Ia. 2, 2 ad 2 and ad 3; Ia. 12, 12. The passages cited above make it clear what sort of cause there must be for creatures, namely something which is goodness and being (the sort of goodness and being that belongs to creatures) itself.

<sup>28</sup> *S.Th.* Ia. 13, 4. Here Aquinas suggests that a consideration of the many and diverse ways in which creatures have some share of perfection may enable us to conceive God's perfection somewhat more adequately, since He embraces them all. (See also note 7.)

<sup>29</sup> See note 2.

<sup>30</sup> *DI* II 4.113. "God is Absolute Maximality and Oneness, who precedes and unites absolutely different and separate things--i.e., contradictions--between which there is no middle ground. Absolute Maximality is absolutely, that which all things are (in all things it is the Absolute Beginning of things, the End of things, and the Being of things; in it all things are--indistinctly, most simply, and without plurality--the Absolute Maximum), just as an infinite line is all figures. So likewise the world, or universe, is a contracted maximum and a contracted one. And it is, contractedly, that which all things are (in all things it is the contracted beginning of things, the contracted end of things, and the contracted being of things; it is a contracted infinity and thus is contractedly infinite; in it all things are--with contracted simplicity and contracted indistinction and without plurality--the contracted maximum), just as a contracted maximum line is contractedly all figures". A contracted maximum line is contractedly all figures because its measure is all figures absolutely, so that the contracted maximum (the longest line there is in fact) implicitly contains all the other figures that there are. This is clear from Paragraph 115, cited in note 10.

<sup>31</sup> *DI* II 2.100. "Now, our intellect, which cannot leap beyond contradictions, does not attain to the being of the creation either by means of division or of composition, although it knows that created being derives only from the being of the Maximum. Therefore, derived being is not understandable, because the Being from which [it derives] is not understandable--just as the adventitious being of an accident is not understandable if the substance to which it is adventitious is not understandable". Compare *De possess* 38: ". . . the highest degree of happiness--viz., the intellectual vision of the Almighty--is the fulfillment of that desire of ours whereby we all desire to know. Therefore, unless we arrive at the knowledge of God--viz., the knowledge by which he created the world--our mind (*spiritus*) will not be at rest. For as long as the mind does attain to this knowledge, it will not attain to complete knowledge (*scientia scientiarum*). This knowledge is the knowledge of God's Word; for the Word of God is the Concept both of itself and of the universe. Indeed, anyone who does not arrive at this Concept will not attain to a knowledge of God and will not know himself. For what is caused cannot know itself if the cause remains unknown. And so, since this intellect does not know all things, it will grieve intellectually in the shadow of death with eternal deprivation".

<sup>32</sup> McTighe, *op. cit.* part V. McTighe is especially interested in Cusa and natural science, so he emphasizes that mathematical theories of nature are too precise for nature to follow them exactly. He makes too

much of Cusa's constructivism, for these mathematical, even though they are not in nature, are constructed under the influence of the divine Ideas, to which our mind resonate, and the divine Ideas do rule nature. So in *De posset* 43, after it has been objected to Cusa's Platonic skepticism, "Isn't it altogether true that twice two is four and that every triangle has three angles, which are equal to two right angles?" Cusa remarks that, "We must examine what is being said. For with mathematical [entities], which proceed from our reason and which we experience to be in us as their source (*principium*); they are known by us as our entities and as rational entities, precisely, by our reason's precision, from which they proceed. (In a similar way, real things (*realia*) are known precisely, by the divine [intellect's] precision, from which they proceed into being.) These mathematical [entities] are neither an essence (*quid*) nor a quality (*quale*); rather they are notional entities elicited from our reason. Without these notional entities reason could not proceed with its work, e.g., with building, measuring, and so on. But the divine works, which proceed from the divine intellect, remain unknown to us precisely as they are. If we know something about them, we surmise it by likening a figure to a form. Hence there is no precise knowledge of any of God's works, except on the part of God, who does all these works. If we have any knowledge of them, we derive it from the symbolism and the mirror of mathematical knowledge . . ." Moreover, it appears that Cusa thought the fact that we can, though not with any precision, understand nature using mathematics, is no accident. God so created nature that we would be able to do this, that is, so that it would have, as it were, imprecise, finite measures within itself, which, even though they do not in any way adequately reveal the reality of the world, still make possible the conjectures and hypotheses by which men attain to a finite "understanding" of the world. So *DI* II 13: "In creating the world, God used arithmetic, geometry, music, and likewise astronomy. (We ourselves also use these arts when we investigate the comparative relationships of objects, of elements, and of motions.) For through arithmetic God united things. Through geometry he shaped them, in order that they would thereby attain firmness, stability, and mobility in accordance with their conditions . . . Who would not admire this Artisan, who with regard to firmness, stability, and mobility in accordance with their skill that there is--though without complete precision--both a harmony of all things and a diversity of all things? . . . With regard to these objects, which are so worthy of admiration, so varied, and so different, we recognize--through learned ignorance and in accordance with the preceding points--that we cannot know the rationale for any of God's works but can only marvel . . ." The last point establishes the Platonic root of Cusa's speculation. The real truth cannot be attained in the mathematical reflections of the *Timaeus*, which are only something like the truth, for one arrives at the real truth only through the dialectic of the *Republic*, which takes account of the end of creation (for Plato, the Form of the Good), not merely its mechanics. No end is ever considered in mathematics. Reality is at root purposeful (more precisely, it is ordered to God Himself), and so mathematics never grasps reality as it is in itself, even though it provides our only tool for understanding the natural world.

<sup>33</sup> Wolfgang von Breidert, "Mathematik und symbolische Erkenntnis bei Nikolaus von Kues" in *Mitteilungen und Forschungsbeiträge der Cusanus-Gesellschaft*, ed. Rudolf Haubst, 12 (1977), 116-26. This emphasizes the role of mathematics in Cusa in providing a way of knowledge of God. My paper picks up where Breidert leaves off.

<sup>34</sup> *DI I 6* offers a number of confused arguments for the necessity of God's existence (that he exists at all seems presupposed there), but for the approach I give here see *DI I 25.85*: "since God is the being of things, He exists independently of things in a way other than through abstraction. (By comparison, prime matter exists independently of things only through the abstracting intellect.)" Similarly, *DI I 4.11* argues for the perfect actuality of God, which surely presupposes His existence: "For whatsoever things are apprehended by the senses, by reason, or by intellect differ both within themselves and in relation to one another in such a way that there is no precise equality among them. Therefore, Maximum Equality, which is neither other than nor different from anything, surpasses all understanding. Hence, since the absolutely Maximum is all that which can be, it is *altogether actual*".

<sup>35</sup> *Op. Cit.* 14-16.

<sup>36</sup> For a good non-technical account of non-standard analysis, and reference to more technical treatments, see Philip J. Davis and Reuben Hersh, *The Mathematical Experience* (Boston: Houghton-Mifflin, 1981), 237-54.

<sup>37</sup> Jasper Hopkins, *A Concise Introduction to the Philosophy of Nicholas of Cusa* (Minneapolis: University of Minnesota, 1978), 19-28 and notes. The texts cited from *De posset* here are all cited in these pages. To deal with a few more of them: In several places Cusa says we cannot form a concept of God, for to do this we would have to conceive all that can possibly be conceived (*DP 41*). All he means is that we cannot form a concept of God as he is. The argument does not rule out either an infinitesimally adequate concept of God's being (as long as we can conceive *some* being), or a relative concept grounded in His power. Hopkins comes close to getting it right on 23-4 when he says that according to Cusa's doctrine although we cannot construct a concept of God we can state a rule how it is to be constructed. But then he returns to asserting that in Cusa there is no positive concept of God at all, reiterating his theme of Cusa's overemphasis on negative theology. The assertion is unwarranted. All Cusa intends is that we cannot form a concept of God that is any more than infinitesimally positive, and that even such concepts need to be approached with the caution that their inevitable creaturely negative element is not befitting of God at all.

<sup>38</sup> *Ibid.*, para. 75, 152-3.

<sup>39</sup> *Ibid.*, para. 74, 150-2.

<sup>40</sup> Cusa thought the coincidence of opposites in God an especially strong point against Aristotelian pretensions to knowledge of Him, for discursive reason can only violate Aristotle's principle of non-contradiction in attempting to grasp this. Perhaps his point is that by discursive reason we can only form notions of limited being, and so we cannot conceive God as the coincidence of opposites with discursive reason, though perhaps we can understand that he is. Sometimes Cusa says that an "*intellectus*" of this can be attained, apparently meaning a non-discursive conception of God. Aristotelians sometimes used "*intellectus*" for the immediate awareness of the truth of a first principle. See the *Apologia doctae ignorantiae*, in Hopkins translation, *Nicholas of Cusa's Debate with John Wenck* (Minneapolis: Arthur J. Banning, 1981), 46, 51-2. [*Nicolai de*

*Cusa Opera Omnia* vol. II, ed. Raymond Klibansky (Leipzig: Felix Meiner Verlag, 1932) 6, 14-15.]

<sup>41</sup> I must confess I have found no out-and-out statement that the being of a line is its length in Cusa, but it explains too much to be far off the mark. He at least proceeds as if its being were its length.

<sup>42</sup> DI I 12.33. Cited in Note 11. We arrive at the notion of the maximum by considering the relations of finite mathematical entities to one another, discovering that there is no greatest figure or number, but rather an infinite ascending series of them, and then postulating an upper boundary, a limit for the infinite series. The postulation of a limit is conceived as very different from any ordinary mathematical operation, which will only get us further along in the series. This is all precisely paralleled in the transfinite set theories of modern mathematics.

<sup>43</sup> DI I 14.97. See note 10.

<sup>44</sup> DI I 16.45-46. "Therefore, the Infinite Essence is the most congruent and most precise measure of all essences. That you may see this more clearly, consider: If an infinite line were constituted by an infinite number of one-foot sections and if another infinite line were constituted by an infinite number of two-foot sections, these lines would nevertheless have to be equal, since the infinite is not greater than the infinite. Therefore, just as in an infinite line one foot is not shorter than two feet [since one foot stands in the same proportion to the infinite line as two feet does]; so it is not the case that an infinite line exceeds the length of one foot more than it exceeds the length of two feet [for the same reason]. Rather, since any part of the infinite is infinite, one foot of an infinite line is convertible with the whole infinite line, just as are two feet". The last move is too slick by half. It seems to rest on the notion that if the finite is not part of the infinite, it must somehow be the whole, since it stands in *some* relation to it. It is not precisely or absolutely the whole, of course, so Cusa must think it is the whole contractedly. This whole approach seems modeled in part after the Aristotelian theory of the continuum. There a point is no part of the line it belongs to, nor can any number of points make up a line, however short. Cusa continues the discussion in 17.47: "Still more on the same topic: A finite line is divisible, and an infinite line is indivisible; for the infinite, in which the maximum coincides with the minimum, has no parts. However, a finite line is not divisible to the point that it is no longer a line, because in the case of magnitude we do not arrive at a minimum than which there cannot be a lesser--as was indicated earlier. Hence a finite line is indivisible in its essence (*ratio*); a line of one foot is not less than is a line of one cubit. It follows, then, that an infinite line is the essence of a finite line".

<sup>45</sup> DI I 17.47. Cited in previous note. I have supplied the second premise. Without it the argument seems impossible. Chapters 16-18 are full of intriguing remarks on participation not dealt with here.